



# BAV Circular

Heft 2 - 2018

## Ephemeriden

Unterlagen für die Planung der Veränderlichenbeobachtungen, Informationen zu allen BAV-Programmen und Empfehlungen zur Beobachtung

### Julianisches Datum 2018

|            | Jan | Feb | Mrz | Apl | Mai | Jun | Jul | Aug | Spt | Okt | Nov | Dez |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2458 000 + | 119 | 150 | 178 | 209 | 239 | 270 | 300 | 331 | 362 | 392 | 423 | 453 |

jeweils für den Nullten des Monats um 12 Uhr Weltzeit

### Umwandlung von Julianischen Tagesbruchteilen in MEZ

| JD   | .00d  | .10d  | .20d  | .30d  | .40d  | .50d  | .60d  | .70d  | .80d  | .90d  |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| .00d | 13 00 | 15 24 | 17 48 | 20 12 | 22 36 | 01 00 | 03 24 | 05 48 | 08 12 | 10 36 |
| .01  | 13 14 | 15 38 | 18 02 | 20 26 | 22 50 | 01 14 | 03 38 | 06 02 | 08 26 | 10 50 |
| .02  | 13 29 | 15 53 | 18 17 | 20 41 | 23 05 | 01 29 | 03 53 | 06 17 | 08 41 | 11 05 |
| .03  | 13 43 | 16 07 | 18 31 | 20 55 | 23 19 | 01 43 | 04 07 | 06 31 | 08 55 | 11 19 |
| .04  | 13 58 | 16 22 | 18 46 | 21 10 | 23 34 | 01 58 | 04 22 | 06 46 | 09 10 | 11 34 |
| .05  | 14 12 | 16 36 | 19 00 | 21 24 | 23 48 | 02 12 | 04 36 | 07 00 | 09 24 | 11 48 |
| .06  | 14 26 | 16 50 | 19 14 | 21 38 | 00 02 | 02 26 | 04 50 | 07 14 | 09 38 | 12 02 |
| .07  | 14 41 | 17 05 | 19 29 | 21 53 | 00 17 | 02 41 | 05 05 | 07 29 | 09 53 | 12 17 |
| .08  | 14 55 | 17 19 | 19 43 | 22 07 | 00 31 | 02 55 | 05 19 | 07 43 | 10 07 | 12 31 |
| .09  | 15 10 | 17 34 | 19 58 | 22 22 | 00 46 | 03 10 | 05 34 | 07 58 | 10 22 | 12 46 |

Alle Vorhersagen (Ephemeriden) in Heft 2 sind in MEZ angegeben.

Während der Sommerzeit muss daher bei den Ephemeriden eine Stunde hinzugerechnet werden, um zur dazugehörigen Uhrzeit zu gelangen.

## Inhaltsverzeichnis

- 1 **Julianisches Datum und Tagesbruchteile**
- 2 **Veränderungen gegenüber dem Vorjahr und Erläuterung der Ephemeriden-Tabelle**
- 4 **Ephemeriden für die BAV-Programme**
  - Bedeckungsveränderliche "Standardprogramm 2010" S1
  - Bedeckungsveränderliche "Langperiodische 2010" L1
  - Bedeckungsveränderliche "Erwünschte Beobachtungen"
    - Selten beobachtete Sterne ES
    - Die Elemente sind unbekannt oder fraglich EU
    - Der Stern hat eine exzentrische Bahn mit Apsidendrehung EX
    - Das (B-R)-Diagramm zeigt sehr viel Dynamik ED
  - RR-Lyrae-Sterne Standardprogramm RR
  - RR-Lyrae-Sterne Programm 1990 90
- 74 **Ephemeriden für das BAV-Programm Mirasterne**

### Veränderungen gegenüber dem Vorjahr

keine

### Erläuterung der Ephemeriden-Tabelle

#### Ephemeriden für Bedeckungsveränderliche und RR-Lyrae-Sterne (ab Seite 4)

Die Tabelle ist nach Monaten gegliedert. In den Zeilen sind jeweils die Veränderlichen, in den Spalten die Tage des Monats dargestellt.  
Für Bedeckungsveränderliche werden die Zeitpunkte der Minima und für RR-Lyrae-Sterne die Zeitpunkte der Maxima angegeben.

Nach dem Sternnamen wird der Kürzel für das BAV-Beobachtungsprogramm angegeben. Es folgt die Spalte "P" mit einer Beobachtungspriorität.  
Vorhersagen werden angegeben, wenn die Minima bzw. Maxima nach Sonnenuntergang bzw. vor Sonnenaufgang eintreten und der Veränderliche dann eine Höhe von mindestens 20 Grad über dem Horizont hat. Die Vorhersagen wurden für einen mittleren Ort in Deutschland (10 Grad östliche Länge, 50 Grad nördliche Breite) berechnet .

In den letzten Zeilen jeder Seite wird für jeden Tag das Julianische Datum angegeben.

**Priorität**      1 = Der Stern wurde noch nie innerhalb der BAV beobachtet  
                    2 = Der Stern wurde seit über 2000 Tagen (rund 6 Jahre) nicht mehr innerhalb der BAV beobachtet  
                    3 = Der Stern wurde seit über 1000 Tagen (rund 3 Jahre) nicht mehr innerhalb der BAV beobachtet

#### Tagesbruchteile

In der Spalte des Tages sind Julianische Tagesbruchteile (TB) eingetragen, die zum Teil ( bei einem Tagesbruchteil größer 46 ) für den folgenden bürgerlichen Tag gelten.  
Damit aber alle Erscheinungen einer Nacht in einer Spalte stehen, wird so getan, als ob um Mitternacht kein bürgerlicher Datumswechsel stattfindet.  
Eine Tabelle zur Umrechnung der Tagesbruchteile in MEZ befindet sich auf der Titelseite.

---

#### Impressum

Herausgeber: Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV), Munsterdamm 90, 12169 Berlin, zentrale@bav-astro.de  
Redakteur: Andreas Barchfeld (V.i.S.P.)  
Druck: Copy King, Unter den Eichen 57, 12203 Berlin

Redaktionsschluss: November 2017

## Erläuterung der Ephemeriden-Tabelle

### zu Ephemeriden für Bedeckungsveränderliche und RR-Lyrae-Sterne (ab Seite 4)

#### Zusätzliche Kennzeichen

- +** Sind aufgrund der Kürze der Periode mehrere Erscheinungen pro Nacht sichtbar, wurde hinter die Vorhersage ein "+" gesetzt.
- s** Ein Nebenminimum wird durch "s" hinter dem Tagesbruchteil markiert.
- \ /** Bei Bedeckungsveränderlichen vom Typ Algol, bei denen die Bedeckung länger als 36 Stunden dauert, werden neben dem Zeitpunkt des Minimums weitere Angaben gemacht: Der Beginn des Abstiegs wird zeitlich angegeben, gekennzeichnet durch ein "\" hinter dem Tagesbruchteil. Während des weiteren Abstiegs wird das Zeichen "/" weiterhin angegeben. Beim Anstieg wird entsprechend mit dem Kennzeichen "/" verfahren.
- \ /** Bei Beta-Lyrae-Sternen mit einer Periode länger als 16 Tage, wird nach der Hälfte des Abstiegs zusätzlich während des gesamten weiteren Abstiegs das Zeichen "\" angegeben. Beim Anstieg wird entsprechend mit dem Kennzeichen "/" verfahren.

#### Beispiel an Hand eines Ausschnitt aus der Tabelle vom Januar

| 2010 | Jan | 1   | 2   | 3   | 4   | 5   | 15  | 16  | 17  | 18  | 19  |     |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ari  | X   | RR  | 30  |     |     | 25  | 32  |     | 27  |     | 23  |     |
| Ari  | RS  | L10 |     |     |     | 20  |     |     |     |     |     |     |
| Ari  | AL  | E10 |     |     |     | 34  |     |     |     |     |     |     |
| Aur  | TZ  | 90  | 20+ | 38+ | 55  | 34+ | 51  | 30+ | 48  | 26+ | 44  | 22+ |
| Aur  | CQ  | L10 |     |     |     | 6   |     |     |     |     | 00s |     |
| Aur  | IY  | E10 |     |     |     | 50  |     |     | 47  |     |     |     |
| Boo  | TW  | 90  | 57  | 63  | 70  | 76  | 57+ | 47  | 53  | 60  | 45+ |     |
| Boo  | AC  | E10 | 65  | 53+ | 59+ | 64s | 52+ | 75  | 45+ | 51+ | 57+ |     |
| Cam  | SS  | E10 | 28  |     | 70s |     |     | 23+ |     | 16s | 38+ |     |
| Cnc  | RZ  | L10 |     |     |     |     |     | 72\ | \   | 34  | 97/ |     |

#### Beispiele

#### Lösungen

| Spalte | Angabe | Datum | MEZ   | Bemerkungen   |
|--------|--------|-------|-------|---|
| 4      | 20     | 4.1.  | 17:48 | Minimum von RS Ari  |
| 17     | 26+    | 17.1. | 19:14 | Maximum von TZ Aur, weitere sind in der Nacht sichtbar (+)  |
| 3      | 50     | 3.1.  | 01:00 | Minimum von IY Aur in der Nacht vom 3. / 4.1.   |
| 4      | 64s    | 4.1.  | 04:22 | Nebenminimum (s) von AC Boo in der Nacht vom 4. / 5.1.  |
| 15     | 72\    | 15.1. | 06:17 | Die Bedeckung dauert 77,9 Stunden (D = 77,9h).<br>Der Abstieg beginnt am 15.1. um 6:17, am 16.1. dauert der Abstieg an, das Minimum ist am 17.1. um 21:10, der Anstieg endet am 18.1. um 10:50. |
| 16     | \      |       |       |   |
| 17     | 34     | 17.1. | 21:10 |   |
| 18     | 97/    | 18.1. | 10:50 |   |

### Ephemeriden für Mirasterne (auf den letzten beiden Seiten)

**Kopfzeilen** Unter der Abkürzung des Monatsnamens geben die Zahlen "123" die Dekaden des Monats an.

**M** Ein Maximum wird vorhergesagt

**m** Ein Minimum wird vorhergesagt

| 2018 | Jan   | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |
|------|-------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| And  | SW    | RR |    | 45  | 33  | 22  |     | 43  | 31  | 20  |     | 41  | 29  |     | 39  | 27  |     |     | 37  | 25  |     |     | 35  | 23  |     |     | 33  | 21  |     |     | 31  |     |     |     |
| And  | SY    | L1 | 1  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 68\ | 73  |     |     |     |
| And  | TW    | S1 |    |     |     | 22s |     | 29  |     | 35s |     | 41  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| And  | XX    | 90 |    | 27  |     | 44  |     |     | 33  |     | 49  | 22  |     | 39  |     | 28  |     |     | 45  |     | 34  |     |     | 23  |     | 40  |     |     | 29  |     | 45  |     |     |     |
| And  | OV    | 90 | 27 | 21  |     |     |     | 44  | 38  | 33  | 27  | 21  |     |     | 44  | 38  |     | 33  | 27  | 21  |     |     | 44  | 38  | 33  | 27  | 21  |     |     |     |     |     |     |     |
| Aqr  | SW    | RR | 3  |     | 19  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Aqr  | SX    | 90 |    |     |     |     |     |     |     |     |     |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Aqr  | CD    | ES |    |     |     | 4   |     |     |     | 87  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Aqr  | HH    | 90 | 2  |     | 26  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Aqr  | LL    | L1 | 3  |     |     |     |     | 30  |     |     |     |     |     |     |     |     |     | 39s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Aql  | V889  | L1 |    |     |     |     |     |     | 24  |     |     |     | 18s |     |     |     |     |     | 36  |     |     |     | 30s |     |     |     |     |     |     | 48  |     |     |     |     |
| Aql  | V1353 | ES |    |     |     |     |     |     |     |     |     | 76  |     |     |     |     |     |     |     |     |     |     | 78s |     |     |     |     | 74  |     |     |     |     |     |     |
| Aql  | V1426 | ES |    |     |     |     |     | 41  | 59s | 18+ | 35+ | 53s | 11+ | 29+ | 46  | 5+  | 23+ | 40+ | 58s | 17+ | 34+ | 52  | 10+ | 28+ | 45s | 4+  | 22+ | 39+ | 57  | 15+ | 33+ | 50s | 9+  |     |
| Aql  | V1430 | ES |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     |     | 76  |     |
| Ari  | X     | RR | 3  | 44  |     | 39  |     | 35  |     | 30  |     | 25  | 21  |     | 46  |     |     | 42  |     |     |     |     | 28  |     | 23  |     |     |     |     | 44  |     |     | 39  |     |
| Ari  | RS    | L1 | 2  |     |     | 83  |     |     |     |     |     |     |     |     | 63  |     |     |     |     |     |     |     |     | 43  |     |     |     |     |     |     |     |     | 24  |     |
| Ari  | AL    | ES |    |     |     |     | 33  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Aur  | TZ    | 90 | 3  | 49  | 27+ | 45  | 23+ | 41  | 19+ | 36+ | 54  | 32+ | 50  | 28+ | 46  | 24+ | 41  | 20+ | 37  | 55  | 33+ | 51  | 29+ | 46  | 25+ | 42  | 21+ | 38  |     |     |     |     |     |     |
| Aur  | CQ    | L1 | 3  |     |     | 56  |     |     |     |     | 87s |     |     |     |     |     | 18  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 11s |     |     |
| Aur  | IY    | ES |    |     |     | 37  |     |     |     |     |     |     |     |     |     |     | 54  |     | 34  |     |     |     |     |     |     |     |     |     |     | 51  |     |     | 30  |     |
| Aur  | V432  | ES |    | 67s |     | 21  |     |     | 29  |     |     | 37  |     |     | 45  |     |     | 54  |     |     | 62  |     |     |     | 24s |     |     | 32s |     |     | 40s |     |     |     |
| Boo  | RS    | RR |    | 59  | 72  |     | 61  | 74  | 63  | 76  | 51  | 65  | 78  | 53  | 67  |     | 55  | 68  |     | 57  | 70  |     | 59  | 72  | 48  | 61  | 74  | 49  | 63  | 76  | 51  | 65  |     |     |
| Boo  | TW    | 90 |    | 73  | 79  |     |     |     | 52  | 58  | 65  | 71  | 78  |     |     |     | 50  | 57  | 63  | 70  | 76  |     | 72  | 63  | 55  |     | 75  | 66  | 57  | 49  |     | 47  | 54  |     |
| Boo  | UU    | 90 |    | 64  | 55  |     | 75  |     | 67  | 58  |     | 78  | 69  | 61  | 52  |     |     | 72  | 63  | 55  |     |     | 75  | 66  | 57  | 49  | 77  | 69  | 60  | 51  |     |     |     |     |
| Boo  | UY    | 90 |    | 69  |     | 64  | 60  |     |     |     |     |     |     | 76  |     | 71  |     |     | 66  |     | 61  | 57  |     |     | 52  |     | 77  |     | 73  | 68  |     | 63  |     |     |
| Boo  | AC    | ED |    | 64s | 52+ | 58+ | 63  | 51+ | 57+ | 63  |     |     | 51+ | 56+ | 62s | 50+ | 56+ | 62  | 50+ | 56+ | 44+ | 49+ | 55+ | 43+ | 49+ | 49+ | 55+ | 43+ | 49+ | 54+ | 42+ | 48+ | 54+ | 42+ |
| Boo  | CM    | 90 |    | 61  |     | 65  |     | 70  |     | 74  |     |     |     |     |     | 57  |     |     |     | 66  |     |     | 71  |     | 53  | 75  |     | 58  |     | 62  |     |     |     |     |
| Boo  | CQ    | 90 |    | 74  |     | 72  | 69  |     | 66  | 79  | 64  | 76  | 61  | 74  | 58  | 71  |     |     | 68  |     | 66  | 78  | 63  | 76  | 60  | 73  | 58  | 70  | 55  | 68  | 52  | 65  |     | 62  |
| Boo  | CS    | 90 |    |     | 61  | 72  |     |     | 59  | 70  |     |     |     |     |     |     | 57  | 68  |     | 55  | 66  | 77  |     |     | 53  | 64  | 75  |     | 51  | 62  | 73  |     |     |     |
| Cam  | SS    | ES |    | 94  |     |     | 35s | 76  |     |     | 18s |     | 59  |     | 00s |     |     | 41  |     | 82s |     |     | 23  |     | 64s |     | 6   |     | 47s |     | 88  |     |     |     |
| Cam  | SV    | S1 |    | 36+ | 25+ | 43+ | 32+ | 21+ | 40+ | 29+ | 47+ | 36+ | 25+ | 44+ | 33+ | 22+ | 40+ | 29+ | 48+ | 37+ | 26+ | 44+ | 33+ | 22+ | 41+ | 30+ | 49s | 38+ | 27+ | 45+ | 34+ | 23+ | 42+ | 31+ |
| Cam  | AK    | ES | 3  | 67  | 79s |     |     |     |     | 24s | 35  | 47s | 58  | 69s |     |     |     |     |     | 26  | 37s | 49  | 60s | 71  |     |     |     |     | 28s | 39  | 51s | 62  | 73s |     |
| Cam  | AN    |    |    |     |     |     |     |     |     | 43s |     |     |     | 8   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 43s |     |     |     |     |
| Cam  | AT    | ES |    | 47s |     | 57  | 26s | 66s | 36  | 75  | 45s | 55  | 24s | 64s | 34  | 73  | 43s |     |     | 52  | 22s | 62s | 32  | 71  | 41s | 50  |     | 60s | 30  | 69  | 39s |     | 48  |     |
| Cnc  | S     | L1 | 3  |     |     |     |     | 97  |     |     |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     | 94  |     |     |     |     |     |     |     |
| Cnc  | RU    | L1 | 2  |     |     | 75  |     |     |     |     |     |     |     |     |     | 92  |     |     |     |     |     |     |     |     |     |     | 9   |     |     |     |     |     |     |     |
| Cnc  | RW    | 90 |    | 36  | 46  | 55  | 65  | 74  |     | 38  | 48  | 57  | 67  | 76  | 31  | 40  | 50  | 59  | 69  | 78  | 33  | 42  | 52  | 61  | 71  |     | 35  | 44  | 54  | 63  | 72  | 27  | 37  |     |
| Cnc  | RZ    | L1 | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     | 54\ | \   | 16  | 78/ |     |     |     |     |     |     |     | 36\ | 98s | /   | 61/ |     |     |     |
| Cnc  | TT    | 90 |    | 37  | 50  | 62  |     | 44  | 57  | 69  |     |     | 38  | 51  | 64  |     | 33  | 46  | 58  |     |     | 40  | 53  | 65  |     | 34  | 47  | 60  | 29  | 42  | 54  |     | 67  |     |
| JD   | 581   | .. |    | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |

| 2018 | Jan  | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Cnc  | TU   | ES | 3 |     |     |     | 26  |     |     |     |     | 82  |     |     |     |     | 39  |     |     |     |     | 95  |     |     |     |     | 51  |     |     |     |     |     |     |     |  |
| Cnc  | ZZ   | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 28\ | 30  | 32/ |     |  |
| Cnc  | AQ   | 90 |   | 69  |     |     | 43  | 53  | 62  | 72  |     | 37  | 46  | 56  | 66  |     | 40  | 50  | 59  | 69  |     | 34  | 43  | 53  | 63  |     |     | 37  | 47  | 56  | 66  |     | 31  |     |  |
| CVn  | W    | 90 |   | 74  |     |     | 50  | 60  | 70  |     |     | 57  |     | 67  | 77  |     | 53  | 63  | 74  |     |     | 50  | 60  | 70  |     | 46  | 57  | 67  | 77  |     | 43  |     | 53  |     |  |
| CVn  | Z    | 90 |   | 53  |     | 49  |     | 46  | 76  | 42  | 73  |     | 69  |     | 65  |     | 61  | 57  |     |     | 54  | 50  |     | 46  | 77  | 42  | 73  | 38  | 69  | 34  | 65  |     | 61  |     |  |
| CVn  | RS   | S1 |   |     |     |     |     |     | 72s |     |     |     |     | 51s |     |     |     |     |     |     | 71  |     |     |     | 51  |     |     |     |     |     |     |     | 70s |     |  |
| CVn  | RZ   | 90 |   | 72  |     |     | 56  | 69  |     |     |     | 53  | 66  |     | 50  | 63  | 77  | 47  | 61  | 74  |     | 44  | 58  | 71  |     | 55  | 68  |     |     | 52  | 66  |     |     |     |  |
| CMa  | R    | S1 | 3 |     |     |     | 54s |     |     |     | 51  |     |     |     | 49s |     |     | 46  |     |     |     |     |     |     |     | 42  |     |     |     | 39s |     | 29  | 30  | 32  |  |
| CMi  | AM   | ES |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | RX   | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 21  | /   | /   | /   | /   | /   |     |  |
| Cas  | RZ   | S1 |   | 65  |     |     |     | 23  | 43  | 63  |     |     |     | 21  | 41  | 60  |     |     |     |     | 38  | 58  | 77  |     |     | 36  | 55  | 75  |     |     |     | 33  |     | 53  |  |
| Cas  | SX   | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     | 37\ | \   | 20  | /   | 03/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | TV   | S1 |   | 76  |     | 57  |     | 38  |     | 20  |     |     |     |     |     | 45  |     | 26  |     |     |     |     |     | 70  |     | 51  |     |     |     |     |     | 76  |     |     |  |
| Cas  | TW   | S1 |   |     | 32  | 75  |     |     | 61  |     |     |     | 46  |     | 32  | 75  |     | 61  |     |     |     | 46  |     |     | 32  | 75  |     |     |     |     |     | 46  |     |     |  |
| Cas  | TX   | ES |   | 38  |     |     |     | 31  | 77s |     | 24  | 70s |     | 63s |     |     | 55s |     | 48s |     |     | 41s |     |     |     | 33s | 26s | 73  |     |     |     | 65  |     |     |  |
| Cas  | AQ   | L1 | 3 |     |     |     |     |     |     | 77\ | 83  | 88/ |     |     |     | 63\ | 69s | 74/ |     |     |     |     | 49\ | 55  | 60/ |     |     | 35\ | 41s | 46/ |     |     |     |     |  |
| Cas  | BM   | L1 | 3 |     |     |     |     |     |     |     | 18  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | DN   | ES |   |     |     |     | 33s | 48  | 64s | 79  |     |     |     | 26s | 42  | 57s | 73  |     |     |     |     | 35  | 51s | 66  |     |     |     | 28  | 44s | 59  | 75s |     |     | 49  |  |
| Cas  | GG   | ES |   |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | GU   | EU |   | 45  |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 29  |     |  |
| Cas  | IL   | ES |   |     |     |     | 61  |     |     |     |     |     |     |     |     |     | 51  |     |     |     |     | 41  |     |     |     |     | 32  |     |     |     |     | 77  |     |     |  |
| Cas  | IT   | EX |   |     |     |     |     |     |     |     |     |     |     |     |     |     | 46  |     | 36  |     |     |     | 26  |     | 41s |     | 30s |     |     |     |     |     |     |     |  |
| Cas  | OX   | EX |   |     | 26s | 55  | 75s |     |     | 24s | 53  | 73s |     |     |     |     | 21s | 51  | 70s |     |     | 49  | 68s |     |     | 47  | 66s |     |     | 45  | 64s |     |     |     |  |
| Cas  | PV   | EX |   |     | 59s | 42  | 34s |     |     |     |     | 42  |     | 34s |     |     | 67  |     | 42  | 34s |     |     |     |     | 68  | 43  | 34s |     |     | 68  |     |     | 43  |     |  |
| Cas  | V368 | ES |   |     | 50  |     | 73s |     |     |     |     |     |     |     | 41  |     | 63s |     |     |     |     |     |     | 31  |     | 54s |     |     |     |     |     | 21  |     |     |  |
| Cas  | V375 | ED |   |     | 62s | 36  |     | 57s | 30  | 78  | 51s | 25  | 72  | 46s | 20  | 67  | 41s |     | 62  | 35s |     | 56  | 30s | 77s | 51  | 25s | 72s | 46  |     | 67s | 41  |     | 62s | 35  |  |
| Cas  | V381 | EX |   |     |     |     | 51  |     | 33s | 26  |     |     |     |     | 49  | 31s | 24  |     |     |     |     |     | 48  | 29s | 22  |     |     | 46  | 28s | 21  |     |     |     |     |  |
| Cas  | V459 | L1 |   |     |     | 75  |     |     |     | 91s |     |     |     |     |     |     | 21  |     |     |     |     |     | 37s |     |     |     |     |     |     |     |     | 12  |     |     |  |
| Cep  | RZ   | 90 |   | 44+ | 36+ | 29+ | 21+ | 45+ | 37+ | 30+ | 23+ | 46+ | 39+ | 31+ | 24+ | 47+ | 40+ | 32+ | 25+ | 48  | 41+ | 34+ | 26+ | 50  | 42+ | 35+ | 27+ | 51  | 43+ | 36+ | 29+ | 21+ | 45+ | 37+ |  |
| Cep  | VW   | S1 |   | 21+ | 32+ | 29+ | 27+ | 24+ | 22+ | 19+ | 30+ | 28+ | 25+ | 23+ | 20+ | 31+ | 29+ | 26+ | 24+ | 21+ | 32+ | 30+ | 27+ | 25+ | 22+ | 33+ | 31+ | 28+ | 25+ | 23+ | 34+ | 32+ | 29+ | 26+ |  |
| Cep  | XX   | S1 |   | 51  |     |     |     |     | 19  |     | 52  |     |     |     |     | 20  | 54  |     |     |     |     |     | 21  |     | 55  |     |     |     |     |     | 22  | 56  |     |     |  |
| Cep  | XY   | ES |   |     | 69  |     | 46  |     |     |     | 24  |     |     |     |     |     |     | 56  |     |     |     | 34  |     |     |     |     |     |     | 66  |     |     |     | 43  |     |  |
| Cep  | ZZ   | S1 |   |     | 39  |     | 53  |     | 67  |     |     |     |     |     |     |     | 24  |     | 38  |     |     | 52  | 67  |     |     |     |     |     |     |     |     | 23  |     |     |  |
| Cep  | AI   | ES |   |     |     |     |     |     |     |     |     | 22s |     |     |     |     | 34  | 45s |     |     |     |     |     |     |     |     |     |     |     | 24  |     |     | 35s |     |  |
| Cep  | CW   | EX |   |     |     | 60  |     |     |     | 32  | 61s |     |     | 34s | 78  |     | 51  |     |     |     |     | 24  | 52s |     |     | 25s | 70  | 43  | 71s |     |     | 44s |     |     |  |
| Cep  | EI   | L1 |   |     | 38  |     |     |     | 60s |     |     | 82  |     |     |     |     | 4s  |     |     |     |     |     | 26  |     |     | 48s |     |     | 70  |     |     |     |     | 92s |  |
| Cep  | EX   | L1 | 2 |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | NN   | ES |   |     |     |     |     |     |     |     | 21  | 24s | 27  | 29s | 32  | 35s | 38  | 41s | 44  | 47s | 50  | 53s | 56  | 59s | 61  | 64s | 67  | 70s | 73  | 76s |     |     |     |     |  |
| Cet  | RR   | RR | 2 | 22  | 33  |     |     |     | 20  | 30  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 21  | 32  |     |     |     |     |  |
| JD   | 581  | .. |   | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |  |

| 2018 | Jan   | P   | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22 | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |
|------|-------|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cet  | RV    | 90  | 2 |     |     |     | 28  |     |     |     |     | 26  |     |     |     |     | 25  |     |     |     |     | 24  |     |    |     | 22  |     |     |     |     |     | 21  |     |     |     |
| Cet  | TU    | ES  | 2 |     | 86  |     |     |     | 25  |     |     |     | 64  |     |     |     |     | 3   |     |     |     | 42  |     |    | 82  |     |     |     |     |     | 21  |     |     |     |     |
| Cet  | TV    | L1  |   |     | 54s |     |     |     | 15  |     |     |     | 65s |     |     |     |     | 26  |     |     |     | 75s |     |    | 36  |     |     |     |     |     | 85s |     |     |     |     |
| Cet  | XY    | ES  | 2 |     |     |     | 35  |     |     |     |     |     |     | 30s |     |     |     |     |     |     |     | 26  |     |    | 43s |     | 21s |     |     |     |     | 38  |     |     |     |
| Com  | S     | 90  |   |     | 62  | 79  |     | 55  | 72  |     | 48  | 66  |     |     | 59  | 76  |     | 52  | 70  |     | 46  | 63  |     |    | 56  | 74  | 50  | 67  |     | 43  | 60  | 60  |     |     |     |
| Com  | ST    | 90  |   | 62  |     |     | 62  |     |     | 61  |     |     | 61  |     |     | 60  |     |     | 60  |     |     | 59  |     |    | 58  |     | 58  |     |     |     | 57  | 77  |     |     |     |
| CrB  | U     | S1  |   |     | 74  |     |     |     |     |     |     | 64  |     |     |     |     |     |     | 55  |     |     |     |     |    |     |     |     |     |     |     |     |     | 72  |     |     |
| CrB  | RV    | 90  |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 78  | 78  | 77  | 77  | 77 | 76  | 76  | 75  | 75  | 74  | 74  | 73  | 73  | 72  |     |     |
| Crt  | W     | 90  | 2 | 64  |     | 70  |     |     |     | 65  |     |     |     |     | 59  | 65  |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | UY    | RR  |   |     |     | 21  |     |     |     |     | 26  |     |     |     |     |     |     |     |     |     |     | 23  |     |    |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | XZ    | RR  |   | 40  | 34  | 27+ | 20+ | 60  |     |     |     | 33  | 27+ | 20+ | 60  |     |     | 33  | 27+ | 20+ | 60  |     |     |    | 33  | 27+ | 67  | 60  | 53  |     |     |     |     |     |     |
| Cyg  | BO    | ES  |   |     | 34s | 22  |     |     |     |     |     | 37s | 25  |     |     |     |     |     |     |     |     |     |     |    | 30  |     |     |     |     |     |     |     |     | 32  |     |
| Cyg  | BR    | ES  |   |     | 23s |     | 23  | 22s |     | 22  |     |     | 22s |     | 22  |     | 22s |     | 22  |     |     |     |     |    | 22s | 21  | 21s |     |     | 21  |     |     | 21s |     |     |
| Cyg  | DM    | RR  |   | 27  |     |     | 20  | 30  |     |     | 24  |     |     |     |     | 28  |     |     |     |     |     |     |     |    | 26  |     |     |     |     |     |     |     | 24  |     |     |
| Cyg  | EM    | K1  | 3 | 24  |     |     |     | 19+ |     | 23  |     |     | 72  |     | 75  |     | 21  |     |     |     |     |     |     |    | 77  |     |     | 72  |     |     | 75  |     |     |     |     |
| Cyg  | V367  | L1  | 2 |     |     |     | \   | \   | \   | 30  | /   | /   |     |     |     |     | \   | \   | 60s | /   | /   |     |     |    | \   | \   |     |     |     |     |     |     |     |     |     |
| Cyg  | V463  | ES  |   |     |     |     |     | 23  |     |     |     |     |     |     |     |     | 76s |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V477  |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 75s |     |     |     |     |     |    |     | 74  |     |     |     |     |     |     |     |     |     |
| Cyg  | V541  | L1  |   |     |     |     |     | 83s |     |     |     |     |     |     |     |     | 14  |     |     |     |     |     |     |    | 17s |     |     |     |     |     |     |     | 48  |     |     |
| Cyg  | V548  | ES  |   | 33  | 23s |     |     | 74  | 65s |     |     | 35  | 26s |     |     | 77  |     | 67s |     |     |     |     |     |    |     | 70s | 60  |     |     |     |     | 31s | 21  |     |     |
| Cyg  | V788  | L1  |   |     |     |     |     |     |     | 95  | 91  | 87/ |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V891  | ES  |   |     | 78  |     |     |     |     |     |     |     |     |     |     | 21  |     |     |     |     |     |     |     |    |     | 74  |     |     |     |     |     |     |     |     |     |
| Cyg  | V909  | ES  |   |     |     |     |     |     | 76  |     |     |     |     |     |     | 77s |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V1061 | ES  |   |     |     |     | 28  |     |     |     |     |     |     | 32  |     | 67  |     |     |     |     |     |     |     |    |     |     |     |     |     |     | 75  |     |     |     |     |
| Cyg  | V1918 | ED  | 3 | 30+ | 33+ | 78  | 19  | 22+ | 26+ | 29+ | 32+ | 77s | 21+ | 25+ | 28+ | 31+ | 76  |     |     |     |     |     |     |    |     | 71  |     |     |     |     |     |     |     |     |     |
| Del  | DX    | 90  |   |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |
| Dra  | RW    | RR  |   | 52  |     | 29+ | 62  | 51  |     | 28+ | 61  | 49  | 27+ | 59  | 48  |     | 25+ | 58  | 47  |     |     | 24+ | 57  | 45 | 78  | 22+ | 55  | 44  | 77  | 21+ | 54  | 43  | 75  | 64  |     |
| Dra  | SU    | RR  |   | 31  | 63  | 29  | 61  | 27  | 59  | 25  | 57  | 23  | 55  | 21  | 53  |     | 51  | 50  |     |     | 48  | 46  |     |    | 78  | 44  | 76  | 42  | 74  | 40  | 72  | 38  | 70  | 36  | 69  |
| Dra  | SW    | RR  |   | 48  | 62  | 19+ | 33  | 47  | 61  | 74  | 31  | 45  | 59  | 73  | 30  | 44  | 58  | 72  | 29  | 43  | 57  | 71  | 28  |    | 42  | 56  | 70  | 27  | 40  | 54  | 68  | 25  | 39  | 53  | 67  |
| Dra  | TZ    | ED  |   | 74s |     |     | 77  | 20+ |     |     | 23+ |     | 26+ |     |     | 73s | 60s |     |     |     |     |     |     |    | 22+ |     | 69  | 55  |     |     | 72s | 59s |     | 75  | 62  |
| Dra  | VZ    | 90  |   | 73  | 69  | 65  | 30+ | 26+ | 22+ | 19+ | 47+ | 43+ | 72  | 68  | 64  | 61  | 25+ | 21+ | 50  | 46+ | 42+ | 71  | 67  | 63 | 59  | 24+ | 52  | 48  | 45+ | 41+ | 37+ | 66  | 62  | 58  |     |
| Dra  | WW    | S1  | 3 |     |     |     |     |     |     |     | 49  |     |     |     |     |     |     |     |     |     |     |     |     |    | 38  |     |     |     |     |     |     |     |     |     | 64  |
| Dra  | XZ    | RR  |   | 42  | 37  | 33  | 28+ | 23+ | 66  | 61  | 57  | 52  | 47  | 43  | 38  | 33  | 28+ | 24+ | 67  | 62  | 57  | 53  | 48  |    | 43  | 38  | 34  | 29+ | 24+ | 67  | 63  | 58  | 53  | 48  | 44  |
| Dra  | Al    | S1  |   |     |     | 19  |     | 59  | 79  |     | 19  |     |     | 59  | 78  |     |     |     |     |     |     |     |     |    |     |     | 57  | 77  |     |     |     |     | 57  | 77  |     |
| Dra  | BF    |     |   |     |     |     |     |     |     |     | 65  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     | 28s |
| Dra  | BK    | 90  |   | 19+ | 37  | 56  | 74  | 33  | 52  | 70  | 29  | 48  | 66  | 25  | 44  | 62  | 21  | 40  | 58  | 77  | 36  | 54  | 73  | 32 | 50  | 69  | 28  | 46  | 65  | 24  | 42  | 61  |     | 39  |     |
| Dra  | BU    | ES  |   |     | 53s |     | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    | 67s | 58  | 50s |     |     | 41  |     |     |     |     |     |
| Dra  | DD    | 90  |   | 39+ | 37+ | 35+ | 33+ | 31+ | 29+ | 27+ | 25+ | 23+ | 21+ | 19+ | 50  | 48  | 46  | 44+ | 42+ | 40+ | 38+ | 36+ | 34+ |    | 32+ | 30+ | 28+ | 27+ | 25+ | 23+ | 21+ | 49  | 47  | 45  |     |
| Dra  | EX    | K1  |   | 23+ | 28+ | 33+ | 38+ | 22+ | 27+ | 32+ | 37+ | 21+ | 26+ | 31+ | 36+ | 20+ | 25+ | 30+ | 35+ | 40+ | 24+ | 29+ | 34+ |    | 39+ | 23+ | 28+ | 33+ | 38+ | 22+ | 27+ | 32+ | 37+ | 21+ | 25+ |
| JD   | 581   | ... |   | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40 | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |     |

| 2018 | Jan  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Dra  | GV   | L1 | 3   |     |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Eri  | SV   | 90 | 2   |     | 31  |     |     |     | 31  |     |     |     |     | 31  |     |     |     |     | 30  |     |     |     |     |     | 30  |     |     | 30  |     |     |     |     |     |     |    |
| Gem  | U    | K1 | 3   | 32+ | 38+ | 44+ | 33+ | 39+ | 28+ | 34+ | 40+ | 28+ | 34+ | 41+ | 29+ | 35+ | 41+ | 30+ | 36+ | 24+ | 30+ | 37+ | 25+ | 31+ | 37+ | 26+ | 32+ | 38+ | 27+ | 33+ | 21+ | 27+ | 33+ | 22+ |    |
| Gem  | RR   | 90 | 3   | 35+ | 54  | 33+ | 52  | 32+ | 51  | 30+ | 50  | 29+ | 48  | 28+ | 47  | 26+ | 46  | 25+ | 44  | 24+ | 43  | 22+ | 42  | 21+ | 40  | 20+ | 39  | 58  | 37  | 57  | 36  | 55  | 35  | 54  |    |
| Gem  | RY   | L1 | 3   |     |     |     | 29s |     |     |     | 94  |     |     |     |     | 59s |     |     |     |     |     | 24  |     |     |     | 89s |     |     |     |     |     |     |     |     |    |
| Gem  | SZ   | 90 | 3   | 59  | 59  | 59  | 59  | 60  | 60  | 60  | 60  | 61  | 61  | 61  | 61  | 62  | 62  | 62  | 62  | 62  | 62  | 63  | 63  | 63  | 63  | 64  | 64  | 64  | 64  | 64  | 65  | 65  | 65  | 65  | 66 |
| Gem  | WW   | ES |     | 37  | 61  | 23s | 47s |     | 32  | 56  |     | 42s | 65s | 27  | 51  |     | 37s | 61s | 22  | 46  |     | 32s | 56s |     | 41  |     | 27s | 51s |     | 37  | 60  | 22s | 46s |     |    |
| Gem  | YY   | S1 |     | 64  | 45  | 27+ | 49s | 30+ | 52  | 34+ | 56s | 37s | 60  | 41  | 22+ | 45s | 26+ | 48  | 30+ | 52s | 33s | 55  | 37  | 59s | 40s | 22+ | 44  | 25+ | 47s | 29+ | 51  | 32  | 55s | 36s |    |
| Gem  | V339 | EU | 2   |     |     | 68  |     |     | 56  |     |     | 45  |     |     | 33  |     | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Her  | TX   | S1 |     |     |     |     |     |     |     |     |     |     |     | 59s | 62  | 65s | 68  | 71s | 74  | 77s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Her  | UX   | ED |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     | 74s |     |     |     |     | 71  |     |     |     |     |    |
| Her  | VX   | RR |     |     |     | 77  | 69  |     |     |     |     | 78  | 69  |     |     |     | 70  |     | 61  |     |     |     | 71  |     |     |     | 72  |     |     |     |     |     | 73  | 64  |    |
| Her  | VZ   | 90 | 66  |     |     | 75  | 63  |     |     |     | 71  |     |     | 79  | 67  |     | 75  | 64  |     |     |     | 72  | 60  |     |     | 68  | 56  |     |     |     |     | 73  | 61  |     |    |
| Her  | AK   | S1 |     | 70  | 75s |     |     | 70s | 75  |     |     | 71  |     | 76s |     | 71s | 76  |     | 66s | 71  | 77s |     |     | 67  | 72s | 77  |     | 67s |     | 62s | 67  | 73s |     |     |    |
| Her  | AR   | 90 |     |     |     | 75  | 69  | 63  | 57  | 51  |     |     |     | 74  | 68  | 62  | 56  | 50  |     |     |     | 73  |     | 67  | 61  | 55  | 49  |     | 77  | 71  | 65  | 59  |     | 53  |    |
| Her  | AW   | L1 |     |     |     | 97  |     |     |     |     |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     | 57  |     |     |     |     |     |     |     |     | 37  |    |
| Her  | DI   | L1 |     | 90  |     |     |     |     |     |     |     |     |     | 2s  | 45  |     |     |     |     |     |     |     |     |     | 57s | 00  |     |     |     |     |     |     |     |     |    |
| Her  | GU   | EU |     |     | 65s |     |     |     |     |     |     |     |     |     |     |     | 68s |     |     |     |     |     |     |     |     |     |     |     |     |     | 71s |     |     |     | 56 |
| Her  | LV   |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 13  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Her  | MM   | ES | 76  |     |     |     | 74s |     |     |     |     | 72  |     |     |     |     | 70s |     | 68  |     |     |     |     | 66s |     |     | 64  |     |     |     |     |     |     |     |    |
| Hya  | SZ   | 90 | 2   | 63  |     |     |     | 47  | 54  | 61  |     |     |     |     | 45  | 52  | 60  |     |     |     |     | 43  |     | 51  | 58  |     |     |     | 42  | 49  | 57  |     |     |     |    |
| Hya  | WZ   | 90 | 2   |     | 53  | 60  | 68  |     |     |     |     | 52  | 59  | 67  |     |     |     |     | 51  | 58  | 66  |     |     |     |     | 50  | 57  |     |     |     |     | 49  |     | 56  |    |
| Hya  | AI   | L1 |     |     |     | 31  |     |     |     |     | 1s  |     |     |     | 60  |     |     |     | 30s |     |     |     |     |     |     | 59s |     |     |     |     | 18  |     |     |     |    |
| Hya  | ET   | 90 | 2   |     |     | 46  |     | 52  |     |     | 58  | 63  |     |     |     |     | 43  |     | 49  |     |     | 54  |     | 60  |     |     |     | 40  |     | 46  |     | 51  |     |     |    |
| Lac  | RW   | L1 |     |     | 68  |     |     |     |     |     | 80s |     |     |     |     | 5   |     |     |     |     |     |     |     |     |     |     | 42  |     |     |     |     | 54s |     |     |    |
| Lac  | SW   | S1 | 30s | 26+ | 22+ | 34  | 31  | 27  | 23+ | 19+ | 32s | 28s |     | 24+ | 20+ | 32  | 29  | 25  | 21+ | 33s | 30s | 26s | 22+ | 34  | 30  | 27  | 23  | 35s | 31s | 28s | 24s |     | 32  | 28  |    |
| Lac  | UW   | ES |     |     | 35  |     |     |     |     | 64  |     |     |     |     |     |     | 93  |     |     |     |     |     |     |     |     |     | 51  |     |     |     |     |     |     |     |    |
| Lac  | CO   | EX |     | 43s | 23  | 77  | 51s | 31  |     |     | 40  |     |     |     | 48  | 23s | 77s |     | 31s |     |     | 39s |     | 73  | 48s | 28  |     | 36  |     |     |     | 44  |     | 73s |    |
| Lac  | CZ   | 90 | 48  | 34+ | 20  |     | 36  | 23  |     | 39  | 25  |     |     | 41  | 28  |     | 44  | 30+ |     |     |     | 33+ |     | 35+ | 22  |     | 38  | 24  |     | 40  | 26+ |     |     | 29+ |    |
| Lac  | V345 | EX | 40  |     |     | 5s  |     |     |     |     | 90  |     |     | 54s |     |     |     |     | 39  |     |     | 4s  |     |     |     | 88  |     | 53s |     |     |     |     |     | 37  |    |
| Lac  | V364 | EX |     |     | 34  |     |     | 47  | 37  | 73  | 64  | 54  |     | 45  | 35  | 71  | 61  | 52  | 42  | 78  | 68  | 59  | 49  | 40  | 76  | 66  | 57  | 47  | 38  | 73  | 64  | 54  | 45  | 35  |    |
| Leo  | RR   | RR | 3   | 73  | 61  |     |     | 74  |     | 62  |     | 50  |     | 75  |     | 63  | 51  | 76  |     | 64  |     | 52  |     | 77  |     | 65  | 53  |     | 66  |     | 54  |     |     |     |    |
| Leo  | SS   | RR | 2   | 72  | 67  | 63  | 58  | 54  | 50  |     |     |     |     | 75  | 71  | 67  | 62  | 58  | 53  | 49  | 45  |     |     |     | 75  | 70  | 66  | 62  | 57  | 53  | 48  | 44  |     |     |    |
| Leo  | ST   | RR |     |     |     |     |     |     |     |     | 55  |     |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Leo  | WY   | ES |     |     | 57  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Leo  | AG   | ES | 63  |     |     |     |     | 72s |     | 42  |     |     |     |     |     |     | 51s |     |     |     |     |     |     |     |     |     | 68s |     | 38  |     |     |     |     | 47s |    |
| Leo  | AM   | S1 | 46+ | 55+ | 47+ | 57+ | 48+ | 58+ | 49+ | 59+ | 50+ | 60+ |     | 52+ | 43+ | 53+ | 44+ | 54+ | 45+ | 55+ | 47+ | 56+ | 48+ | 58+ | 49+ | 40+ | 50+ | 42+ | 51+ | 43+ | 53+ | 44+ | 54+ | 45+ |    |
| Leo  | FM   | EU | 3   |     |     |     |     |     |     |     | 67  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyn  | TY   | ES |     |     |     |     |     |     | 28  |     |     |     |     | 61  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| JD   | 581  | .. | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |     |    |

| 2018 | Jan   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Lyn  | CD    | ES |     | 33  |     | 60s |     |     |     |     |     |     | 43  | 70s |     |     |     | 25s | 52  |     |     |     |     |     |     |     |     | 35s | 62  |     |     |     |     |     |    |
| Lyr  | RR    | RR | 22+ |     |     |     | 19+ |     |     |     | 72  |     |     | 69  | 26  |     |     | 66  | 22  |     |     |     | 76  |     |     |     |     | 73  |     |     | 70  |     |     |     |    |
| Lyr  | RZ    | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 67  | 69  | 71  | 73  | 76  | 78  |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyr  | UZ    | S1 |     | 26s | 21  |     |     |     |     |     |     | 77  | 72s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 74s | 69  | 63s |     |     |    |
| Lyr  | CN    | 90 |     | 21  |     |     |     | 74  |     | 79  |     |     |     | 73  |     |     |     |     | 67  |     | 72  |     |     |     |     | 66  |     | 72  |     |     |     |     |     |     |    |
| Lyr  | EZ    | RR |     | 69  | 22+ | 79  |     |     |     |     |     |     | 67  | 20+ | 77  |     |     |     |     |     |     |     | 65  | 70  | 75  |     |     |     |     |     |     |     |     |     |    |
| Lyr  | IO    | 90 | 3   |     |     | 76  |     |     |     |     |     |     | 68  |     |     | 72  |     |     |     |     |     | 76  |     |     |     |     | 65  |     |     |     | 73  |     |     |     |    |
| Lyr  | beta  | S1 |     |     |     |     |     |     | 68  |     |     |     |     |     | 15s |     |     |     |     |     |     | 62  |     |     |     |     |     |     | 9s  |     |     |     |     |     |    |
| Mon  | UX    | ES | 2   | 86  |     |     | 81s |     |     | 76  |     |     | 71s |     | 67  |     |     |     |     |     |     | 62s |     |     | 52s |     | 48  |     |     | 43s |     |     |     |     |    |
| Mon  | VV    | ES | 2   |     |     | 57  |     |     | 59s |     |     | 62  |     |     | 64s |     |     | 67  |     |     | 69s |     |     | 72  |     | 74s |     |     | 77  |     |     | 79s |     |     |    |
| Mon  | AQ    | ES | 2   |     |     |     | 55  |     |     |     | 37s |     |     |     |     | 46s |     |     |     |     | 55s |     |     | 37  |     |     |     |     | 46  |     |     |     |     |     |    |
| Mon  | AR    | L1 | 1   | 53\ | 38  | 23\ |     |     |     |     |     |     |     | 14\ | 83\ |     |     |     |     |     |     |     | 74\ | 59  | 43\ |     |     |     |     |     |     |     |     |     |    |
| Mon  | AT    | ES | 2   |     |     |     |     |     |     |     |     |     | 37  |     | 40  | 42  |     |     | 45  |     | 48  | 51  |     | 54  |     |     |     |     |     |     |     |     |     |     |    |
| Mon  | AV    | ES | 2   |     |     |     | 94  |     |     |     | 41s |     |     | 88  |     |     | 36s |     |     |     | 83  |     |     | 31s |     |     | 78  |     |     |     | 25s |     |     |     |    |
| Mon  | EZ    | EU | 3   | 39  | 52s |     | 40  | 53s | 41  | 53s |     |     | 42  | 54s |     | 42  | 55s | 43  | 56s | 31s | 44  |     | 32s | 45  | 33s |     | 46  | 34s | 47  |     |     | 35s |     |     |    |
| Mon  | IL    | ES | 2   | 92  |     |     |     | 95  |     |     | 97  |     |     |     |     |     |     |     |     |     | 3   |     |     | 5   |     |     |     | 8   |     |     |     | 10  |     |     |    |
| Mon  | V448  | ES |     |     | 33  | 45  | 57  |     |     | 37s | 48s | 60s |     | 28  | 40  | 52  |     |     | 31s | 43s | 55s |     |     | 35  | 46  |     | 26s | 38s | 50s |     |     | 29  |     |     |    |
| Mon  | V530  | EU | 3   | 57  | 35+ | 41s | 46s | 51s | 56s | 35+ | 40  | 45  | 50  | 29+ | 34+ | 39s | 44s | 49s | 28+ | 33+ | 38  | 43  | 49  | 27+ | 32+ | 38s | 43s | 48s | 27+ | 32+ | 37  | 42  | 47  | 26+ |    |
| Mon  | V536  |    |     |     | 55s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |     |    |
| Mon  | V634  | EU |     |     |     |     |     |     | 39  |     | 50  |     | 62  |     |     |     |     |     |     |     |     |     |     |     | 30  |     | 42  |     | 53  |     |     |     |     |     |    |
| Oph  | U     | ST |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     | 74  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Oph  | ST    | 90 | 2   |     |     |     |     |     |     |     | 75  |     |     |     |     |     |     |     |     |     |     | 76  |     |     | 71  |     |     | 77  |     |     |     |     |     |     |    |
| Ori  | Z     | ES | 2   |     | 31  |     |     |     |     | 51  |     |     |     |     | 72  |     |     |     |     |     |     |     |     |     |     | 12  |     |     |     |     | 33  |     |     |     |    |
| Ori  | BM    | ES |     |     |     |     | 2   |     |     |     |     |     | 49  |     |     |     |     |     | 96  |     |     |     |     |     | 43  |     |     |     |     |     |     | 91  |     |     |    |
| Ori  | CP    | ES | 2   |     |     |     |     | 27  |     |     |     |     | 59  |     |     |     |     | 91  |     |     |     |     |     | 23  |     |     |     | 55  |     |     |     |     |     |     |    |
| Ori  | DN    | L1 | 2   |     |     |     |     | 79  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | EW    | EX |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45s |     |     |     |     |     |     |    |
| Ori  | FO    | L1 | 2   |     |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | FT    | EX |     | 47s | 51  |     | 62s | 66  |     |     |     |     |     |     |     |     |     |     |     |     |     | 23s | 26  |     | 38s | 41  |     | 53s | 57  |     |     |     |     |     |    |
| Ori  | GG    | EX |     |     |     | 56  |     |     |     | 40s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     | 29s |     |     |     |     |     |    |
| Ori  | V536  | ES | 2   |     |     |     |     | 39  |     |     | 55  |     |     |     |     |     |     |     |     |     |     |     |     | 20  |     |     | 37  |     |     |     |     |     |     |     |    |
| Ori  | V1016 | L1 | 3   |     |     |     |     |     |     |     | 78  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | V1031 | ES | 2   |     |     |     |     |     |     |     |     |     |     |     | 38s |     |     |     |     |     | 49  |     |     |     |     |     |     |     |     |     | 41s |     |     |     |    |
| Peg  | U     | S1 |     | 27  | 21+ | 33s | 27  | 21+ | 33s | 27  | 20s | 33s | 27  | 20s | 33s | 26  | 20s | 33s | 26  | 20s | 33s | 26  | 20s | 32s | 26  | 20s | 32s | 26  | 20s | 32s | 25  | 32s | 25  | 32s | 25 |
| Peg  | VV    | RR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Peg  | VV    |    |     |     |     |     |     | 83  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Peg  | AV    | RR |     |     | 32  |     | 27  |     |     | 22  |     |     |     |     | 29  |     | 25  |     |     |     |     |     |     |     |     |     |     |     | 90  |     |     |     |     |     |    |
| Peg  | AW    | L1 |     |     |     |     | 40  |     |     |     |     | 71s |     |     |     |     |     | 20  |     |     |     |     |     | 27  |     | 23  |     |     |     |     |     | 25  |     |     |    |
| Peg  | BH    | 90 |     |     | 24  |     |     |     |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     | 34s |     |     | 65  |     |     |     |     | 96s |     |    |
| JD   | 581   | .. |     | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |    |



| 2018 | Jan   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Peg  | BK    | ES |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     | 32  |     |     |     |     |     |     |     |     |     |     | 30  |     |     |     |     |     |     |  |
| Peg  | CG    | 90 |     |     | 33  | 26  | 20  |     |     |     |     |     | 27  | 20  |     |     |     |     |     | 28  | 21  |     |     |     |     |     |     | 22  |     |     |     |     |     |     |  |
| Peg  | DF    | L1 |     |     |     |     |     |     | 6   |     |     |     |     |     |     |     |     |     |     |     |     |     | 76  |     |     |     |     |     |     |     |     |     |     |     |  |
| Peg  | DH    | RR | 3   |     |     | 19  | 21  | 23  | 26  | 28  |     |     |     |     |     |     |     | 20  | 22  | 24  |     |     |     |     |     |     |     |     | 21  |     |     |     |     |     |  |
| Peg  | GH    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 28  |     |     |     |     |     | 23s |     |     |     |     |     |     |     |     |     |     |     |  |
| Peg  | IP    | K1 | 34  | 29  | 23  | 34  | 29  | 24  | 19+ | 30  | 25  | 20+ | 30  | 25  | 20  | 31  | 26  | 21  | 31  | 26  | 21  | 32  | 27  | 22  | 33  | 28  | 23  |     | 28  | 23  |     | 29  | 24  |     |  |
| Per  | RW    | L1 | 2   |     |     | 94  |     |     |     |     |     |     |     |     |     |     |     |     |     | 14  |     |     |     |     |     |     |     |     |     |     |     | 33  |     |     |  |
| Per  | RY    | ES |     |     | 49  |     |     |     |     |     | 35  |     |     |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     | 51s |     |     |     |     |     |     |  |
| Per  | AG    | EX | 33  | 30s | 36  | 33s | 39  | 36s | 42  | 39s | 45  | 42s | 48  | 45s | 50  | 47s | 53  | 50s | 56  | 53s |     | 56s |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | AR    | 90 | 35  | 20+ | 48  | 33  | 61  | 46  | 31  | 59  | 44  | 29  | 57  | 42  | 27  | 54  | 39  | 25  | 52  | 37  | 22+ | 50  | 35  | 20+ | 48  | 33  | 61  | 46  | 31  | 59  | 44  | 29  | 57  |     |  |
| Per  | AY    | L1 |     |     |     |     | 68  |     |     |     |     |     |     |     |     |     |     | 46  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 24  |     |  |
| Per  | IQ    |    | 34  |     |     |     | 61s | 57  | 36s | 32  |     |     |     | 59s | 55  | 33s | 29  |     |     |     | 56s | 52  | 30s | 26  |     |     |     | 54s | 50  | 28s | 24  |     |     |     |  |
| Per  | KN    | EU | 22  | 52s | 38s | 25s | 55  | 42  | 28  | 58s | 45s | 32s |     | 48  | 35  | 22  | 52s | 38s | 25s | 55  | 41  | 28  |     | 45s | 31s |     | 48  | 35  | 21  | 51s | 38s | 25s | 55  |     |  |
| Per  | LX    | L1 |     |     |     |     | 84  |     |     |     | 86s |     |     |     |     | 88  |     |     | 89s |     |     |     | 91  |     |     |     | 93s |     |     |     |     | 95  |     |     |  |
| Per  | beta  | S1 |     | 59s |     |     | 46s |     |     | 33s |     |     | 20s |     |     | 50  |     |     |     | 36  |     |     | 23  |     |     |     | 53s |     |     | 40s |     |     | 27s |     |  |
| Psc  | RU    | 90 | 24  | 41  | 19  | 36  |     | 32  |     | 27  | 44  | 22  | 39  |     | 34  | 30  |     | 25  | 42  | 20  | 37  |     | 32  |     | 27  |     | 23  | 40  |     | 35  |     | 30  |     |     |  |
| Psc  | RY    | 90 | 2   | 32  |     |     |     |     |     | 20  | 26  | 32  |     |     |     |     |     | 21  | 27  |     |     |     |     |     |     |     | 21  | 27  |     |     |     |     |     |     |  |
| Psc  | SS    | 90 | 30  | 45  | 31  | 47  | 33  | 19  | 34  | 21  | 36  | 22  | 37  | 24  | 39  | 25  | 40  | 26  | 42  | 28  | 43  | 29  |     | 31  |     | 32  |     | 34  |     | 35  | 22  | 37  | 23  |     |  |
| Sge  | SY    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     | 78  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | VY    | RR |     | 75  |     |     |     |     | 75  |     |     |     |     | 74  |     |     |     | 74  |     |     |     |     | 74  |     |     |     |     | 74  |     |     |     | 60  |     |     |  |
| Ser  | AN    | 90 | 77  |     |     |     |     |     |     |     | 65  |     | 69  | 74  | 78  |     |     |     |     |     |     |     | 61  | 65  | 70  | 74  |     |     |     |     |     |     |     |     |  |
| Ser  | BH    | 90 | 73  |     |     | 77  | 64  |     |     | 68  |     |     | 72  | 59  |     | 76  | 63  |     |     | 67  |     |     | 72  | 58  |     | 76  | 63  |     |     | 67  | 54  |     | 71  |     |  |
| Ser  | EG    | L1 |     |     |     |     | 80s |     |     |     |     | 77  |     |     |     |     |     |     |     |     |     | 72  |     |     |     |     | 69s |     |     |     |     |     | 67  |     |  |
| Ser  | LX    | K1 | 69  | 65  | 75  | 71  | 66  | 61+ | 72  | 67  | 62+ | 73  | 68  | 63  | 74  | 69  | 64  | 59+ | 70  | 65  | 60+ | 71  | 66  | 61+ | 56+ | 67  | 62  | 57+ | 68  | 63  | 58+ | 69  | 64  |     |  |
| Sex  | T     | 90 | 55  | 52  | 50  | 47  | 45  | 74  | 72  | 69  | 67  | 64  | 61  | 59  | 56  | 54  | 51  | 48  | 46  | 43  | 41  | 71  | 68  | 65  | 63  | 60  | 58  | 55  | 52  | 50  | 47  | 45  | 42  |     |  |
| Tau  | RW    | S1 | 3   | 52  |     |     | 29  |     |     |     |     |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     |     |     |     | 44  |     |     |     | 21  |     |  |
| Tau  | CD    | S1 | 3   |     |     |     | 54s | 26  |     |     |     |     | 41s |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 30  |     |  |
| Tau  | EN    | ES | 2   | 30  | 54s |     |     | 26  | 49s |     |     |     | 21  | 45s |     |     |     |     | 41s |     |     |     |     |     |     |     |     | 36s | 60  |     | 32s | 56  |     |     |  |
| Tau  | V1094 | L1 |     | 85s |     |     | 97  |     |     |     |     | 84s |     |     |     | 96  |     |     |     |     |     |     |     |     |     |     |     | 95  |     |     |     | 81s |     | 93  |  |
| Tri  | X     | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 46  | 43  | 40  | 37  | 34  | 31  | 29  | 26  | 23  |     |     |     |     |  |
| Tri  | RU    | ES | 2   | 52  |     |     |     | 42s |     |     |     |     | 32  |     |     |     |     | 23s |     |     | 50s |     |     |     |     | 40  |     |     |     |     |     | 30s |     |     |  |
| Tri  | UX    | 90 |     | 53  | 46  | 39  | 33  | 26  | 20  |     |     | 46  | 40  | 33  | 27  | 20  |     |     | 47  | 40  | 34  | 27  | 20  |     |     |     | 41  | 34  | 27  | 21  |     |     |     |     |  |
| UMa  | W     | S1 | 24+ | 24+ | 24+ | 24+ | 24+ | 24+ | 24+ | 24+ | 24+ | 25+ | 25+ | 25+ | 25+ | 25+ | 25+ | 25+ | 25+ | 25+ | 25+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 26+ | 27+ |  |
| UMa  | RV    | RR | 50  | 44  | 38  | 78  | 72  | 65  | 59  | 52  | 46  | 40  |     | 74  | 67  | 61  | 55  | 48  | 42  | 35  | 76  | 69  | 63  | 57  | 50  | 44  | 38  | 31  | 72  | 65  | 59  | 52  | 46  |     |  |
| UMa  | RW    | ES |     |     |     |     | 74s |     |     |     | 41  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 73s |     |     |     |     | 39  |     |  |
| UMa  | TU    | RR | 77  |     | 44  | 56  | 67  | 79  | 46  | 57  | 69  |     | 47  |     |     | 53  |     | 38  | 50  | 61  | 73  |     | 40  | 52  | 63  | 75  |     | 42  | 54  | 65  | 77  |     |     |     |  |
| UMa  | TX    | S1 | 3   |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     | 72  |     |     |     |     |     |     |     |     |  |
| UMi  | W     | S1 | 3   |     | 66  |     | 36  |     |     | 76  |     | 46  |     |     |     |     |     | 26  |     |     |     |     | 37  |     |     |     | 77  |     | 47  |     |     |     |     |     |  |
| Vir  | ST    | 90 | 2   | 64  |     | 69  |     | 74  |     |     | 62  |     | 67  |     | 73  |     | 78  | 60  |     | 66  |     | 71  |     | 77  | 59  |     | 64  |     | 69  |     | 75  | 57  |     |     |  |
| JD   | 581   | .. | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |     |  |

| 2018 | Jan | P  | 1   | 2   | 3   | 4   | 5  | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |  |  |
|------|-----|----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Vir  | AG  | ED | 58s | 54  | 51s | 79s | 76 | 72s | 68  | 65s | 61  | 58s | 54  | 50s | 47  | 75  | 72s | 68  | 64s | 61  | 57s | 54  | 50s | 46  | 43+ | 71s | 68  | 64s | 61  | 57s | 53  | 50s | 46  |  |  |
| Vir  | AH  | S1 | 60  | 62s | 64  | 66s | 68 | 49+ | 51+ | 53+ | 55+ | 57+ | 58+ | 60  | 62s | 64  | 66s | 47+ | 49+ | 51+ | 53+ | 55+ | 57+ | 59s | 61  | 63s | 44+ | 46+ | 48+ | 50+ | 52+ | 53+ | 55+ |  |  |
| Vir  | AT  | 90 | 2   | 61  | 67  | 72  | 77 |     |     |     |     |     |     | 60  | 65  | 71  | 76  |     |     |     |     |     | 54  | 59  | 64  | 70  | 75  |     |     |     |     |     |     |  |  |
| Vir  | AV  | 90 |     | 64  |     | 61  |    | 58  |     | 55  |     |     |     |     |     | 78  |     | 75  |     | 72  |     | 69  |     | 66  | 63  |     |     | 60  |     | 57  |     |     | 55  |  |  |
| Vir  | CG  | ES | 74s | 67s |     |     |    |     |     | 75  | 69  | 62  |     |     |     | 77s |     | 70s | 64s |     |     |     |     | 78  | 72  | 65  | 59  |     |     |     |     | 73s | 67s |  |  |
| Vul  | Z   | S1 |     |     |     |     |    |     |     | 78  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Vul  | RR  | ES |     |     |     |     |    |     |     |     |     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Vul  | BN  | 90 |     |     |     |     |    |     |     | 21  |     |     | 78  |     | 75  |     |     |     | 72  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Vul  | DR  | EX |     |     |     |     |    | 26  |     |     |     | 77  |     |     |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     |     | 77  |     |     |     |  |  |
| Vul  | EV  | ES |     |     |     |     |    |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| JD   | 581 | .. | 20  | 21  | 22  | 23  | 24 | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  |  |  |

| 2018 | Feb   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |    |    |  |    |    |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|--|----|----|--|
| And  | SW    | RR |     |     | 29  |     |     |     | 27  |     |     |     | 25  |     | 35  | 23  |     |     |     | 33  |     |     |     | 31  |     |     |     |     | 29  |     |    |    |  |    |    |  |
| And  | SY    | L1 | 1   | 78/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |    |    |  |
| And  | TW    | S1 |     |     |     |     |     |     |     | 27  |     | 33s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |    |    |  |
| And  | XX    | 90 |     | 35  |     |     | 24  |     | 41  |     |     | 30  |     |     |     |     |     |     |     |     | 25  |     |     |     | 31  |     |     |     |     |     |    |    |  | 37 |    |  |
| And  | CD    | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 29\ | \   | 36  | /   | 43/ |     |     |     |     |     |    |    |  |    |    |  |
| And  | OV    | 90 | 33  | 27  |     |     |     |     |     | 38  | 33  | 27  |     |     |     |     |     |     |     | 33  | 27  |     |     |     |     | 33  |     | 27  |     |     |    |    |  |    |    |  |
| Aql  | V889  | L1 |     | 42s |     |     |     |     |     |     | 60  |     |     |     | 54s |     |     |     |     |     |     |     |     |     |     | 66s |     |     |     |     |    |    |  |    |    |  |
| Aql  | V1353 | ES |     |     |     |     |     |     |     | 76s |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |    |    |  |
| Aql  | V1426 | ES | 27+ | 44  | 3+  | 21+ | 38+ | 56s | 14+ | 32+ | 49  | 8+  | 26+ | 43s | 2+  | 19+ | 37+ | 54  | 13+ | 31+ | 48s | 7+  | 24+ | 42  | 1+  | 18+ | 36+ | 53s | 12+ | 30+ |    |    |  |    |    |  |
| Aql  | V1430 | ES |     |     |     |     |     |     | 75  |     |     |     |     |     | 74  |     |     |     |     |     |     |     |     | 73  |     |     |     |     |     |     |    |    |  |    |    |  |
| Ari  | X     | RR | 3   | 35  |     | 30  |     | 25  |     |     |     |     |     |     |     |     | 37  |     |     | 32  |     | 28  |     |     |     |     |     |     |     |     |    |    |  |    |    |  |
| Ari  | RS    | L1 | 2   |     |     |     |     |     |     |     | 4   |     |     |     |     |     |     |     |     | 84  |     |     |     |     |     |     |     |     |     |     |    |    |  |    | 65 |  |
| Ari  | AL    | ES |     |     |     | 30  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 29  |     |     |     |     |     |     |     |     |    |    |  |    |    |  |
| Aur  | TZ    | 90 | 3   | 43  | 61  | 39  | 56  | 35  | 52  | 31  | 48  | 26+ | 44  | 61  | 40  | 57  | 36  | 53  | 32  | 49  | 27  | 45  | 62  | 41  | 58  | 37  | 54  | 32  | 50  | 28  | 46 |    |  |    |    |  |
| Aur  | CQ    | L1 | 3   |     |     | 42  |     |     |     |     | 73s |     |     |     |     |     | 5   |     |     |     |     |     | 36s |     |     |     |     |     |     |     |    |    |  |    |    |  |
| Aur  | IY    | ES |     |     |     |     |     |     |     |     |     |     | 48  |     |     | 27  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |    |    |  |
| Aur  | V432  | ES |     | 48s |     |     | 57s |     |     |     |     |     |     |     |     |     |     | 35  |     |     | 43  |     |     |     | 52  |     |     |     |     |     |    |    |  |    |    |  |
| Boo  | RS    | RR | 53  | 66  |     | 55  | 68  | 44  | 57  | 70  | 46  | 59  | 72  | 48  | 61  | 74  | 49  | 63  |     | 51  | 64  | 40  | 53  | 66  | 42  | 55  | 68  | 44  | 57  | 70  |    |    |  |    |    |  |
| Boo  | TW    | 90 | 60  | 67  | 73  |     |     |     | 46  | 52  | 59  | 65  | 71  |     |     | 44  |     | 51  | 57  | 63  | 70  |     |     | 36  | 42  | 49  | 55  | 62  | 68  |     |    |    |  |    |    |  |
| Boo  | UU    | 90 | 71  | 63  | 54  | 45  |     | 74  | 65  | 57  | 48  |     |     | 68  | 59  | 51  |     |     |     | 71  | 62  | 53  | 45  |     | 73  | 65  | 56  | 47  |     |     |    |    |  |    | 67 |  |
| Boo  | UY    | 90 |     | 59  |     | 54  |     | 49  |     | 75  |     |     | 70  | 65  | 60  |     |     |     | 56  |     | 51  |     | 46  |     |     | 72  |     | 67  |     | 62  |    |    |  |    |    |  |
| Boo  | AC    | ED | 48+ | 53+ | 42+ | 47+ | 53+ | 41+ | 47+ | 53+ | 41+ | 46+ | 52+ | 40+ | 46+ | 51+ | 39+ | 45+ | 51+ | 39+ | 45+ | 51+ | 39+ | 45+ | 51+ | 39+ | 44+ | 50+ | 38+ | 44+ |    |    |  |    |    |  |
| Boo  | CM    | 90 | 67  |     | 50  | 71  |     | 54  | 76  |     | 59  |     |     | 63  |     | 46  | 68  |     |     | 51  | 72  |     | 55  |     |     | 60  |     | 42  |     | 64  |    | 47 |  |    |    |  |
| Boo  | CQ    | 90 | 75  | 60  | 72  | 57  | 70  | 54  | 67  | 52  | 64  | 49  | 62  | 74  | 59  | 72  | 56  | 69  | 54  | 66  | 51  | 64  | 48  | 61  | 46+ | 58  | 71  | 56  | 68  | 53  |    |    |  |    |    |  |
| JD   | 581   | .. | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |    |    |  |    |    |  |

| 2018 | Feb  | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |     |
|------|------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Boo  | CS   | 90 | 49 | 60  | 71  |     |     | 47  | 58  | 69  |     |     | 46  | 56  | 67  |     |     | 44  | 54  | 65  |     |     | 42  | 52  | 63  |     |     | 40  | 50  | 61  |     |
| Cam  | SS   | ES |    | 29s |     | 70  |     |     | 11s |     | 52  |     | 94s |     |     | 35  |     | 76s |     |     | 17  |     | 58s |     | 99  |     |     | 40s |     | 82  |     |
| Cam  | SV   | S1 | 49 | 38+ | 27+ | 46+ | 35+ | 24+ | 42+ | 31+ | 50s | 39+ | 28+ | 46s | 35+ | 24+ | 43+ | 32+ | 51  | 39+ | 28+ | 47  | 36+ | 25+ | 44+ | 33+ | 51s | 40+ | 29+ | 48s |     |
| Cam  | AK   | ES | 3  |     |     |     |     | 30  | 41s | 53  | 64s | 75  |     |     |     |     |     | 32s | 43  | 55s | 66  |     |     |     |     |     | 34  | 46s | 57  |     |     |
| Cam  | AN   |    |    | 8   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 42s |     |     | 8   |     |     |     |     |     |     |     |
| Cam  | AT   | ES |    | 58s | 28  | 67  | 37s |     | 46  |     | 56s | 26  | 65  | 35s | 74s | 44  |     | 54s | 23  | 63  | 33s | 72s | 42  |     | 52s |     | 61  | 31s | 70s | 40  |     |
| Cnc  | S    | L1 | 3  |     |     | 42  |     |     |     |     |     |     |     |     | 91  |     |     |     |     |     |     |     |     |     | 39  |     |     |     |     |     |     |
| Cnc  | RU   | L1 | 2  |     |     | 27  |     |     |     |     |     |     |     |     |     | 44  |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |
| Cnc  | RW   | 90 |    | 46  | 56  | 65  |     | 29  | 39  | 48  | 57  | 67  | 31  | 40  | 50  | 59  | 69  | 24  | 33  | 42  | 52  | 61  |     |     | 25  | 35  | 44  | 54  | 63  |     | 27  |
| Cnc  | RZ   | L1 | 2  |     |     |     |     | 18\ | 80  | /   | 43/ |     |     |     |     |     |     | 0\  | 63s | /   | 25/ |     |     |     |     |     |     |     | 82\ |     |     |
| Cnc  | TT   | 90 |    | 36  | 49  | 61  |     | 30  | 43  | 56  |     | 25  | 37  | 50  | 63  |     | 32  | 45  | 57  |     | 26  | 39  | 52  |     |     | 33  | 46  | 59  |     | 28  |     |
| Cnc  | TU   | ES | 3  | 7   |     |     |     | 63  |     |     |     |     |     | 19  |     |     |     |     |     | 75  |     |     |     |     |     | 32  |     |     |     | 88  |     |
| Cnc  | TW   | L1 | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 50\ | 56  | 62/ |     |
| Cnc  | UU   | L1 | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | \   | \   | \   | \   | \   | \   | \   | \   | \   | \   | \   |
| Cnc  | AQ   | 90 |    | 40  | 50  | 60  |     | 34  | 44  | 54  | 63  |     | 28  | 37  | 47  | 57  |     |     |     |     |     |     |     |     | 25  | 35  | 44  | 54  |     | 28  |     |
| CVn  | W    | 90 |    | 64  | 74  |     | 50  | 60  | 70  |     | 46  |     | 57  | 67  |     | 43  |     | 53  | 64  | 74  |     | 40  | 50  | 60  | 71  |     | 36  | 46  | 57  | 67  |     |
| CVn  | Z    | 90 |    | 58  |     | 54  |     | 50  | 70  |     | 46  | 42  | 73  | 39  | 69  | 35  | 66  | 31  | 62  |     | 58  |     |     | 54  |     | 50  | 46  |     | 43  | 73  |     |
| CVn  | RS   | S1 |    |     |     | 50s |     |     |     |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     |     |     | 69s |     |     |     |     | 49s |     |
| CVn  | RZ   | 90 |    | 49  | 63  | 76  |     | 47  | 60  | 73  |     | 44  | 57  | 71  |     | 54  |     | 68  |     | 38  | 52  | 65  |     |     | 35  | 49  | 62  | 46  | 59  |     |     |
| CMa  | R    | S1 | 3  | 37  |     |     | 34s |     |     |     | 32  | 46  |     |     |     | 43s |     |     |     |     |     |     |     |     | 41  |     |     | 36  |     |     |     |
| CMi  | AM   | ES |    | 34  | 36  | 38  | 40  | 42  | 44  | 46  | 48  | 50  | 52  | 53  | 55  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | RX   | L1 | 2  |     |     |     |     |     | \   | \   | \   | \   | 38s | /   | /   | /   | /   |     |     |     |     |     |     |     | \   | \   | \   | \   | 55  | /   |     |
| Cas  | RZ   | S1 |    | 73  |     |     | 31  | 51  | 70  |     |     |     | 29  | 48  | 68  |     |     |     |     | 26  | 46  | 65  |     |     |     | 24  | 44  | 63  |     |     |     |
| Cas  | SX   | L1 | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 94\ | \   | 77  | /   |     | 60/ |     |     |     |     |     |     |     |     |
| Cas  | TV   | S1 |    |     | 39  |     |     |     |     |     |     |     | 45  |     | 26  |     |     |     |     |     | 70  |     | 51  |     | 32  |     |     |     |     |     |     |
| Cas  | TW   | S1 |    | 32  | 75  |     | 60  |     |     | 46  |     |     | 32  | 74  |     | 60  |     |     |     | 46  |     |     | 31  | 74  |     | 60  |     |     | 46  |     |     |
| Cas  | TX   | ES |    |     | 58  |     | 51  |     |     | 43  |     |     | 36  |     |     | 29  | 75s |     |     | 68s |     |     | 60s |     |     | 53s |     |     | 46s |     |     |
| Cas  | AQ   | L1 | 3  | 22\ | 27  | 32/ |     |     | 8\  | 13s | 18/ |     |     | 94\ | 99  | /   | 4/  |     |     | 80\ | 85s | 91/ |     |     | 66\ | 71  | 77/ |     |     |     |     |
| Cas  | BM   | L1 | 3  | /   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | DN   | ES |    |     | 22  | 37s | 53  | 68s |     |     |     | 30s | 46  | 61s |     |     |     |     |     | 24s | 39  | 55s | 70  |     |     |     | 32  | 48s | 64  |     |     |
| Cas  | GG   | ES |    |     |     | 25  |     |     |     |     |     |     |     |     |     | 52  |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |
| Cas  | GU   | EU |    | 38  |     |     | 48  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | IL   | ES |    |     | 22  |     | 67  |     |     |     |     |     |     | 58  |     |     |     |     |     |     | 48  |     |     |     |     |     |     |     | 38  |     |     |
| Cas  | IT   | EX |    |     |     |     |     |     |     | 74  |     |     |     |     |     |     |     |     |     |     | 68s |     |     |     |     |     | 33  |     |     |     |     |
| Cas  | OX   | EX |    |     | 43  | 62s |     |     | 41  | 60s |     |     |     | 38  | 58s |     |     |     |     |     |     | 36  | 55s |     |     | 34  | 53s |     |     | 32  | 51s |
| Cas  | PV   | EX |    | 35s |     |     | 68  |     | 43  | 35s |     |     |     | 68  | 60s | 43  | 35s |     |     |     | 68  | 60s | 43  | 35s |     |     | 69  | 60s | 44  |     |     |
| Cas  | V368 | ES |    | 44s |     | 67  |     |     |     |     |     | 34s |     | 57  |     |     |     |     |     |     | 25s |     |     | 47  |     | 70s |     |     |     |     |     |
| Cas  | V375 | ED |    |     | 56s | 30  | 51s | 25  | 72  | 46s |     | 67  | 40s |     | 61  | 35s |     | 56  | 30s |     | 51  | 24s | 72s | 45  |     | 66s | 40  | 61s | 35  |     |     |
| Cas  | V381 | EX |    |     | 44  | 26s |     |     |     |     | 43  | 25s |     |     |     |     |     | 41  | 23s |     |     |     |     |     | 40  |     |     |     |     |     |     |
| JD   | 581  | .. | 51 | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |     |

| 2018 | Feb   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |     |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cas  | V459  | L1 |     | 29s |     |     |     | 58  |     |     |     | 75s |     |     |     | 4   |     |     |     |     | 21s |     |     | 50  |     |     |     | 66s |     |     |     |
| Cep  | RZ    | 90 | 30+ | 22+ | 46  | 38+ | 31+ | 24+ | 47  | 40+ | 32+ | 25+ | 48  | 41+ | 33+ | 26+ | 49  | 42+ | 35+ | 27+ | 51  | 43+ | 36+ | 28+ | 52  | 45  | 37+ | 30+ | 53  | 46  |     |
| Cep  | VW    | S1 | 24+ | 35+ | 33+ | 30+ | 27+ | 25+ | 22+ | 34+ | 31+ | 28+ | 26+ | 23+ | 34+ | 32+ | 29+ | 27+ | 24+ | 35+ | 33+ | 30+ | 28+ | 25+ | 36+ | 34+ | 31+ | 29+ | 26+ | 37+ |     |
| Cep  | XX    | S1 |     |     | 23  |     | 57  |     |     |     |     | 25  |     | 58  |     |     |     |     | 26  |     | 60  |     |     |     |     | 27  |     | 61  |     |     |     |
| Cep  | XY    | ES |     |     |     |     |     | 76  |     |     |     | 53  |     |     | 31  |     |     |     |     |     |     |     | 63  |     | 40  |     |     |     |     |     |     |
| Cep  | ZZ    | S1 | 38  |     | 52  |     | 66  |     |     |     |     |     |     |     |     | 23  |     | 37  |     | 51  |     | 65  |     |     |     |     |     |     |     |     |     |
| Cep  | AI    | ES |     |     |     |     | 69  |     |     |     |     |     |     |     |     |     |     | 25s |     | 36  |     |     |     | 59  |     | 70s |     |     |     |     |     |
| Cep  | CW    | EX |     |     | 62  |     |     | 35  | 63s |     |     | 36s |     |     |     | 53  |     |     | 26  | 54s |     |     | 27s | 72  |     |     | 45  | 73s |     |     |     |
| Cep  | EI    | L1 |     |     |     |     | 14  |     |     |     |     | 36s |     |     | 58  |     |     |     | 80s |     |     |     | 2   |     |     |     | 24s |     |     |     |     |
| Cep  | EX    | L1 | 2   |     | 15  |     |     |     |     |     |     |     |     |     |     |     |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cep  | NN    | ES |     |     |     |     |     |     |     |     |     |     |     | 23s | 26  | 29s |     | 31  | 34s | 37  | 40s | 43  | 46s | 49  | 52s | 55  | 58s | 61  | 64s | 66  |     |
| Cet  | RR    | RR | 2   |     | 30  |     |     |     | 27  |     |     |     |     | 25  |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     |
| Cet  | TU    | ES | 2   |     | 60  |     |     | 99  |     |     |     |     | 38  |     |     | 77  |     |     |     |     |     |     |     |     | 56  |     |     |     | 95  |     |     |
| Cet  | TV    | L1 |     |     | 46  |     |     |     | 96s |     |     |     |     | 57  |     |     |     |     |     |     |     |     | 67  |     |     |     |     | 16s |     |     |     |
| Cet  | XY    | ES | 2   |     |     |     |     | 33s |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Com  | S     | 90 |     | 53  | 71  |     | 47  | 64  |     | 40  | 57  | 75  |     | 51  | 68  |     | 44  | 61  |     | 37  | 55  | 72  |     | 48  | 65  |     | 41  | 59  |     | 34  |     |
| Com  | ST    | 90 | 57  |     |     | 56  | 76  |     | 56  | 76  |     | 55  | 75  |     | 55  | 75  |     | 54  | 74  |     | 54  | 73  |     | 53  | 73  |     | 53  | 72  |     | 52  |     |
| CrB  | U     | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 52  |     |     |     |     |     |     |
| CrB  | RV    | 90 | 71  | 71  | 70  | 70  | 69  | 69  | 68  | 68  | 67  | 67  | 66  | 66  | 65  | 65  | 64  | 64  | 64  | 63  | 63  | 62  | 62  | 61  | 61  | 60  | 60  | 59  | 59  | 58  | 58  |
| Crt  | W     | 90 | 2   | 54  |     | 60  |     |     |     |     |     | 61  |     |     |     |     | 55  |     |     |     |     |     |     |     |     |     |     | 50  |     |     |     |
| Cyg  | UY    | RR |     |     |     |     | 73  |     |     |     |     |     |     |     | 70  |     |     |     |     |     |     |     |     |     | 67  |     |     |     | 72  |     |     |
| Cyg  | XZ    | RR | 26+ | 66  | 60  | 53  |     |     |     | 26+ | 66  | 60  | 53  | 74s |     |     |     | 66  | 60  | 53  |     |     |     | 26+ | 66  | 59  | 53  | 46  |     |     |     |
| Cyg  | BO    | ES |     |     |     | 71s |     |     |     | 22s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 66  |     |     |     |
| Cyg  | BR    | ES | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 53  |     | 53s |     |
| Cyg  | DM    | RR | 75  |     |     |     |     |     |     |     | 73  |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     | 69  |     |     |     |     |
| Cyg  | EM    | K1 | 3   | 66  |     | 70  | 74  |     |     | 64  |     | 68  |     | 72  |     | 75  | 63  |     | 66  |     | 70  |     | 74  | 61  |     | 64  |     | 68  |     | 72  |     |
| Cyg  | V367  | L1 | 2   |     | \   | \   | \   | 20s | /   | /   |     |     |     | \   | \   | 50  | /   | /   |     |     |     |     | \   | \   | 79s | /   | /   | /   |     |     |     |
| Cyg  | V463  | ES |     | 70s | 76  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64s | 70  |     |     |     |     |     |     |     |     |     |
| Cyg  | V477  |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64s |     |     |     |
| Cyg  | V541  | L1 |     |     |     |     |     | 51s |     |     |     |     |     |     |     | 82  |     |     |     |     |     |     | 85s |     |     |     |     |     |     |     |     |
| Cyg  | V548  | ES |     |     | 72s | 63  |     |     |     | 24  |     |     |     | 75s | 65  | 56s |     |     | 26  |     |     |     |     | 68  | 58s |     |     |     |     |     |     |
| Cyg  | V788  | L1 | 88\ | 83  | 79\ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 80\ | 76  | 71\ |     |     |
| Cyg  | V891  | ES |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V909  | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63s |     |     |     |     |     | 64  |     |     |     |     |     |     |     | 66s |
| Cyg  | V1061 | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 56  |     |     |     |     | 26  |     |
| Cyg  | V1918 | ED | 3   | 70  | 73s | 56+ | 59  | 62s | 24+ | 69s | 72  | 55+ | 58s | 62  | 24+ | 68  | 71s | 54+ | 57  | 61s | 64  | 67s | 50+ | 53+ | 56s | 60  | 63s | 66  | 49+ | 52+ | 56  |
| Del  | DX    | 90 |     |     |     |     |     | 76  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 72  |     |     |     |     |
| Dra  | RW    | RR | 53  | 41  | 74  | 63  | 51  | 40  | 73  | 61  | 50  | 38  | 71  | 60  | 48  | 37  | 70  | 59  | 47  | 36  | 69  | 57  | 46  | 34  | 67  | 56  | 44  | 33  | 66  | 54  |     |
| Dra  | SU    | RR | 35  | 67  | 33  | 65  | 31  | 63  | 29  | 61  | 27  | 59  | 25  | 57  | 23  | 55  |     | 54  |     | 52  |     | 50  |     | 48  |     | 46  |     | 44  |     | 42  |     |
| JD   | 581   | .. | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |     |

| 2018 | Feb  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |     |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dra  | SW   | RR | 24  | 38  | 52  | 66  | 23  | 37  | 51  | 65  | 22  | 36  | 49  | 63  | 34  | 48  | 62  | 33  | 47  | 61  |     |     | 32  | 46  | 60  |     | 31  | 45  | 59  |     |     |
| Dra  | TZ   | ED |     |     | 65s |     |     | 68  | 54  |     | 71s | 58s |     | 74  | 61  |     |     | 64s | 50s |     | 67  | 54  |     | 70s | 57s | 73  |     | 60  | 46  |     |     |
| Dra  | VZ   | 90 | 22+ | 51  | 47  | 43+ | 40+ | 36+ | 64  | 61  | 57  | 53  | 50  | 46  | 42+ | 39+ | 35+ | 31+ | 60  | 56  | 52  | 49  | 45  | 41+ | 37+ | 34+ | 30+ | 58  | 55  | 51  |     |
| Dra  | WW   | S1 | 3   |     |     |     | 27  |     |     |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     |     |     |     |     |     |     | 42  |     |
| Dra  | XZ   | RR |     | 39  | 34  | 30  | 25+ | 68  | 63  | 58  | 54  | 49  | 44  | 40  | 35  | 30  | 26+ | 68  | 64  | 59  | 54  | 50  | 45  | 40  | 36  | 31  | 26  | 69  | 64  | 60  | 55  |
| Dra  | AI   | S1 |     |     |     |     | 56  | 76  |     |     |     | 56  |     | 75  |     |     |     |     | 55  | 75  |     |     |     | 54  | 74  |     |     |     |     | 54  |     |
| Dra  | BF   |    |     | 7   |     |     |     |     | 49s |     |     |     |     |     | 28  |     |     |     |     | 70s |     |     |     |     | 49  |     |     |     |     |     |     |
| Dra  | BK   | 90 |     | 57  | 75  | 35  | 53  | 71  | 31  | 49  | 67  | 27  | 45  | 63  | 23  | 41  | 60  |     | 37  | 56  | 74  | 33  | 52  | 70  | 29  | 48  | 66  | 25  | 44  | 62  |     |
| Dra  | BU   | ES |     |     |     |     |     |     |     |     |     |     |     | 73  |     | 64s |     |     |     | 47s |     | 38  |     |     |     |     |     |     |     |     |     |
| Dra  | DD   | 90 |     | 44+ | 42+ | 40+ | 38+ | 36+ | 34+ | 32+ | 30+ | 28+ | 26+ | 24+ | 55  | 53  | 51  | 49  | 47  | 45  | 43  | 41+ | 39+ | 37+ | 35+ | 33+ | 31+ | 29+ | 27+ | 25+ | 56  |
| Dra  | EX   | K1 |     | 30+ | 35+ | 40+ | 24+ | 29+ | 34+ | 39+ | 23+ | 28+ | 33+ | 38+ | 43+ | 27+ | 32+ | 37+ | 42+ | 26+ | 31+ | 36+ | 41+ | 25+ | 30+ | 35+ | 40+ | 45+ | 29+ | 34+ | 39+ |
| Dra  | GV   | L1 | 3   |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Eri  | SV   | 90 | 2   | 30  |     |     |     |     | 29  |     |     |     |     | 29  |     |     |     |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |
| Gem  | U    | K1 | 3   | 28+ | 34+ | 23+ | 29+ | 35+ | 23+ | 30+ | 36+ | 24+ | 30+ | 36+ | 25+ | 31+ | 37+ | 26+ | 32+ | 38+ | 26+ | 32+ | 39+ | 27+ | 33+ | 39+ | 28+ | 34+ | 40+ | 29+ | 35+ |
| Gem  | RR   | 90 | 3   | 33  | 53  | 32  | 51  | 31  | 50  | 29  | 49  | 28  | 47  | 27  | 46  | 25  | 44  | 24+ | 43  | 23+ | 42  | 61  | 40  | 40  | 39  | 58  | 38  | 57  | 36  | 56  | 35  |
| Gem  | RY   | L1 | 3   |     | 19s |     |     |     | 84  |     |     |     |     | 49s |     |     |     |     | 14  |     |     |     |     |     |     |     | 44  |     |     |     |     |
| Gem  | SZ   | 90 | 3   | 66  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Gem  | WW   | ES |     | 32  | 55  |     | 41s |     | 27  | 51  |     | 36s |     |     |     |     |     | 46  |     | 31s | 55s |     |     | 36  |     |     | 45s |     |     | 31  |     |
| Gem  | YY   | S1 |     | 58  | 40  | 62s | 43s | 25+ | 47  | 28  | 50s | 32s | 54  | 35  | 57s | 39s | 61  | 42  | 24+ | 46s | 27s | 50  | 31  | 53s | 35s | 57  | 38  | 60s | 42s |     | 45  |
| Gem  | V339 | EU | 2   | 49  |     |     | 37  |     |     | 25  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 53  |     |     |     |     | 41  |
| Her  | TW   | RR |     | 59  |     | 58  |     | 58  |     | 58  |     | 58  |     | 58  |     | 57  |     |     | 57  |     | 57  |     | 57  |     | 57  |     | 56  |     | 56  |     | 56  |
| Her  | TX   | S1 |     |     |     |     |     |     |     |     |     |     |     | 49s | 52  | 55s | 58  | 61s | 64  | 67s | 70  | 73s |     |     |     |     |     |     |     |     |     |
| Her  | UX   | ED |     |     |     |     | 68s |     |     |     |     |     |     | 65  |     |     |     |     |     |     |     |     |     |     | 72s |     |     |     |     |     | 59  |
| Her  | VX   | RR |     |     |     | 74  | 65  | 56  |     |     | 75  | 66  |     | 57  |     |     | 67  |     | 58  |     |     |     | 68  | 59  |     |     | 69  |     | 60  | 51  |     |
| Her  | VZ   | 90 |     |     | 69  | 57  |     |     |     | 65  | 53  | 73  |     | 61  |     |     | 70  | 58  |     |     |     |     |     | 74  | 62  | 50  |     | 71  |     | 59  |     |
| Her  | AK   | S1 |     | 62  | 68s | 73  | 63s | 68  | 74s |     | 63  | 69s |     | 74  | 58  | 64s | 69  | 75s | 59s | 64  | 70s |     | 59  | 65s | 70  |     | 60s | 65  | 71s | 55s | 60  |
| Her  | AR   | 90 |     | 47  |     |     | 76  | 70  | 64  | 58  | 52  | 46  |     |     | 75  | 69  | 63  | 57  | 51  | 45  | 39  |     | 74  | 68  | 62  | 56  | 50  | 44  | 38  | 73  |     |
| Her  | AW   | L1 |     |     |     |     |     |     |     |     | 17  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 77  |
| Her  | DI   | L1 |     | 13s |     | 55  |     |     |     |     |     |     |     | 68s |     | 10  |     |     |     |     |     |     |     |     | 23s |     | 65  |     |     |     |     |
| Her  | GU   | EU |     |     |     |     |     |     |     |     | 57  | 74s |     |     |     |     |     |     |     |     |     |     | 60  |     |     |     |     |     |     |     |     |
| Her  | LV   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 0   |     |     |     |     |     |     |     |     |     |     |
| Hya  | SZ   | 90 | 2   |     |     | 40  | 48  | 55  |     |     |     | 38  |     | 46  | 53  |     |     |     |     | 37  | 44  | 52  |     |     |     |     | 35  | 43  | 50  |     |     |
| Hya  | WZ   | 90 | 2   |     |     |     |     |     | 48  | 55  |     |     |     |     |     | 47  | 54  |     |     |     |     |     | 46  | 53  |     |     |     |     | 37  | 45  | 53  |
| Hya  | AI   | L1 |     | 88s |     |     |     |     | 47  |     |     | 17s |     |     |     |     | 76  |     |     |     |     |     |     |     |     |     |     | 75s |     |     |     |
| Hya  | ET   | 90 | 2   | 57  |     |     |     |     | 37  |     | 42  | 48  |     |     | 54  |     |     |     |     | 34  |     | 39  |     | 45  |     | 51  |     |     |     |     | 30  |
| Lac  | RW   | L1 |     |     | 79  |     |     |     |     |     | 91s |     |     |     |     |     | 16  |     |     |     |     |     | 28s |     |     |     | 53  |     |     |     |     |
| Lac  | SW   | S1 |     | 25  |     | 33s | 29s | 26s | 22s |     | 30  | 26+ | 23  |     | 31s | 27s | 24s |     |     | 28  | 25+ |     |     | 29s | 25+ |     |     | 26  | 71s |     |     |
| Lac  | UW   | ES |     |     |     | 10  |     |     |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Lac  | CO   | EX |     |     | 27s |     | 36s |     | 70  | 44s | 24  |     |     |     | 32  |     | 61s | 41  |     | 70s |     | 24s |     |     | 32s |     | 66  |     |     |     |     |
| JD   | 581  | .. |     | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |

| 2018 | Feb  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Lac  | CZ   | 90 |     |     | 31+ |     |     | 34  |     |     | 36  | 23+ |     |     | 25+ |     |     | 28+ |     |     | 30+ |     | 32  | 62  |     |     | 64  |     |     |     |    |
| Lac  | V345 | EX |     |     | 2s  |     |     |     | 86  |     |     | 51s |     |     |     | 35  |     |     |     | 0s  |     |     | 85  |     |     | 50s |     |     |     |     |    |
| Leo  | RR   | RR | 71  | 61  | 52  | 42  | 33  | 69  | 59  | 49  | 40  | 30  | 66  | 57  | 47  | 38  | 28  | 64  | 54  | 45  | 35  | 26+ | 61  | 52  | 42  | 33  | 69  | 59  | 50  | 40  |    |
| Leo  | SS   | RR | 3   |     | 67  | 55  |     | 43  | 68  |     | 56  |     | 44  | 69  |     | 57  |     | 45  | 70  |     | 58  |     | 46  |     |     | 59  |     |     |     | 47  |    |
| Leo  | ST   | RR | 2   |     | 74  | 70  | 65  | 61  | 56  | 52  | 48  | 43  | 39  |     | 73  | 69  | 65  | 60  | 56  | 51  | 47  | 43  | 38  | 34  |     |     | 68  | 64  | 60  | 55  |    |
| Leo  | WY   | ES |     |     | 48  |     |     |     |     | 47  |     |     |     |     | 46  |     |     |     |     | 44  |     |     |     |     | 43  |     |     |     |     | 41  |    |
| Leo  | AG   | ES |     |     |     | 56  |     |     |     |     | 65s |     | 34  |     |     |     |     | 43s |     |     |     |     | 52  |     |     |     |     | 61s |     | 30  |    |
| Leo  | AM   | S1 | 55+ | 46+ | 38+ | 48+ | 39+ | 49+ | 40+ | 50+ | 41+ | 51+ | 43+ | 34+ | 44+ | 35+ | 45+ | 36+ | 46+ | 38+ | 47+ | 39+ | 49+ | 40+ | 31+ | 41+ | 33+ | 42+ | 34+ | 44+ |    |
| Leo  | FM   | EU | 3   |     |     | 59  |     |     |     |     |     |     |     |     | 68s |     |     |     |     |     |     | 41s |     |     |     |     |     |     |     |     |    |
| Lyn  | TY   | ES |     |     | 27  |     |     | 60  |     |     |     |     |     |     |     | 26  |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     | 26 |
| Lyn  | CD   | ES |     |     |     |     | 45s |     | 72  |     |     |     |     | 27  |     | 55s |     |     |     |     |     |     | 37  |     | 65s |     |     |     |     |     |    |
| Lyr  | RR   | RR |     |     | 66  |     |     |     | 63  |     |     |     | 60  | 73  |     |     | 57  | 70  |     |     |     |     |     |     | 64  |     |     |     |     | 61  |    |
| Lyr  | RZ   | 90 |     |     |     |     |     | 60  | 63  | 65  | 67  | 69  | 72  | 74  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 57  | 59  |    |
| Lyr  | UZ   | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     | 65s | 60  |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyr  | CN   | 90 | 65  |     | 71  |     |     |     |     | 65  |     | 71  |     |     |     | 64  |     | 70  |     |     |     | 58  |     | 64  |     | 69  |     |     |     | 57  |    |
| Lyr  | EZ   | RR | 63  | 68  | 73  |     |     |     |     |     |     |     | 61  | 66  | 71  |     |     |     |     |     |     |     | 59  | 64  | 69  |     |     |     |     |     |    |
| Lyr  | IO   | 90 | 3   |     | 61  |     |     | 65  |     |     |     | 69  |     |     | 58  | 73  |     |     | 62  |     |     |     | 66  |     |     | 54  | 70  |     |     | 58  |    |
| Lyr  | beta | S1 |     |     | 56  |     |     |     |     |     | 3s  |     |     |     |     | 50  |     |     |     |     |     |     | 97s |     |     |     |     |     |     | 44  |    |
| Mon  | UX   | ES | 2   | 38  |     |     | 33s |     | 28  |     |     | 24s |     |     | 19  |     |     | 14s |     |     | 9   |     |     | 5s  |     | 00  |     |     | 95s |     |    |
| Mon  | VV   | ES | 2   |     |     | 82  |     | 84s |     |     | 87  |     |     |     | 89s |     | 92  |     |     |     | 94s |     | 97  |     |     | 99s |     |     |     |     | 2  |
| Mon  | AQ   | ES | 2   | 28s |     |     |     | 37s |     |     |     |     | 46s |     |     | 28  |     |     |     |     |     | 37  |     |     |     |     | 47  |     |     |     |    |
| Mon  | AR   | L1 | 1   |     | 34\ | 19s | 4/  |     |     |     |     |     |     | 95\ | 79  | 64/ |     |     |     |     |     |     |     | 55\ | 40s | 25/ |     |     |     |     |    |
| Mon  | AV   | ES | 2   |     | 73  |     |     | 20s |     |     | 67  |     |     |     | 15s |     |     | 62  |     |     |     | 10s |     |     | 57  |     |     |     | 4s  |     |    |
| Mon  | EZ   | EU | 3   | 48  |     | 36s | 49  | 37s | 50  | 25  | 38s | 51  | 26  | 39s |     | 27  | 40s |     | 28  |     | 41s | 29  | 42s |     | 30  | 43s |     | 31  | 44s |     |    |
| Mon  | IL   | ES | 2   |     |     | 13  |     |     |     | 16  |     |     |     | 18  |     |     |     | 21  |     |     |     | 24  |     |     |     | 26  |     |     |     | 29  |    |
| Mon  | V448 | ES |     | 41  | 53  |     | 33s | 45s |     |     | 24  | 36  | 48  |     |     | 27s | 39s | 51s |     |     |     | 31  | 43  |     |     | 34s | 46s |     |     | 26  |    |
| Mon  | V530 | EU | 3   | 31s | 36s | 41s | 46s | 30  | 35  | 40  | 46  | 24+ | 29s | 35s | 40s | 45s | 24+ | 29  | 34  | 39  | 44  | 49  | 28s | 33s | 38s | 43s | 48s | 27  | 32  | 37  |    |
| Mon  | V536 |    |     |     |     |     |     |     |     | 36s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Mon  | V634 | EU |     |     |     |     |     |     |     |     |     |     |     |     | 33  | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Oph  | U    | ST |     |     |     | 68s |     |     |     |     | 71s |     |     |     |     | 74s |     |     |     |     |     | 61  |     |     |     | 65  |     |     |     |     |    |
| Oph  | RZ   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 47\ |     |    |
| Oph  | ST   | 90 | 2   | 72  |     |     |     | 67  |     |     |     | 73  |     |     |     |     | 68  |     |     |     |     | 73  | 63  |     |     | 69  |     |     |     |     |    |
| Ori  | Z    | ES | 2   |     |     | 53  |     |     |     | 73  |     |     |     |     | 94  |     |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |    |
| Ori  | BM   | ES |     |     |     |     |     | 38  |     |     |     |     |     |     | 85  |     |     |     |     |     |     |     |     |     |     | 32  |     | 79  |     |     |    |
| Ori  | CP   | ES | 2   | 87  |     |     |     |     | 19  |     |     |     |     |     | 52  |     |     |     |     | 84  |     |     |     |     |     | 16  |     |     |     |     | 48 |
| Ori  | DN   | L1 | 2   | 73  |     |     |     |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     |     |     |     |     |     |     |     |     | 66  |    |
| Ori  | EW   | EX |     |     | 39s |     |     |     |     |     | 33s |     |     |     |     |     |     | 26s |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | FO   | L1 | 2   |     |     |     |     |     |     |     |     | 18  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 98  |    |
| Ori  | FT   | EX |     |     |     |     |     |     | 28s | 32  |     |     | 43s | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| JD   | 581  | .. | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |    |

| 2018 | Feb   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ori  | GG    | EX |     |     |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ori  | V536  | ES | 2   |     |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ori  | V1031 | ES | 2   |     |     |     |     |     |     |     |     | 33  |     |     |     |     |     |     |     |     |     |     |     | 25s |     |     |     |     | 36  |     |
| Peg  | U     | S1 |     | 31s | 25  |     |     | 25  |     |     | 25  |     |     | 25  |     |     | 24  |     |     | 24  |     |     | 24  |     |     |     |     |     |     |     |
| Peg  | VV    | RR |     |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Peg  | VW    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 97  |     |     |     |     |     |     |     |     |     |     |     |
| Peg  | AV    | RR |     |     |     |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Peg  | AW    | L1 |     |     |     |     |     | 27  |     |     |     |     | 58s |     |     |     |     | 89  |     |     |     |     |     | 21s |     |     |     | 52  |     |     |
| Peg  | BK    | ES |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     | 26  |     |     |     |     |     |     |     |     |     |     |     |
| Peg  | CG    | 90 |     | 22  |     |     |     |     |     | 76  | 23  |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |
| Peg  | IP    | K1 |     | 29  | 24  |     |     | 25  |     |     | 25  |     |     | 26  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Per  | RW    | L1 | 2   |     |     |     |     |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     |     |     |     | 73  |     |     |     |     |     |
| Per  | RY    | ES |     | 37s |     |     |     |     |     |     | 24s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |     |
| Per  | AR    | 90 | 42  | 27  | 54  | 40  | 25  | 52  | 37  | 23  | 50  | 35  |     | 48  | 33  |     | 46  | 31  |     | 44  | 29  |     | 42  | 27  | 55  | 40  | 25  | 52  | 38  |     |
| Per  | AY    | L1 |     |     |     |     |     |     |     |     | 1   |     |     |     |     |     |     |     |     |     |     |     | 79  |     |     |     |     |     |     |     |
| Per  | IQ    |    |     | 51s | 47  | 25s |     |     |     |     | 48s | 44  | 23s |     |     |     |     | 46s | 42  |     |     |     |     | 43s | 39  |     |     |     |     |     |
| Per  | KN    | EU | 41  | 28  |     | 44s | 31s |     | 48  | 34  |     | 51s | 38s | 24s |     | 41  | 28  |     | 44s | 31s |     | 47  | 34  |     | 37s |     | 41  | 27  |     |     |
| Per  | LX    | L1 |     | 97s |     |     |     | 99  |     |     |     |     | 1s  |     |     | 3   |     |     |     |     |     | 5s  |     | 7   |     |     |     | 9s  |     |     |
| Per  | beta  | S1 |     |     |     |     |     |     | 43  |     |     | 30  |     |     |     |     |     |     | 47s |     |     | 34s |     |     |     |     |     |     |     |     |
| Psc  | RU    | 90 |     | 25  |     |     | 38  |     | 33  |     | 28  |     | 23  |     |     | 36  |     | 31  |     | 26  |     |     |     | 33  |     | 29  |     |     |     |     |
| Psc  | RY    | 90 | 2   |     |     |     | 22  |     |     |     |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Psc  | SS    | 90 | 38  | 24  |     |     | 26  |     | 27  |     | 29  | 30  |     | 32  |     | 33  |     | 35  |     |     |     |     | 24  |     | 25  |     | 27  |     | 28  |     |
| Sge  | SY    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |
| Ser  | VY    | RR |     | 74  |     |     | 60  |     | 74  |     | 59  |     | 74  |     | 59  |     |     |     |     | 59  |     |     | 73  |     | 59  |     | 73  |     |     |     |
| Ser  | AN    | 90 | 57  | 62  | 66  | 71  | 75  |     |     |     |     |     |     | 54  | 58  | 63  | 67  | 71  |     |     |     |     |     | 50  | 55  | 59  | 63  | 68  | 72  |     |
| Ser  | BH    | 90 | 58  |     | 75  | 62  |     |     | 66  | 53  |     | 71  | 57  |     | 75  | 62  | 49  |     | 66  | 53  |     | 70  | 57  |     | 74  | 61  | 48  | 65  | 52  |     |
| Ser  | EG    | L1 |     |     |     | 64s |     |     |     |     | 61  |     |     |     |     | 59s |     |     |     |     | 56  |     |     |     | 53s |     |     |     |     |     |
| Ser  | LX    | K1 | 59+ | 54+ | 65  | 60+ | 55+ | 66  | 61  | 56+ | 51+ | 62  | 57+ | 52+ | 63  | 58+ | 53+ | 64  | 59+ | 54+ | 49+ | 60  | 55+ | 50+ | 61  | 56+ | 51+ | 46+ | 57+ | 52+ |
| Sex  | T     | 90 | 40  | 37  | 67  | 64  | 62  | 59  | 56  | 54  | 51  | 49  | 46  | 43  | 41  | 38  | 36  | 33  | 63  | 60  | 58  | 55  | 53  | 50  | 47  | 45  | 42  | 40  | 37  | 35  |
| Tau  | RW    | S1 | 3   |     |     |     |     |     |     |     |     | 29  |     |     |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |     |     |
| Tau  | CD    | S1 | 3   |     |     |     | 45s |     |     |     |     |     |     | 32s |     |     |     | 48  |     |     |     |     |     | 35  |     |     |     |     |     |     |
| Tau  | EN    | ES | 2   | 28s | 51  |     |     | 23s | 47  |     |     |     |     | 43  |     |     |     |     | 38  |     |     |     |     | 34  |     |     |     | 30  |     |     |
| Tau  | V1094 | L1 |     |     |     |     |     | 80s |     |     | 92  |     |     |     |     | 79s |     |     |     | 91  |     |     |     |     | 78s |     |     | 90  |     |     |
| Tri  | X     | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 35  |     |
| Tri  | RU    | ES | 2   |     |     |     |     |     |     |     |     |     |     | 38s |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |
| Tri  | UX    | 90 | 41  | 34  | 28  |     |     |     |     |     | 41  | 35  | 28  |     |     |     |     | 35  | 28  |     |     |     |     |     | 36  | 29  |     |     |     |     |
| UMa  | W     | S1 | 27+ | 27+ | 27+ | 27+ | 27+ | 27+ | 27+ | 27+ | 27+ | 27+ | 28+ | 28+ | 28+ | 28+ | 28+ | 28+ | 28+ | 28+ | 28+ | 28+ | 28+ | 29+ | 29+ | 29+ | 29+ | 29+ | 29+ | 29+ |
| UMa  | RV    | RR | 40  | 33  | 74  | 67  | 61  | 54  | 48  | 42  | 35  | 29  | 69  | 63  | 57  | 50  | 44  | 37  | 31  | 25+ | 65  | 59  | 52  | 46  | 40  | 33  | 27  | 67  | 61  | 54  |
| UMa  | RW    | ES |     |     |     |     |     | 72  |     |     |     | 38s |     |     |     |     |     |     |     | 71s |     |     | 38  |     |     |     |     |     | 70  |     |
| JD   | 581   | .. | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |

| 2018 | Feb | P  | 1  | 2   | 3   | 4  | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13 | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31 |  |  |  |
|------|-----|----|----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|
| UMa  | TU  | RR | 44 | 55  | 67  |    | 34  | 46  | 57  | 69  |     | 36  | 48  | 59  | 71 |     | 38  | 50  | 61  | 73  | 28  | 40  | 51  | 63  | 30  | 42  | 53  | 65  |     |     |     |     |    |  |  |  |
| UMa  | TX  | S1 | 3  |     |     |    |     |     |     |     |     |     |     |     |    |     |     |     | 23  |     | 29  |     | 35  |     |     |     | 42  |     |     |     |     |     |    |  |  |  |
| UMi  | W   | S1 | 3  | 57  |     | 28 |     | 68  |     | 38  |     |     |     |     | 48 |     |     |     |     | 59  | 29  |     |     | 69  |     | 39  |     |     |     |     |     |     |    |  |  |  |
| Vir  | ST  | 90 | 2  | 62  |     | 68 |     | 73  |     |     |     | 66  |     | 72  | 54 |     | 59  |     | 65  |     | 70  | 52  |     | 58  |     | 63  | 68  | 51  |     |     |     |     |    |  |  |  |
| Vir  | AG  | ED |    | 43+ | 71s | 67 | 64s | 60  | 57s | 53  | 49s | 46  | 42+ | 39+ | 67 | 64s | 60  | 56s | 53  | 49s | 46  | 42+ | 38+ | 35+ | 63s | 60  | 56s | 52  | 49s | 45  | 42s |     |    |  |  |  |
| Vir  | AH  | S1 |    | 57  | 59s | 61 | 43+ | 44+ | 46+ | 48+ | 50+ | 52+ | 54+ | 56s | 58 | 39+ | 41+ | 43+ | 45+ | 47+ | 48+ | 50+ | 52+ | 54  | 36+ | 38+ | 39+ | 41+ | 43+ | 45+ | 47+ |     |    |  |  |  |
| Vir  | AT  | 90 | 2  | 58  | 63  | 69 | 74  |     |     |     |     | 52  |     | 57  | 62 | 68  | 73  |     |     |     |     | 46  | 51  |     | 56  | 61  | 66  | 72  |     |     |     |     |    |  |  |  |
| Vir  | AV  | 90 |    |     | 52  |    | 49  |     | 46  |     | 74  |     |     | 71  |    | 68  |     | 65  | 63  |     | 60  |     |     | 57  |     | 54  |     | 51  |     | 48  |     |     |    |  |  |  |
| Vir  | CG  | ES |    | 60s |     |    |     |     | 75  | 68  | 62  | 55  |     |     |    | 70s | 63s | 57s |     |     |     |     |     | 71  | 65  | 58  | 52  |     |     |     |     | 73s |    |  |  |  |
| Vul  | Z   | S1 |    |     |     |    |     |     |     |     |     | 69  |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |  |  |
| Vul  | RR  | ES |    |     |     |    |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 66  |     |     |     |    |  |  |  |
| Vul  | BN  | 90 |    | 76  |     |    | 73  |     |     | 70  |     |     |     | 67  |    | 64  |     |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |    |  |  |  |
| Vul  | EV  | ES |    |     |     |    |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |     |     |    |  |  |  |
| JD   | 581 | .. |    | 51  | 52  | 53 | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62 | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  |     |    |  |  |  |

| 2018 | Mrz   | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15 | 16  | 17  | 18  | 19  | 20  | 21 | 22 | 23  | 24  | 25  | 26  | 27  | 28 | 29  | 30  | 31  |    |    |  |
|------|-------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|----|--|
| And  | SW    | RR |    | 27  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| And  | SY    | L1 | 1  |     |     |     |     | 59\ | 64  | 69\ |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| And  | XX    | 90 |    |     | 26  |     |     |     |     | 32  |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| And  | CD    | L1 | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |    |    | 74\ |     |     | \   | 80s | /  | 87\ |     |     |    |    |  |
| And  | OV    | 90 |    |     |     |     | 32  | 27  |     |     |     |     |     | 27  |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    | 68 |  |
| Aqr  | SX    | 90 |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| Aql  | V889  | L1 |    |     | 84  |     |     |     |     | 78s |     |     |     |     |     | 96  |    |     |     |     | 90s |     |    |    |     |     |     | 8   |     |    |     |     |     |    | 68 |  |
| Aql  | V1353 | ES |    | 69  |     |     |     |     |     | 64s |     |     |     | 59  |     |     |    |     |     |     |     | 67  |    |    |     | 62s |     |     |     |    |     |     |     | 57 |    |  |
| Aql  | V1426 | ES | 47 | 6+  | 23+ | 41+ | 58s | 17+ | 35+ | 52  | 11+ | 28+ | 46s | 5+  | 22+ | 40+ | 57 | 16+ | 34+ | 51s | 10+ | 27+ | 45 | 4+ | 21+ | 39+ | 56s | 15+ | 32+ | 50 | 9+  | 26+ | 44s |    |    |  |
| Aql  | V1430 | ES |    |     |     |     |     |     |     | 71  |     |     |     | 64s |     | 70  |    |     |     |     |     |     |    | 69 |     | 62s |     |     |     |    |     |     |     |    |    |  |
| Ari  | X     | RR | 3  | 35  |     | 30  |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| Ari  | RS    | L1 | 2  |     |     |     |     |     |     | 45  |     |     |     |     |     |     |    | 25  |     |     |     |     |    |    |     | 6   |     |     |     |    |     |     |     |    |    |  |
| Ari  | AL    | ES |    |     |     |     |     | 28  |     |     |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| Aur  | TZ    | 90 | 3  | 42  | 59  | 37  | 55  | 33  | 51  | 29  | 47  |     | 42  | 60  | 38  | 56  | 34 | 52  | 30  | 47  |     | 43  |    | 39 | 57  | 35  | 52  | 31  | 48  |    | 44  |     |     | 40 |    |  |
| Aur  | CQ    | L1 | 3  | 98s |     |     |     |     |     | 29  |     |     |     |     | 60s |     |    |     |     |     | 91  |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| Aur  | IY    | ES |    |     |     |     |     |     |     |     |     |     | 41  |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |    |  |
| Aur  | V432  | ES |    |     |     |     | 30s |     |     | 38s |     |     | 47s |     |     |     |    |     |     |     |     |     |    |    |     | 33  |     |     |     |    |     |     |     | 42 |    |  |
| Boo  | RS    | RR | 46 | 59  | 72  | 47  | 61  | 36  | 49  | 62  | 38  | 51  | 64  | 40  | 53  | 66  | 42 | 55  | 68  | 44  | 57  | 32+ | 45 | 59 | 34  | 47  | 60  | 36  | 49  | 62 | 38  | 51  | 64  |    |    |  |
| Boo  | TW    | 90 |    | 34  | 41  | 47  | 54  | 60  | 67  |     |     | 33  | 39  | 46  | 52  | 59  | 65 |     |     |     |     |     |    | 51 | 57  | 64  | 30  | 36  | 43  | 49 | 55  |     |     | 62 |    |  |
| Boo  | UU    | 90 |    | 59  | 50  | 41  | 70  | 61  | 53  | 44  |     |     | 64  | 55  | 47  | 38  |    | 67  | 58  | 49  | 41  |     |    | 69 | 61  | 52  | 43  | 63  | 55  | 46 | 37  |     |     |    |    |  |
| Boo  | UY    | 90 |    | 57  |     | 53  |     | 48  |     | 43  |     | 39  | 69  |     | 64  |     | 59 |     | 55  |     | 50  |     |    | 45 |     | 40  | 36  | 66  |     | 61 |     | 56  |     |    |    |  |
| JD   | 581   | .. |    | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92 | 93  | 94  | 95  | 96  | 97  | 98 | 99 |     |     |     |     |     |    |     |     |     |    |    |  |
| JD   | 582   | .. |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |    |    | 00  | 01  | 02  | 03  | 04  | 05 | 06  | 07  | 08  | 09 |    |  |



| 2018 | Mrz  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |  |  |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Boo  | AC   | ED | 50+ | 38+ | 44+ | 32+ | 37+ | 43+ | 31+ | 37+ | 43+ | 31+ | 37+ | 42+ | 30+ | 36+ | 42+ | 30+ | 36+ | 41+ | 30+ | 35+ | 41+ | 29+ | 35+ | 41+ | 29+ | 34+ | 40+ | 46+ | 34+ | 40+ | 46+ |     |     |  |  |
| Boo  | CM   | 90 | 69  |     | 51  |     |     | 56  |     | 39  | 60  |     | 43  | 65  |     | 48  | 70  |     | 52  |     | 35  | 57  |     | 39  | 61  | 44  | 66  |     | 49  |     |     |     |     |     |     |  |  |
| Boo  | CQ   | 90 | 66  | 50  | 63  | 48  | 60  | 45  | 58  | 42+ | 55  | 68  | 52  | 65  | 50  | 62  | 47  | 60  | 44  | 57  | 42+ | 54  | 39+ | 52  | 64  | 49  | 62  | 46  | 59  | 44  | 56  | 41  | 54  |     |     |  |  |
| Boo  | CS   | 90 | 72  |     | 38  | 48  | 59  | 70  |     | 36  | 46  | 57  | 68  |     |     | 44  | 55  | 66  |     |     | 43  | 53  | 64  |     | 41  | 51  | 62  |     |     | 39  | 49  | 60  |     |     |     |  |  |
| Cam  | SS   | ES |     |     | 23s |     | 64  |     |     | 5s  |     | 46  |     | 87s |     |     | 28  |     | 70s |     |     | 11  |     | 52s |     | 93  |     | 34s |     | 75  |     |     |     |     |     |  |  |
| Cam  | SV   | S1 | 37+ | 26+ | 44s | 33+ | 52  | 41+ | 30+ | 48  | 37+ | 56s | 45  | 34+ | 52s | 41+ | 30+ | 49s | 38+ | 57  | 46s | 35+ | 53  | 42s | 31+ | 50  | 39+ | 57s | 46  | 35+ | 54s | 43  | 32+ |     |     |  |  |
| Cam  | AK   | ES | 3   | 68s |     |     |     |     |     | 36s | 48  | 59s | 70  |     |     |     |     |     |     | 38  | 50s | 61  |     |     |     |     |     |     | 40s | 52  | 63s |     |     |     |     |  |  |
| Cam  | AN   |    |     |     |     |     |     |     |     |     |     |     | 42s |     |     |     |     | 8   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Cam  | AT   | ES |     | 50s |     | 59  | 29s | 68s | 38  |     | 47s |     | 57  | 27s | 66s | 36  |     | 45s |     | 55  |     | 64s | 34  |     | 43s |     | 53  |     | 62s | 32  |     | 41s |     |     |     |  |  |
| Cnc  | S    | L1 | 3   |     |     |     | 87  |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     | 84  |     |     |     |     |     |     |     |     |     |  |  |
| Cnc  | RU   | L1 | 2   |     |     |     |     | 79  |     |     |     |     |     |     |     |     |     | 96  |     |     |     |     |     |     |     |     |     | 13  |     |     |     |     |     |     |     |  |  |
| Cnc  | RW   | 90 | 37  | 46  | 56  | 65  |     | 29  | 39  | 48  | 58  |     |     | 31  | 41  | 50  | 60  |     |     | 33  | 43  | 52  | 61  |     |     | 35  | 45  | 54  |     |     | 37  | 46  |     |     |     |  |  |
| Cnc  | RZ   | L1 | 2   | 45  | /   | 7/  |     |     |     |     |     | 65\ | \   | 27s | 89/ |     |     |     |     |     |     |     | 47\ | \   | 9   | 71/ |     |     |     |     |     |     |     |     |     |  |  |
| Cnc  | TT   | 90 | 41  | 53  |     |     | 35  | 48  |     |     | 29  | 42  | 55  |     |     | 36  | 49  |     |     |     | 31  | 44  |     |     |     | 38  | 51  |     | 32  | 45  |     |     |     |     |     |  |  |
| Cnc  | TU   | ES | 3   |     |     |     |     | 44  |     |     |     |     |     | 0   |     |     |     |     | 56  |     |     |     |     |     |     | 12  |     |     | 68  |     |     |     |     |     |     |  |  |
| Cnc  | UU   | L1 | 2   | \   | 14  | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Cnc  | ZZ   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 47\ | 49  | 51/ |     |     |     |     |     |     |     |     |     |     |  |  |
| Cnc  | AQ   | 90 | 38  | 48  | 57  |     |     | 32  | 41  | 51  |     |     |     | 35  | 45  | 54  |     |     | 29  | 38  | 48  |     |     |     | 32  | 42  | 51  |     |     |     | 35  | 45  |     |     |     |  |  |
| CVn  | W    | 90 |     | 33  | 43  | 53  | 64  |     |     | 40  | 50  | 60  | 71  |     | 36  | 47  | 57  | 67  |     | 33  | 43  | 53  | 64  |     | 29  | 40  | 50  | 60  |     |     | 36  | 47  | 57  |     |     |  |  |
| CVn  | Z    | 90 | 39  | 70  | 35  | 66  | 31  | 62  | 27  | 58  |     | 54  |     | 51  |     | 47  |     | 43  |     | 39  | 70  | 35  | 66  | 31  | 62  | 58  |     | 55  |     | 51  |     |     |     |     |     |  |  |
| CVn  | RS   | S1 |     |     |     |     | 29s |     | 69  |     |     |     |     | 48  |     |     |     |     | 28  |     | 68s |     |     |     | 48s |     |     |     |     |     |     |     |     |     |     |  |  |
| CVn  | RZ   | 90 | 73  |     | 43  | 57  | 70  |     | 40  | 54  | 67  |     | 38  | 51  | 65  |     | 35  | 48  | 62  |     | 32  | 45  | 59  |     | 29  | 43  | 56  |     |     | 40  | 53  | 67  |     |     |     |  |  |
| CMa  | R    | S1 | 3   | 34s |     |     |     | 31  |     |     |     | 29s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 33s |     |     |     |     |     |     |     |  |  |
| CMi  | AM   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 30  | 32  |     |     |     |     |     |     |     |     |  |  |
| Cas  | RX   | L1 | 2   | /   | /   | /   |     |     |     |     |     |     | \   | \   | \   | \   | 72s | /   | /   | /   | /   |     |     |     |     |     |     |     | \   | \   | \   | \   | \   |     |     |  |  |
| Cas  | RZ   | S1 |     | 41  | 61  |     |     |     |     | 39  | 58  |     |     |     |     | 36  | 56  |     |     |     |     |     | 34  | 54  |     |     |     |     | 32  | 51  |     |     |     |     |     |  |  |
| Cas  | SX   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 50\ | \   | 33  | /   | 16/ |     |     |     |  |  |
| Cas  | TV   | S1 |     |     |     | 39  |     |     |     |     |     |     | 64  |     | 45  |     |     |     |     |     |     |     | 70  |     |     | 33  |     |     |     |     |     |     |     |     |     |  |  |
| Cas  | TW   | S1 |     |     | 31  |     |     | 60  |     |     | 45  |     |     |     | 31  |     |     |     |     |     |     |     | 45  |     |     |     |     |     | 59  |     |     |     | 45  |     |     |  |  |
| Cas  | TX   | ES |     | 38s |     |     | 31s |     |     |     | 70  |     |     | 63  |     | 55  |     |     |     | 48  |     |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |  |  |
| Cas  | AQ   | L1 | 3   | 52\ | 57s | 63/ |     |     | 38\ | 43  | 49/ |     |     |     | 24\ | 29s |     | 35/ |     |     |     | 10\ | 15  | 21/ |     | 96\ | \   | 1s  | 7/  |     |     |     |     |     |     |  |  |
| Cas  | DN   | ES |     |     | 26  | 41s |     | 57  | 72s |     |     |     |     | 35s | 50  | 66s |     |     |     |     |     |     | 28s | 43  | 59s |     |     |     | 37  | 52s | 68  |     |     |     |     |  |  |
| Cas  | GG   | ES |     |     |     | 32  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Cas  | GU   | EU |     |     |     | 32  |     |     | 41  |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Cas  | IL   | ES |     |     |     |     | 29  |     |     |     |     |     |     |     |     | 64  |     |     |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     | 45  |     |     |  |  |
| Cas  | IT   | EX |     | 37s |     |     |     | 27s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |     |     |     |     |     |     |     | 65s |     |     |  |  |
| Cas  | OX   | EX |     |     |     | 30  | 49s |     |     | 28  | 47s |     |     |     |     |     | 45s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38s |  |  |
| Cas  | PV   | EX |     | 35s |     |     | 69  | 60s |     | 36s |     |     |     | 69  | 61s |     | 36s |     |     |     |     |     |     | 69  | 61s |     |     |     |     |     |     | 61s |     | 36s |     |  |  |
| Cas  | V368 | ES |     | 37  |     | 60s |     |     |     |     |     |     | 28  |     | 50s |     |     |     |     |     |     |     |     |     | 41s |     | 63  |     |     |     |     |     |     |     |     |  |  |
| JD   | 581  | .. | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| JD   | 582  | .. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  |     |     |     |  |  |

| 2018 | Mrz   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cas  | V375  | ED |     | 56s | 29  |     | 50s | 71  | 45s |     | 66  | 40s | 61  | 34s | 55  | 29s | 50  | 45  | 66s | 40  | 61s | 34  | 55s |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | V381  | EX |     | 38  |     |     |     |     |     | 36  |     |     | 67s | 35  |     | 66s |     | 33  |     |     | 64s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | V459  | L1 |     |     | 96  |     |     |     |     | 12s |     |     | 41  | 58s |     | 87  |     |     |     | 4s  |     |     |     |     |     |     |     |     |     | 33  |     |     |     |     |     |
| Cep  | RZ    | 90 | 38+ | 31+ | 54  | 47  | 40+ | 32+ | 56  | 48  | 41  | 33+ | 57  | 49  | 42  | 35+ | 58  | 51  | 43  | 36+ | 28+ | 52  | 44  | 37+ | 30+ | 53  | 46  | 38  | 31+ | 54  | 47  | 39  | 32+ |     |     |
| Cep  | VV    | S1 | 35+ | 32+ | 30+ | 27+ | 38+ | 36+ | 33+ | 31+ | 28+ | 39+ | 37+ | 34+ | 31+ | 29+ | 40+ | 38+ | 35+ | 32+ | 30+ | 41+ | 39+ | 36+ | 33+ | 31+ | 42+ | 40+ | 37+ | 34+ | 32+ | 43+ | 40+ |     |     |
| Cep  | XX    | S1 |     |     | 28  |     | 62  |     |     |     |     | 29  | 63  |     |     |     |     | 31  |     | 64  |     |     |     |     | 32  |     |     |     |     |     |     |     |     | 33  |     |
| Cep  | XY    | ES |     |     |     |     |     |     | 50  |     |     | 28  |     |     |     |     |     |     |     | 60  |     |     | 37  |     |     |     |     |     |     |     |     |     |     |     |     |
| Cep  | ZZ    | S1 |     |     | 36  |     | 50  |     | 64  |     |     |     |     |     |     |     |     |     |     | 35  |     | 49  | 64  |     |     |     |     |     |     |     |     |     |     |     |     |
| Cep  | AI    | ES |     |     |     |     |     |     | 27  |     |     |     |     |     | 60s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 51s |     |
| Cep  | CW    | EX | 46s |     |     |     | 64  |     |     | 37  | 65s |     |     | 38s |     |     |     | 55  |     |     | 28  | 56s |     |     | 29s |     |     | 47  |     |     |     |     |     | 48s |     |
| Cep  | EI    | L1 |     | 46  |     |     |     | 68s |     |     |     | 90  |     |     |     | 12s |     |     |     | 34  |     |     |     | 56s |     |     |     | 78  |     |     |     |     |     | 99s |     |
| Cep  | EX    | L1 | 2   |     | 1   |     |     |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 88  |     |     |     |     |     |
| Cep  | NN    | ES |     | 69s | 72  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 31  | 33s | 36  |     |     | 39s | 42  | 45s | 48  | 51s |     | 54  |     |
| Cet  | TU    | ES | 2   |     |     |     | 34  |     |     |     | 73  |     |     |     | 12  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cet  | TV    | L1 |     |     | 77  |     |     |     | 27s |     |     |     | 88  |     |     |     |     | 37s |     |     |     |     |     |     | 98  |     |     |     |     |     |     |     |     |     |     |
| Com  | S     | 90 | 52  | 69  |     | 45  | 62  | 38  | 56  |     | 32  | 49  | 66  |     | 42  | 60  |     | 36  | 53  | 70  | 29  | 46  | 64  |     | 39  | 57  | 33  | 50  | 67  |     |     |     |     | 43  |     |
| Com  | ST    | 90 | 72  |     | 52  | 71  |     | 51  | 71  |     | 50  | 70  |     | 50  | 70  |     | 49  | 69  |     | 49  | 69  |     | 48  | 68  |     | 48  | 68  | 47  | 67  |     | 47  |     |     | 66  |     |
| CrB  | U     | S1 |     |     | 43  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     |     |     |     |     |
| CrB  | RV    | 90 | 57  | 57  | 56  | 56  | 55  | 54  | 54  | 53  | 53  | 52  | 52  | 51  | 51  | 50  | 50  | 49  | 49  | 48  | 48  | 47  | 47  | 46  | 46  | 45  | 45  | 44  | 44  | 43  | 43  | 42  |     | 42  |     |
| Crt  | W     | 90 | 2   |     |     | 45  |     | 51  |     |     |     |     | 45  | 51  |     |     |     |     |     |     | 45  |     |     |     | 40  | 46  |     |     |     |     |     |     |     | 40  |     |
| Cyg  | UY    | RR |     |     |     | 65  |     |     |     |     | 69  |     |     |     | 62  |     |     |     |     |     | 66  |     |     | 59  |     |     |     | 64  |     |     |     |     |     | 56  |     |
| Cyg  | XZ    | RR | 73  | 66  | 59  | 53  | 46  |     |     |     | 66  | 59  | 53  | 46  | 53  | 46  |     | 66  | 59  | 52  | 46  | 39  |     | 66  | 59  | 52  | 46  | 39  | 66  |     |     |     |     | 59  |     |
| Cyg  | BO    | ES |     |     |     |     | 69  |     |     |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     |     | 62s |     |     |     |     |     |     |     |     |     |
| Cyg  | BR    | ES |     | 53  |     | 53s |     | 52  |     | 52s |     | 52  |     | 52s |     | 52  |     | 52s |     | 52  |     | 52s |     | 51  |     | 51s |     | 51  |     |     |     |     |     |     |     |
| Cyg  | DM    | RR |     | 73  |     |     | 66  |     |     |     |     | 70  |     |     | 64  |     |     |     |     |     | 68  |     | 62  |     |     |     |     | 66  |     |     | 60  |     |     |     |     |
| Cyg  | EM    | K1 | 3   | 59  |     | 63  |     | 70  | 57  |     | 61  |     | 64  |     | 68  | 55  |     | 59  |     | 63  |     | 66  | 54  |     | 57  |     | 61  |     | 64  | 52  | 68  |     |     | 55  |     |
| Cyg  | V367  | L1 | 2   |     | \   | \   | 9   | /   | /   |     |     |     | \   | \   | 39s | /   | /   |     |     |     |     | \   | \   | 69  | /   | /   |     | /   |     |     |     |     |     |     |     |
| Cyg  | V463  | ES |     |     |     |     |     | 58s | 64  | 70s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 52s | 58  | 64s |     |     |     |     |     |     |     |     |
| Cyg  | V477  |    |     | 64  |     |     | 69s |     |     |     | 68  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V541  | L1 |     | 16  |     |     |     |     |     |     | 19s |     |     |     |     |     |     | 49  |     |     |     |     |     |     |     | 52s |     |     |     |     |     |     |     |     |     |
| Cyg  | V548  | ES |     |     | 71  | 61s | 51  |     |     |     |     |     |     |     | 63s | 54  | 44s |     |     |     |     |     | 66s | 56  | 47s |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V788  | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 73\ | 68  | 64/ |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V891  | ES |     |     |     |     |     | 67  |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63  |     | 54  |     |     |     |     |
| Cyg  | V909  | ES |     |     |     |     |     |     | 67  |     |     |     |     |     |     | 69s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 52s |
| Cyg  | V1061 | ES |     | 60  |     |     |     |     |     |     | 64  |     |     |     |     |     |     | 68  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cyg  | V1918 | ED | 3   | 59s | 62  | 65s | 48+ | 51+ | 55s | 58  | 61s | 65  | 47+ | 50+ | 54  | 57s | 60  | 64s | 46+ | 50+ | 53s | 56  | 59s | 42+ | 45+ | 49+ | 52  | 55s | 59  | 41+ | 44+ | 48+ | 51s | 54  |     |
| Del  | DX    | 90 |     |     |     |     | 70  |     |     |     |     |     |     |     |     | 68  |     |     |     |     |     |     |     | 66  |     |     |     |     |     |     |     |     |     |     |     |
| Dra  | RW    | RR | 43  | 32  | 64  | 53  | 42  | 30  | 63  | 52  | 40  | 29  | 62  | 50  | 39  | 27  | 60  | 49  | 38  | 70  | 59  | 48  | 36  | 69  | 58  | 46  | 35  | 68  | 56  | 45  | 33  | 66  |     | 55  |     |
| Dra  | SU    | RR |     | 40  |     | 39  | 71  | 37  | 69  | 35  | 67  | 33  | 65  | 31  | 63  | 29  | 61  | 59  | 59  | 58  |     |     | 56  | 54  |     | 52  |     | 50  |     |     |     |     |     |     | 46  |
| JD   | 581   | .. | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |
| JD   | 582   | .. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  |     |     | 09  |     |

| 2018 | Mrz  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |  |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Dra  | SW   | RR | 72  | 29  | 43  | 57  | 71  | 28  | 42  | 56  | 70  | 27  | 41  | 55  | 69  | 40  | 54  | 68  | 38  | 52  | 66  | 37  | 51  | 65  |     |     |     | 36  | 50  | 64  |     | 35  |     |     |  |  |
| Dra  | TZ   | ED | 63s | 49s |     | 66  | 53  |     | 69s | 56s |     |     | 59  | 45  |     | 62s | 49s |     | 65  | 52  | 68s | 55s | 41s |     | 58  | 44  |     | 61s | 48s |     | 64  | 51  |     |     |  |  |
| Dra  | VZ   | 90 | 47  | 44  | 40+ | 36+ | 33+ | 29+ | 57  | 54  | 50  | 46  | 42  | 39+ | 35+ | 31+ | 28+ |     | 56  | 52  | 49  | 45  | 41  |     | 30+ | 59  | 55  | 51  | 48  | 44  | 40  | 36  | 33+ |     |  |  |
| Dra  | WW   | S1 | 3   |     |     |     |     |     |     |     | 68  |     |     |     | 31  |     |     |     |     |     |     |     | 57  |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Dra  | XZ   | RR |     | 50  | 46  | 41  | 36  | 31  | 27  | 70  | 65  | 56  | 51  | 46  | 41  | 37  | 32  |     | 70  | 66  | 61  | 56  | 51  | 47  | 42  | 37  | 33  |     |     | 66  | 61  | 57  | 52  |     |  |  |
| Dra  | AI   | S1 |     |     |     |     |     | 53  |     |     |     |     |     | 53  |     |     |     |     | 32  | 52  |     |     |     | 32  | 51  |     |     |     |     |     | 31  | 51  |     |     |  |  |
| Dra  | BF   |    |     |     |     |     |     | 70  |     |     |     |     |     |     |     |     |     |     | 92  |     |     |     |     | 33s |     |     |     |     |     | 13  |     |     |     |     |  |  |
| Dra  | BK   | 90 | 40  | 58  |     | 36  | 54  |     | 32  | 50  | 69  | 28  | 46  | 65  |     | 42  | 61  |     | 38  | 57  |     | 34  | 53  |     | 30  | 49  | 67  |     | 45  | 63  |     | 41  | 59  |     |  |  |
| Dra  | BU   | ES |     |     |     |     |     | 70  |     | 61s |     | 52  |     | 44s |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 67  |     |     | 58s |  |  |
| Dra  | DD   | 90 | 54  | 52  | 50  | 48  | 46  | 44  | 42  | 40  | 38+ | 36+ | 34+ | 32+ | 30+ | 28+ | 59  |     | 57  | 55  | 53  | 51  | 49  | 47  | 45  | 43  | 41  | 40  | 38  | 36+ | 34+ | 32+ | 30+ | 60  |  |  |
| Dra  | EX   | K1 | 44+ | 28+ | 33+ | 38+ | 42+ | 26+ | 31+ | 36+ | 41+ | 46+ | 30+ | 35+ | 40+ | 45+ | 29+ |     | 34+ | 39+ | 44+ | 28+ | 33+ | 38+ | 43+ | 48+ | 32+ | 37+ | 42+ | 47+ | 31+ | 36+ | 41+ | 46+ |  |  |
| Dra  | GV   | L1 | 3   | 6   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 92  |     |     |     |     |     |     |     |     |     |  |  |
| Equ  | S    | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 68  |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gem  | U    | K1 | 3   | 41+ | 29+ | 35+ | 42  | 30+ | 36+ | 42  | 31+ | 37+ | 43  | 32+ | 38+ | 44  | 32+ | 38  | 45  | 33+ | 39  | 28+ | 34+ | 40  | 46  | 34+ | 41  | 29+ | 35  | 41  | 30+ | 36  | 42  | 31+ |  |  |
| Gem  | RR   | 90 | 3   | 54  | 34  | 53  | 32  | 51  | 31  | 50  | 30  | 49  | 28  | 47  | 27  | 46  | 45  |     | 43  | 42  | 42  |     |     | 41  | 39  | 38  |     | 37  | 35  |     | 35  |     | 34  |     |  |  |
| Gem  | RY   | L1 | 3   |     | 9s  |     |     | 74  |     |     |     |     | 39s |     |     |     |     | 4   |     |     | 69s |     |     |     | 34  |     |     |     |     |     |     | 99s |     |     |  |  |
| Gem  | WW   | ES |     |     | 41s |     | 26  | 50  |     | 36s |     | 45  |     | 31s |     | 40  |     |     |     |     |     |     |     | 35  |     | 45s |     | 31  |     | 40s |     |     |     |     |  |  |
| Gem  | YY   | S1 | 27  | 49s | 30s | 52  | 34  | 56s | 37s |     | 41  |     | 45s |     | 48  | 30  | 52s | 33s | 55  | 37  |     | 40s |     |     | 44  |     | 47s | 29s | 51  | 32  |     | 36s |     | 40  |  |  |
| Gem  | V339 | EU | 2   | 29  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     | 33  |     |     |     |     |     |     |     |     |  |  |
| Her  | TW   | RR |     | 56  |     | 56  |     | 55  |     | 55  |     | 55  |     | 55  |     | 55  |     | 54  |     | 54  |     | 54  |     | 54  |     | 54  |     | 53  |     | 53  |     | 53  |     |     |  |  |
| Her  | TX   | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 42  | 45s | 48  | 51s | 54  | 57s | 60  | 63s | 66  | 69s |     |     |     |     |     |     |     |  |  |
| Her  | UX   | ED | 69  |     |     |     | 56s |     |     | 66s |     |     |     | 53  |     | 63  |     |     |     |     |     |     |     |     | 60s |     |     |     |     |     | 57  |     |     |     |  |  |
| Her  | VX   | RR |     | 69  | 60  | 52  |     |     | 70  | 61  | 52  |     |     | 71  | 62  | 53  |     |     |     |     |     |     |     |     | 63  | 54  | 45  |     |     |     | 65  | 56  | 47  |     |  |  |
| Her  | VZ   | 90 | 67  | 55  |     | 63  |     | 51  |     | 71  | 59  | 48  |     | 68  | 56  | 44  |     |     | 64  | 52  |     | 60  |     | 48  |     | 68  | 57  | 45  |     | 65  | 53  | 41  |     | 61  |  |  |
| Her  | AK   | S1 | 66s | 71  | 55  | 61s | 66  | 71s | 56s | 61  | 66s | 51s | 56  | 62s | 67  | 51  | 57s | 62  | 67s | 52s | 57  | 62s | 68  | 52  | 58s | 63  | 47+ | 53s | 58  | 63s | 48s | 53  |     | 58s |  |  |
| Her  | AR   | 90 | 67  | 61  | 55  | 49  | 43  | 37  |     | 72  | 66  | 60  | 54  | 48  | 42  | 36  |     |     | 65  | 59  | 53  | 47  | 41  | 35  |     | 64  |     | 58  | 52  | 46  | 40  | 34  |     |     |  |  |
| Her  | AW   | L1 |     |     |     |     |     |     | 57  |     |     |     |     |     |     |     |     | 38  |     |     |     |     |     |     |     | 18  |     |     |     |     |     |     |     |     |  |  |
| Her  | DI   | L1 |     |     |     | 78s |     |     | 20  |     |     |     |     |     |     |     | 33s |     |     | 75  |     |     |     |     | 88s |     |     |     | 30  |     |     |     |     |     |  |  |
| Her  | GU   | EU |     |     |     | 46s |     | 63  |     |     |     |     |     |     |     |     |     |     | 49s |     | 66  |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Her  | LV   |    |     |     |     |     |     |     |     |     | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 87  |     |     |     |     |     |  |  |
| Hya  | SZ   | 90 | 2   |     | 34  | 41  | 49  |     |     |     |     | 32  | 40  | 47  |     |     |     |     | 30  | 38  | 45  |     |     |     |     | 29  | 36  | 44  |     |     |     |     |     |     |  |  |
| Hya  | WZ   | 90 | 2   |     |     |     | 36  | 44  | 52  |     |     |     |     | 35  | 43  | 51  |     |     |     |     |     |     |     |     |     | 35  | 42  |     | 34  | 41  |     |     |     |     |  |  |
| Hya  | AI   | L1 |     |     | 34  |     |     |     | 4s  |     |     |     | 63  |     |     |     | 33s |     |     |     |     |     |     |     |     | 92  |     |     |     |     |     |     |     |     |  |  |
| Hya  | ET   | 90 | 2   | 36  |     | 42  |     | 47  |     |     |     |     | 27  |     | 33  |     | 39  |     | 44  |     |     |     |     |     |     | 62s |     |     |     | 21  |     |     |     | 91s |  |  |
| Lac  | RW   | L1 | 65s |     |     |     |     | 90  |     |     |     |     |     | 2s  |     |     |     |     | 27  |     |     |     |     |     | 39s |     | 30  | 35  |     | 41  |     |     |     |     |  |  |
| Lac  | SW   | S1 |     |     | 72  |     |     |     |     | 72s | 69s |     |     | 70  |     |     |     | 70s | 67s |     |     |     |     | 68  | 64  |     | 69s | 65s |     |     |     | 66  |     | 62  |  |  |
| Lac  | UW   | ES | 55  |     |     |     |     | 84  |     |     |     |     |     | 13  |     |     |     |     | 42  |     |     |     |     | 71  |     |     |     |     | 00  |     |     |     |     |     |  |  |
| Lac  | CO   | EX | 29  |     | 58s | 37  |     | 66s |     |     |     | 54  | 29s |     | 63  |     |     |     |     |     |     |     |     |     |     | 62s |     |     | 51  |     |     |     | 59  |     |  |  |
| Lac  | CZ   | 90 | 67  |     |     | 26+ |     |     | 29+ | 58  |     |     | 61  |     | 63  |     |     |     | 66  |     |     | 68  | 54  |     |     | 57  |     |     | 59  |     |     | 62  |     |     |  |  |
| JD   | 581  | .. | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |  |  |
| JD   | 582  | .. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  |     |  |  |

| 2018 | Mrz  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30 | 31  |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|----|
| Lac  | V345 | EX |     | 34  |     | 99s |     |     |     |     | 83  |     |     | 48s |     |     |     | 32  |     | 97s |     |     |     |     | 81  |     |     | 46s |     |     |     |    |     |    |
| Leo  | RR   | RR | 31  | 66  | 57  | 47  | 38  | 28  | 64  | 54  | 45  | 35  |     | 62  | 52  | 43  | 33  |     | 59  | 50  | 40  | 31  |     |     | 57  | 47  | 38  |     | 54  | 45  | 35  |    |     |    |
| Leo  | SS   | RR | 3   | 60  |     | 48  | 36  | 61  |     | 49  | 37  |     |     | 62  | 50  | 38  |     |     |     | 51  |     |     |     |     | 52  |     | 40  |     | 53  |     | 41  |    |     |    |
| Leo  | ST   | RR | 2   | 51  | 46  | 42  | 38  | 33  |     | 68  | 63  | 59  |     | 55  | 50  | 46  | 41  | 37  | 33  | 28  |     |     | 63  | 58  | 54  | 50  | 45  | 41  | 36  | 32  |     |    | 62  |    |
| Leo  | WY   | ES |     |     |     |     | 40  |     |     |     |     | 38  |     |     |     |     |     |     |     |     |     | 36  |     |     |     | 34  |     |     |     |     |     | 33 |     |    |
| Leo  | AG   | ES |     |     |     |     | 39s |     |     |     |     | 48  |     |     |     |     |     |     |     |     |     |     |     |     | 36s |     |     |     | 45  |     |     |    |     |    |
| Leo  | AM   | S1 | 35+ | 45+ | 36+ | 46+ | 37+ | 29+ | 39+ | 30+ | 40+ | 31+ | 41+ | 32+ | 42+ | 34+ | 43+ | 35+ | 44+ | 36+ | 46  | 37+ | 29+ | 38+ | 30+ | 40+ | 31+ | 41+ | 32+ | 42+ | 33+ | 43 | 35+ |    |
| Leo  | FM   | EU | 3   |     |     | 50  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    | 41  |    |
| Lyn  | TY   | ES |     |     |     | 59  |     |     |     |     |     |     |     |     |     |     |     |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |    | 58  |    |
| Lyn  | CD   | ES |     | 47  |     |     |     |     |     |     | 29s |     | 57  |     |     |     |     |     |     |     | 39s |     |     |     |     |     |     |     | 49s |     |     |    |     |    |
| Lyr  | RR   | RR |     |     |     | 57  | 71  |     |     | 54  | 68  |     |     | 51  | 64  |     |     |     | 61  |     |     |     | 58  |     |     |     | 55  | 68  |     |     | 52  | 65 |     |    |
| Lyr  | RZ   | 90 | 61  | 63  | 66  | 68  | 70  | 72  |     |     |     |     |     |     |     |     |     |     |     |     | 50  | 53  | 55  | 57  | 59  | 62  | 64  | 66  | 68  |     |     |    |     |    |
| Lyr  | UZ   | S1 |     |     |     |     | 67s | 62  | 56s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64  | 59s | 53  | 48s |     |     |     |    |     |    |
| Lyr  | CN   | 90 | 63  |     | 69  |     |     | 57  |     | 62  |     | 68  |     |     | 56  | 62  |     |     | 67  |     |     | 55  |     |     | 61  | 67  | 49  | 55  |     | 60  |     |    | 66  |    |
| Lyr  | EZ   | RR |     |     | 57  | 62  | 67  |     |     |     |     |     |     | 50  | 55  | 60  | 65  |     |     |     |     |     |     |     | 48  | 53  | 58  | 63  |     |     |     |    |     |    |
| Lyr  | IO   | 90 | 3   |     |     | 62  |     |     | 51  | 66  |     |     | 55  | 70  |     |     | 59  |     |     |     | 63  |     |     | 51  | 67  |     |     | 55  |     |     |     | 59 |     |    |
| Lyr  | beta | S1 |     |     |     |     |     | 91s |     |     |     |     |     |     | 38  |     |     |     |     |     | 85s |     |     |     |     |     | 32  |     |     |     |     |    |     |    |
| Mon  | UX   | ES | 2   | 90  |     |     | 85s |     |     | 81  |     |     | 76s |     | 71  |     |     |     | 66s |     |     | 62  |     |     | 57s |     |     | 52  |     |     | 47s |    |     |    |
| Mon  | VV   | ES | 2   |     |     | 4s  |     | 7   |     |     | 9s  |     |     | 12  |     |     | 14s |     |     | 17  |     |     | 20s |     |     | 22  |     |     | 25s |     |     | 27 |     |    |
| Mon  | AQ   | ES | 2   | 28s |     |     |     | 37s |     |     |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |
| Mon  | AR   | L1 | 1   |     |     |     |     | 15\ | 85/ |     |     |     |     |     |     |     |     | 76\ | 61s | 45/ |     |     |     |     |     |     |     | 36\ | 21  | 6/  |     |    |     |    |
| Mon  | AT   | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 30  |     | 32  |     |     |     |     |     |     |     |     |    |     |    |
| Mon  | AV   | ES | 2   |     | 52  |     | 99s |     |     |     | 46  |     |     | 94s |     |     |     | 41  |     |     | 88s |     |     |     |     | 36  | 83s |     |     |     | 31  |    |     |    |
| Mon  | EZ   | EU | 3   | 32  | 45s |     | 33  |     |     | 34  |     | 35  |     | 35  |     |     |     | 36  |     |     | 37  |     |     |     |     | 37  |     |     |     |     |     |    |     |    |
| Mon  | IL   | ES | 2   |     |     |     | 31  |     |     | 34  |     |     |     | 37  |     |     |     | 39  |     |     |     | 42  |     |     |     | 45  |     |     |     | 47  |     |    |     |    |
| Mon  | V448 | ES |     | 37  |     |     | 29s | 41s |     |     |     | 32  | 44  |     |     |     | 36s |     |     |     |     | 39  |     |     |     |     | 30s |     |     |     | 34  |    |     |    |
| Mon  | V530 | EU | 3   | 43  | 48  | 27s | 32s | 42s | 47s | 26  | 31  | 36  | 41  | 46  |     | 30s | 35s | 40s |     |     | 29  | 34  | 40  |     |     | 29s | 34s | 39s |     |     | 33  | 38 |     |    |
| Mon  | V536 |    |     |     | 36  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 29s |     |     |     |     |     |    |     |    |
| Mon  | V634 | EU |     |     |     | 36  | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |
| Oph  | U    | ST |     | 68  |     |     |     |     |     |     |     |     |     |     | 58s |     |     |     |     |     | 61s |     |     |     |     | 64s |     |     |     |     |     |    |     |    |
| Oph  | RZ   | L1 | 2   |     |     | 71  |     |     | /   | 95/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |
| Oph  | ST   | 90 | 2   | 64  |     |     | 70  | 60  |     |     |     | 65  |     |     |     | 70  | 60  |     |     |     |     | 66  | 56  |     |     |     | 61  |     |     |     | 66  | 56 |     |    |
| Ori  | Z    | ES | 2   | 55  |     |     |     | 75  |     |     |     |     |     | 95  |     |     |     |     |     | 16  |     |     |     |     |     | 36  |     |     | 56  |     |     |    |     |    |
| Ori  | BM   | ES |     |     |     | 26  |     |     |     |     |     | 73  |     |     |     |     |     |     |     | 20  |     |     |     |     |     | 67  |     |     |     |     |     | 14 |     |    |
| Ori  | CP   | ES | 2   |     |     |     | 80  |     |     |     |     |     | 12  |     |     |     |     |     | 44  |     |     |     |     |     |     |     | 76  |     |     | 8   |     |    |     |    |
| Ori  | DN   | L1 | 2   |     |     |     |     |     |     |     |     |     |     | 62  |     |     |     |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     |    |     |    |
| Ori  | EW   | EX |     |     |     |     | 39  |     |     |     |     |     |     | 33  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |
| Ori  | FO   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |
| Ori  | FT   | EX |     |     | 33s | 37  | 48s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38s | 42  |     |     |     |    |     |    |
| JD   | 581  | .. | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |    |     |    |
| JD   | 582  | .. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07 | 08  | 09 |



| 2018 | Mrz | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |    |    |
|------|-----|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| UMa  | TX  | S1 | 3 | 48  |     |     | 54  |     | 61  |     |     | 67  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| UMi  | W   | S1 | 3 |     | 49  |     |     |     | 60  |     |     | 30  |     | 70  |     | 40  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41  |     |    |    |
| Vir  | ST  | 90 | 2 | 56  |     | 61  |     | 67  | 49  | 72  | 54  | 60  |     | 65  | 47  | 71  | 53  |     | 58  |     | 64  | 46  | 69  | 51  |     | 57  |     | 62  | 44  | 67  | 49  |     | 55  |     |     |    |    |
| Vir  | AG  | ED |   | 38+ | 34+ | 63s | 59  | 56s | 52  | 49s | 45  | 41s | 38+ | 34+ | 31+ | 59  | 56s | 52  | 48s | 45  | 41s | 37  | 34+ | 30+ | 59  | 55s | 52  | 48s | 44  | 41s | 37  | 34+ | 30+ | 59  |     |    |    |
| Vir  | AH  | S1 |   | 49+ | 51+ | 53s | 34+ | 36+ | 38+ | 40+ | 42+ | 44+ | 45+ | 47+ | 49+ | 31+ | 33+ | 34+ | 36+ | 38+ | 40+ | 42+ | 44+ | 46+ | 48+ | 29+ | 31+ | 33+ | 35+ | 37+ | 39+ | 40+ | 42+ | 44+ |     |    |    |
| Vir  | AT  | 90 | 2 | 45  | 50  | 55  | 60  | 65  |     |     |     |     |     | 44  | 49  | 54  | 59  | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 37  | 42  |    |    |
| Vir  | AV  | 90 |   | 45  |     | 42  |     | 39  | 70  |     | 68  |     | 65  |     | 62  |     | 59  |     | 56  |     | 53  |     | 50  |     |     |     |     | 47  |     | 44  |     | 41  |     | 38  |     | 35 | 67 |
| Vir  | CG  | ES |   | 66s | 60s | 53s |     |     |     |     | 68  | 61  | 55  | 48  |     |     | 69s |     | 62s | 56s | 50s |     |     |     |     | 64  | 57  | 51  | 45  |     |     |     |     | 65s | 59s |    |    |
| Vul  | Z   | S1 |   |     |     |     |     |     |     |     |     | 70  |     |     |     | 61  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Vul  | RR  | ES |   |     |     | 71  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Vul  | BN  | 90 |   | 69  |     |     | 66  |     |     | 63  |     |     |     | 60  |     | 57  |     |     |     |     |     |     |     |     |     |     | 67  |     | 64  |     |     |     |     | 61  |     |    |    |
| Vul  | DR  | EX |   |     | 62s |     |     |     |     |     |     |     |     | 63s |     |     |     |     |     |     |     | 63s |     |     |     |     |     |     |     |     |     |     |     | 63s | 54  |    |    |
| Vul  | EV  | ES |   |     |     |     |     |     |     |     |     |     |     |     | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 57  |     |    |    |
| JD   | 581 | .. |   | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |    |    |
| JD   | 582 | .. |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08 | 09 |

| 2018 | Apl   | P  | 1 | 2   | 3   | 4   | 5  | 6   | 7   | 8   | 9  | 10  | 11 | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20  | 21  | 22  | 23  | 24  | 25 | 26  | 27  | 28  | 29 | 30  |     |    |     |    |  |
|------|-------|----|---|-----|-----|-----|----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|----|-----|----|--|
| And  | SY    | L1 | 1 |     |     |     |    |     |     |     |    | 50\ | 55 | 60/ |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     |    |  |
| And  | XX    | 90 |   |     |     |     |    |     |     |     |    |     |    |     |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    | 63  |    |  |
| And  | CD    | L1 | 2 |     |     |     |    |     |     |     |    |     |    |     |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    | 18\ |    |  |
| And  | OV    | 90 |   |     |     |     |    |     |     |     |    |     |    |     |     |     |     |     | 62  |    |    |     |     |     |     | 62  |    |     |     |     |    |     |     |    |     |    |  |
| Aqr  | SW    | RR | 3 |     |     |     |    |     |     |     | 65 |     |    |     |     |     |     |     |     |    |    |     |     |     |     |     |    | 64  |     |     |    |     |     |    |     |    |  |
| Aqr  | SX    | 90 |   |     |     |     |    |     |     |     |    |     |    |     |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     |    |  |
| Aqr  | CD    | ES |   |     |     |     | 96 |     |     |     |    | 79  |    |     |     |     | 63  |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     | 14 |  |
| Aql  | AA    | RR | 3 |     |     |     | 67 |     |     |     |    | 65  |    |     |     | 63  |     |     | 61  |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     |    |  |
| Aql  | V341  | 90 | 3 |     |     | 64  |    |     |     |     |    |     |    |     |     | 62  |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     | 61 |  |
| Aql  | V889  | L1 |   |     |     |     |    | 20  |     |     |    | 14s |    |     |     |     |     |     | 32  |    |    |     |     |     |     | 26s |    |     |     |     |    |     |     |    | 44  |    |  |
| Aql  | V1353 | ES |   |     |     |     | 65 |     |     |     |    | 60s |    |     |     |     | 55  |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    | 58s |    |  |
| Aql  | V1426 | ES |   | 3+  | 20+ | 38+ | 55 | 14+ | 31+ | 49s | 8+ | 25+ | 43 | 1+  | 19+ | 36+ | 54s | 13+ | 30+ | 48 | 6+ | 24+ | 42s | 59s | 18+ | 35+ | 53 | 12+ | 29+ | 47s | 5+ | 23+ | 40+ |    |     |    |  |
| Aql  | V1430 | ES |   | 61s |     |     | 67 |     |     |     |    | 60s |    | 66  |     |     | 59s |     |     |    | 65 |     |     |     |     | 58s |    | 64  | 51  |     |    |     |     |    | 57s |    |  |
| Ari  | RS    | L1 | 2 |     | 86  |     |    |     |     |     |    |     |    |     |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     |    |  |
| Aur  | TZ    | 90 | 3 |     | 36  | 53  | 32 | 49  |     | 45  |    | 41  |    | 37  |     | 32  | 50  |     | 46  |    | 42 |     | 37  |     |     |     |    | 47  |     |     |    |     |     | 42 |     | 38 |  |
| Aur  | CQ    | L1 | 3 |     |     | 85s |    |     |     |     |    | 16  |    |     |     |     | 47s |     |     |    | 78 |     |     |     |     |     |    | 9s  |     |     |    |     |     |    |     | 40 |  |
| Aur  | IY    | ES |   |     |     |     |    |     |     |     | 35 |     |    |     |     |     |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     |    |  |
| Aur  | V432  | ES |   |     |     |     |    |     |     |     |    |     |    |     |     | 36s |     |     |     |    |    |     |     |     |     |     |    |     |     |     |    |     |     |    |     |    |  |
| Boo  | RS    | RR |   | 40  | 53  | 66  | 42 | 55  |     | 43  | 57 | 32  | 45 | 59  | 34  | 47  | 60  | 36  | 49  | 62 | 38 | 51  | 64  | 40  | 53  |     | 41 | 55  |     |     |    | 43  | 57  |    | 45  |    |  |
| Boo  | TW    | 90 |   |     |     |     | 35 | 41  | 47  | 54  | 60 |     |    |     | 33  | 39  | 46  | 52  | 59  | 65 |    |     |     | 38  | 44  | 51  | 57 | 64  |     |     |    |     |     |    | 36  | 43 |  |
| Boo  | UU    | 90 |   | 66  | 57  | 49  | 40 | 31  |     | 60  | 51 | 43  | 34 |     | 62  | 54  | 45  | 37  |     | 65 | 56 | 48  | 39  |     |     |     | 59 | 50  | 42  |     |    |     |     | 62 | 53  | 44 |  |
| JD   | 582   | .. |   | 10  | 11  | 12  | 13 | 14  | 15  | 16  | 17 | 18  | 19 | 20  | 21  | 22  | 23  | 24  | 25  | 26 | 27 | 28  | 29  | 30  | 31  | 32  | 33 | 34  | 35  | 36  | 37 | 38  | 39  |    |     |    |  |

| 2018 | Apl  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28 | 29  | 30  | 31 |  |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|----|--|----|
| Boo  | UY   | 90 | 52  |     | 47  |     | 42  | 38  |     | 33  | 63  |     | 58  |     | 54  |     | 49  | 44  |     | 39  |     | 35  |     | 60  |     | 55  |     | 51  |     |    |     |     |    |  |    |
| Boo  | AC   | ED | 34+ | 39+ | 45+ | 33+ | 39+ | 45+ | 33+ | 39+ | 44+ | 32+ | 38+ | 44+ | 32+ | 38+ | 43+ | 49  | 37+ | 43+ | 49s | 37+ | 43+ | 48  | 36+ | 42+ | 48s | 36+ | 42+ | 48 | 36+ | 41+ |    |  |    |
| Boo  | CM   | 90 |     | 36  | 58  |     | 40  | 62  |     | 45  |     |     | 49  |     | 32  | 54  |     | 37  | 58  |     | 41  | 63  |     | 46  | 50  |     | 55  |     | 38  |    |     |     |    |  |    |
| Boo  | CQ   | 90 | 38+ | 51  | 36+ | 48  | 61  | 46  | 58  | 43  | 56  | 40  | 53  | 38+ | 50  | 35+ | 48  | 60  | 45  | 58  | 42  | 55  | 40  | 52  | 37  | 50  | 34+ | 47  | 60  | 44 | 57  | 42  |    |  |    |
| Boo  | CS   | 90 |     | 37  | 47  | 58  |     |     |     | 35  | 45  | 56  |     |     | 33  | 43  | 54  | 65  |     |     | 41  | 52  | 63  |     | 40  | 50  | 61  |     | 38  | 48 |     |     |    |  |    |
| Cam  | SS   | ES | 16s |     | 57  |     | 99s |     |     | 40  |     | 81s |     |     | 22  |     | 63s |     |     | 4   |     | 46s |     | 87  |     | 28s |     | 69  |     |    |     | 10s |    |  |    |
| Cam  | SV   | S1 | 50s | 39  | 58  | 47s | 36+ | 54  | 43s | 32+ | 51  | 40s | 59s | 47  | 36+ | 55s | 44  | 33+ | 52s | 41  | 59  | 48s | 37  | 56  | 45s | 34+ | 52  | 41s | 60s | 49 | 38s | 56s |    |  |    |
| Cam  | AK   | ES | 3   |     |     |     |     | 31s | 42  | 54s | 65  |     |     |     |     |     |     | 33  | 45s | 56  |     |     |     |     |     |     | 35s | 47  | 58s |    |     |     |    |  |    |
| Cam  | AN   |    | 42s |     |     |     |     | 8   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 42s |     |     |     | 8   |     |    |     |     |    |  |    |
| Cam  | AT   | ES | 51  |     | 60s |     |     | 39s |     | 49  | 58s |     |     |     | 37s | 47  |     | 56s |     | 65  | 35s |     | 45  | 54s |     |     | 63  |     |     | 43 |     |     |    |  |    |
| Cnc  | S    | L1 | 3   | 33  |     |     |     |     |     |     |     |     | 81  |     |     |     |     |     |     |     |     | 30  |     |     |     |     |     |     |     |    |     | 78  |    |  |    |
| Cnc  | RU   | L1 | 2   |     |     |     |     | 30  |     |     |     |     |     |     |     |     |     | 48  |     |     |     |     |     |     |     |     | 65  |     |     |    |     |     |    |  |    |
| Cnc  | RW   | 90 | 56  |     |     |     | 39  | 48  |     |     |     |     | 41  | 50  |     |     |     | 33  | 43  | 52  |     |     |     | 35  | 45  |     |     |     | 37  | 47 |     |     |    |  |    |
| Cnc  | RZ   | L1 | 2   | 29\ | 91s | /   | 53/ |     |     |     |     |     |     | 11\ | 73  | /   | 36/ |     |     |     |     |     |     | 93\ | \   | 55s | /   | 18/ |     |    |     |     |    |  |    |
| Cnc  | TT   | 90 | 39  |     |     | 34  |     | 47  |     |     | 41  |     |     |     |     | 35  |     |     |     |     | 43  |     |     |     |     |     |     |     |     |    |     |     |    |  |    |
| Cnc  | TU   | ES | 3   |     | 25  |     |     |     |     | 81  |     |     |     |     |     |     |     |     |     |     | 93  |     |     |     |     | 49  |     |     |     |    |     |     |    |  |    |
| Cnc  | UU   | L1 | 2   |     |     |     |     | \   | \   |     |     |     |     |     |     |     |     |     |     |     | 48s |     |     |     |     |     |     |     |     |    |     |     |    |  |    |
| Cnc  | AQ   | 90 |     |     |     | 39  | 48  |     |     |     | 32  | 42  |     |     |     |     | 36  | 45  |     |     |     |     | 39  |     |     |     |     | 42  |     |    |     |     |    |  |    |
| CVn  | W    | 90 | 67  |     | 33  | 43  | 54  | 64  |     |     | 40  | 50  | 60  |     |     | 36  | 47  | 57  |     |     |     | 33  | 43  | 54  | 64  |     | 40  | 50  | 61  |    |     | 36  |    |  |    |
| CVn  | Z    | 90 |     | 43  |     | 39  |     | 36  | 66  | 32  | 63  |     | 59  |     | 55  |     | 51  |     | 47  |     |     | 43  |     | 40  |     | 36  | 63  |     | 59  |    | 55  |     |    |  |    |
| CVn  | RS   | S1 |     |     |     | 47  |     |     |     |     |     |     |     |     |     |     |     | 47s |     |     |     |     |     |     |     |     |     |     |     |    | 46  |     |    |  |    |
| CVn  | RZ   | 90 | 37  | 50  | 64  |     | 34  | 48  | 61  |     |     | 45  | 58  |     |     | 42  | 56  |     |     |     | 39  | 53  |     | 36  | 50  | 63  | 34  | 47  | 61  |    |     |     |    |  |    |
| Cas  | RX   | L1 | 2   | /   | /   | /   | /   |     |     |     |     |     |     |     | \   | \   | \   | \   | 6s  | /   | /   | /   | /   |     |     |     |     |     | \   | \  |     |     |    |  |    |
| Cas  | RZ   | S1 |     | 49  |     |     |     |     |     | 46  | 66  |     |     |     |     | 44  | 64  |     |     |     |     |     | 42  | 61  |     |     |     | 39  | 59  |    |     |     |    |  |    |
| Cas  | TV   | S1 |     | 39  |     |     |     |     |     |     | 64  |     |     |     |     |     |     |     |     |     |     |     | 51  |     |     |     |     |     |     |    | 58  |     |    |  |    |
| Cas  | TW   | S1 |     | 31  |     |     |     | 59  |     |     | 45  |     |     |     |     |     |     | 59  |     |     | 45  |     |     |     |     |     | 59  |     |     |    | 45  |     |    |  |    |
| Cas  | TX   | ES |     |     | 58s |     |     | 51s |     |     | 43s |     |     |     | 36s |     |     |     |     |     |     |     |     | 60  |     |     | 53  |     | 46  |    |     |     |    |  |    |
| Cas  | AQ   | L1 | 3   | 88  | 93/ |     |     | 68\ | 74s | 79/ |     |     |     | 54\ | 60  | 65/ |     |     |     |     | 40\ | 46s | 51/ |     | 26\ | 32  | 37/ |     |     |    |     | 12\ |    |  |    |
| Cas  | DN   | ES |     |     |     | 46s | 61  |     |     |     |     |     | 39s | 54  |     |     |     |     |     |     |     | 48  | 63s |     |     |     | 41  | 57s |     |    |     |     |    |  |    |
| Cas  | GG   | ES |     |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |    |  |    |
| Cas  | GU   | EU |     |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     |     |     |     |     |    |     |     |    |  |    |
| Cas  | IL   | ES |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |    |     | 51  |    |  |    |
| Cas  | OX   | EX |     |     |     | 36s | 66  |     |     |     |     | 34s | 64  |     |     |     | 62  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |    |  | 56 |
| Cas  | PV   | EX |     |     | 61s |     |     |     |     |     |     | 61s |     | 45  |     |     |     |     |     |     | 62s | 45  |     |     |     | 62s | 45  |     |     |    |     |     |    |  |    |
| Cas  | V368 | ES |     | 54  |     |     |     |     |     |     |     |     | 44  |     |     |     |     |     |     |     |     |     | 34  |     | 57s |     | 62s | 45  |     |    |     |     |    |  |    |
| Cas  | V375 | ED |     | 50s |     |     | 45s |     | 66  | 39s |     | 60  | 34s | 55  |     |     |     | 50  |     |     |     | 44  |     | 39  |     | 60s | 34  |     | 55s |    |     | 49s |    |  |    |
| Cas  | V381 | EX |     |     | 62s |     |     |     |     |     |     | 61s |     |     |     |     |     |     |     |     | 59s |     |     |     |     | 57s |     |     |     |    |     |     |    |  |    |
| Cas  | V459 | L1 |     | 50s |     |     |     | 79  |     |     |     | 96s |     |     |     | 25  |     |     |     |     |     |     |     |     |     | 71  |     |     | 87s |    |     |     |    |  |    |
| Cep  | RZ   | 90 | 55  | 48  | 41  | 33+ | 57  | 49  | 42  | 34+ | 58  | 50  | 43  | 36  | 59  | 52  | 44  | 37  | 60  | 53  | 45  | 38  | 62  | 54  | 47  | 39  | 63  | 55  | 48  | 40 |     |     | 57 |  |    |
| JD   | 582  | .. | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37 | 38  | 39  | 40 |  |    |

| 2018 | Apl   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Cep  | VW    | S1 | 38+ | 35+ | 33+ | 44+ | 41+ | 39+ | 36+ | 34+ | 45+ | 42+ | 40+ | 37+ | 35+ | 46+ | 43+ | 41+ | 38+ | 36+ | 33+ | 44+ | 42+ | 39+ | 37+ | 34+ | 45+ | 43+ | 40+ | 37+ | 35+ | 46+ |     |  |
| Cep  | XX    | S1 |     | 67  |     |     |     |     |     | 34  |     |     |     |     |     | 35  |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | XY    | ES | 47  |     |     |     |     |     |     |     |     |     |     | 57  |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | ZZ    | S1 |     | 35  |     | 49  |     | 63  |     |     |     |     |     |     |     |     |     |     | 34  |     | 48  |     | 62  |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | AI    | ES | 62  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41s |     | 52  |     | 63s |     |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | CW    | EX |     |     |     | 66  |     |     | 39  |     |     |     | 40s |     |     | 57  |     |     |     |     | 58s |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | EI    | L1 |     |     |     |     | 21  |     |     |     | 43s |     |     |     | 65  |     |     |     |     | 87s |     |     | 9   |     |     |     |     |     | 31s |     |     |     | 50s |  |
| Cep  | EX    | L1 | 2   |     |     |     |     |     |     |     |     |     | 32  |     |     |     |     |     |     |     |     |     |     |     | 75  |     |     |     |     |     |     |     |     |  |
| Cep  | NN    | ES | 57s | 60  | 63s | 66  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 36  | 38s |     |  |
| Com  | S     | 90 | 61  |     | 37  | 54  |     |     | 47  | 65  |     | 41  | 58  |     | 34  | 51  |     |     | 45  | 62  |     | 38  | 55  |     | 48  |     |     |     | 42  | 59  |     | 35  |     |  |
| Com  | ST    | 90 |     | 46  | 66  |     | 46  | 65  |     | 45  | 65  |     | 45  | 64  |     | 44  | 64  |     | 43  | 63  |     | 43  | 63  |     | 42  | 62  |     | 42  | 62  |     | 41  | 61  |     |  |
| CrB  | U     | S1 |     |     | 50  |     |     |     |     |     |     | 40  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| CrB  | RV    | 90 | 41  | 41  | 40  | 40  | 39  | 39  | 38  | 38  | 37  | 37  | 36  | 36  | 35  | 35  | 34  | 34  | 33  | 33  | 65  |     | 64  | 64  | 63  | 63  | 62  | 62  | 61  | 61  | 60  | 60  |     |  |
| Crt  | W     | 90 | 2   | 46  |     |     |     | 41  |     |     |     |     | 35  |     | 41  |     |     |     |     |     | 36  |     | 42  |     |     |     | 36  |     |     |     |     |     |     |  |
| Cyg  | Y     | S1 |     |     |     |     |     | 52  |     | 52  |     |     |     | 52  |     | 51  |     |     |     | 51  |     |     | 50  |     |     | 50  |     |     | 50  |     |     |     | 49  |  |
| Cyg  | UY    | RR |     |     |     |     | 61  |     |     |     |     |     |     |     |     | 58  |     |     |     |     | 62  |     |     |     | 55  |     |     |     |     |     | 60  |     |     |  |
| Cyg  | XZ    | RR | 52  | 46  | 39  |     |     | 65  | 59  | 52  | 45  | 39  |     |     | 65  | 59  | 52  | 45  | 39  |     |     |     | 59  | 52  | 45  | 39  |     |     |     |     | 59  | 52  | 45  |  |
| Cyg  | BO    | ES |     |     | 67s | 55  |     |     |     |     |     |     | 57  |     |     |     |     |     |     |     | 60  |     |     |     |     |     | 62  |     |     |     |     |     |     |  |
| Cyg  | BR    | ES | 51s |     | 51  |     | 51s |     | 51  |     | 50s |     | 50  |     | 50s |     | 50  |     | 50s |     | 50  |     | 50s |     | 50  |     | 50s |     | 49  |     | 49s |     |     |  |
| Cyg  | DM    | RR |     |     | 64  |     |     | 57  |     |     |     |     | 61  |     |     | 55  |     | 65  |     | 59  |     | 59  |     | 53  |     | 63  |     | 57  |     |     |     | 51  |     |  |
| Cyg  | EM    | K1 | 3   | 59  |     | 63  | 50  | 66  | 54  |     | 57  |     | 61  | 48  | 64  | 52  |     | 55  |     | 59  | 46  | 63  | 50  | 54  | 54  | 57  |     | 44  | 61  | 48  |     | 52  |     |  |
| Cyg  | V367  | L1 | 2   | 99s | /   | /   | /   |     |     | \   | \   | \   |     | 29  | /   | /   |     |     |     | \   | \   | 59s | /   | /   |     |     |     |     | \   | \   | 89  | /   |     |  |
| Cyg  | V463  | ES |     |     |     |     |     |     |     |     |     |     | 52  | 58s | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 46  | 52s | 58  |     |  |
| Cyg  | V477  |    |     |     |     |     |     | 54s |     |     |     | 53  |     |     |     | 58s |     |     |     |     |     |     |     |     |     | 62  |     |     |     |     |     |     |     |  |
| Cyg  | V541  | L1 | 83  |     |     |     |     |     |     | 86s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 20s |     |     |     |     |     |     |  |
| Cyg  | V548  | ES | 59  | 49s | 39  |     |     |     |     |     |     | 61  | 52s | 42  |     |     |     |     |     |     |     | 64  | 54s | 45  | 35s |     |     |     |     |     | 57s | 47  |     |  |
| Cyg  | V788  | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     | 65\ | 61  | 56/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V891  | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |     |     | 50  |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V909  | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V1061 | ES |     |     |     | 46  |     |     | 53  |     |     |     | 50  |     |     | 54s |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     | 57s |     |     |  |
| Cyg  | V1918 | ED | 3   | 58s | 40+ | 44+ | 47s | 50  | 53s | 57  | 39+ | 43+ | 46  | 49s | 53  | 56s | 39+ | 42+ | 45s | 48  | 52s | 34+ | 38+ | 41+ | 44  | 48s | 51  | 54s | 37+ | 40+ | 43s | 47  | 50s |  |
| Del  | DX    | 90 | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63  | 58  |     |     |  |
| Dra  | RW    | RR | 43  | 32  | 65  | 53  | 42  | 41  | 64  | 52  | 41  |     | 62  | 51  | 39  |     | 61  | 49  | 38  |     | 59  | 48  | 37  |     | 58  | 47  | 35  | 57  | 45  |     |     |     |     |  |
| Dra  | SU    | RR |     | 44  |     | 43  |     | 41  |     | 39  |     | 37  |     |     |     | 33  | 65  |     |     |     | 63  | 62  |     | 60  |     | 58  | 56  |     | 54  |     |     | 52  |     |  |
| Dra  | SW    | RR | 49  | 63  |     | 34  | 47  | 61  |     | 32  | 46  | 60  |     |     |     | 45  | 59  |     |     |     | 44  | 58  |     | 43  | 56  |     | 41  | 55  |     |     | 40  | 54  |     |  |
| Dra  | TZ    | ED |     | 67s | 54s | 40s |     | 57  | 43  |     | 60s | 47s |     | 63  | 50  | 36  |     | 53s | 39s |     | 56  | 43  |     |     | 59s | 46s |     | 49  | 35  |     | 52s | 38s |     |  |
| Dra  | VZ    | 90 | 61  | 57  | 54  | 50  | 46  | 43  | 39  | 35  | 32+ | 60  | 56  | 53  | 49  | 45  | 41  | 38  | 34  | 62  | 59  | 55  | 51  | 48  | 44  | 40  | 37  |     | 61  | 58  | 54  | 50  |     |  |
| Dra  | WW    | S1 | 3   |     |     |     |     | 46  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |  |
| Dra  | XZ    | RR | 47  | 43  | 38  | 33  |     |     |     | 62  | 57  | 53  | 48  | 43  | 38  | 34  |     |     |     |     | 63  | 58  | 53  | 49  | 44  | 39  | 34  |     |     | 63  | 59  | 54  |     |  |
| JD   | 582   | .. | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  |  |



| 2018 | Apl  | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30 | 31  |    |  |
|------|------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|----|--|
| Dra  | AI   | S1 |    |     |     |     | 50  |     |     |     |     |     | 50  |     |     |     |     |     | 49  |     |     |     |     | 48  |     |     |     |     |     |     |     |    | 48  |    |  |
| Dra  | BF   |    |    |     | 54s |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |     | 55  |     |     | 48  |     |     |     |     |     |     |     |    |     |    |  |
| Dra  | BK   | 90 |    | 37  | 55  |     | 33  | 51  |     |     | 47  | 66  |     | 43  | 62  |     | 40  | 58  |     | 36  | 54  |     |     | 50  |     |     | 46  | 64  |     | 42  | 61  |    |     |    |  |
| Dra  | BU   | ES |    | 49  |     | 41s |     | 32  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64  |     | 55s | 46  |     |     | 38s |     |     |    |     |    |  |
| Dra  | DD   | 90 | 58 | 57  | 55  | 53  | 51  | 49  | 47  | 45  | 43  | 41  | 39  | 37  | 35  | 33  | 64  | 62  | 60  | 58  | 56  | 54  | 52  | 50  | 48  | 46  | 44  | 42  | 40  | 38  | 36  |    |     |    |  |
| Dra  | EX   | K1 | 51 | 35+ | 40+ | 45+ | 50  | 34+ | 39+ | 43+ | 48  | 32+ | 37+ | 42+ | 47  | 52  | 36+ | 41+ | 46  | 51  | 35+ | 40+ | 45  | 50  | 34+ | 39+ | 44  | 49  | 54  | 38+ | 43  | 48 |     |    |  |
| Dra  | GV   | L1 | 3  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |  |
| Equ  | S    | S1 |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |     |     |     |     |    |     |    |  |
| Gem  | U    | K1 | 3  | 37  | 43  | 31+ | 37  | 44  | 32  | 38  | 44  | 33  | 39  | 45  | 34  | 40  | 46  | 34  | 40  |     | 35  | 41  |     | 36  | 42  |     | 36  | 43  |     | 37  | 43  |    | 38  |    |  |
| Gem  | RR   | 90 | 3  |     | 32  |     | 31  | 50  |     | 49  |     | 48  |     | 46  |     | 45  | 44  |     | 42  |     | 41  |     | 39  |     | 38  |     | 37  |     | 35  |     |     |    |     |    |  |
| Gem  | RY   | L1 | 3  |     | 64  |     |     |     |     | 29s |     |     |     | 94  |     |     |     |     | 59s |     |     |     |     | 24  |     |     |     | 90s |     |     |     |    |     |    |  |
| Gem  | SZ   | 90 | 3  |     |     |     |     |     |     |     |     |     |     | 32  | 32  |     |     |     | 33  | 33  | 33  |     | 34  | 34  | 34  | 34  | 34  | 35  | 35  | 35  | 35  | 36 |     |    |  |
| Gem  | WW   | ES |    |     | 35s |     |     |     |     |     |     | 40  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 35s |     |    |     |    |  |
| Gem  | YY   | S1 |    |     | 43s |     | 47  |     | 50s | 32s |     | 35  |     | 39s |     | 42  | 46s |     |     |     |     |     | 35s |     | 38  |     | 42s |     | 45  |     |     |    |     |    |  |
| Gem  | V339 | EU | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |  |
| Her  | TW   | RR |    | 53  |     | 53  |     | 52  |     | 52  |     | 52  |     | 52  |     | 52  |     | 51  |     | 51  |     |     | 51  |     | 51  |     | 50  |     | 50  |     | 50  |    |     |    |  |
| Her  | TX   | S1 |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 35s | 38  | 41s | 44  | 47s | 50  | 53s | 56  | 59s | 61  | 64s |     |     |    |     |    |  |
| Her  | UX   | ED |    | 67  |     |     | 54s |     |     |     | 64s |     |     |     | 51  |     | 61  |     |     |     | 48s |     |     | 58s |     |     |     | 45  |     |     |     | 55 |     |    |  |
| Her  | VX   | RR |    |     | 66  | 57  | 48  |     |     | 58  | 49  | 40  |     |     | 59  | 50  | 41  |     |     |     | 60  | 51  | 42  |     | 61  | 52  | 43  |     |     | 61  | 52  | 44 |     |    |  |
| Her  | VZ   | 90 |    | 49  |     |     | 57  | 45  |     | 66  | 54  | 42  |     | 62  | 50  | 38  | 58  |     | 46  | 34  |     | 55  | 43  |     | 63  | 51  | 39  |     | 59  | 47  | 35  |    | 55  |    |  |
| Her  | AK   | S1 |    | 64  | 48  | 53s | 59  | 64s | 49s | 54  | 59s | 44+ | 49  | 54s | 60  | 44+ | 49s | 55  | 60s | 45s | 50  | 55s | 40+ | 45  | 50s | 56  | 40+ | 45s | 51  | 56s | 40+ | 46 | 51s |    |  |
| Her  | AR   | 90 |    |     | 63  | 57  | 51  | 45  | 39  | 33  |     | 62  |     | 56  | 50  | 44  | 38  |     |     |     | 61  | 55  | 49  | 43  | 37  |     |     | 60  | 54  | 48  | 42  | 36 |     |    |  |
| Her  | AW   | L1 |    |     | 98  |     |     |     |     |     |     |     |     | 78  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38 |     |    |  |
| Her  | DI   | L1 |    |     |     |     | 43s |     |     | 85  |     |     |     |     |     |     | 98s |     |     |     |     |     | 40  |     |     |     |     | 53s |     | 95  |     |    |     |    |  |
| Her  | GU   | EU |    |     |     |     |     |     |     |     |     | 38  |     |     |     | 55s |     |     |     |     |     |     |     |     |     | 41  |     | 58s |     |     |     |    |     |    |  |
| Her  | LV   |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 31  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |    |  |
| Hya  | SZ   | 90 | 2  | 35  | 42  |     |     |     |     |     | 33  | 41  |     |     |     |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     | 36 |  |
| Hya  | WZ   | 90 | 2  |     | 33  | 40  |     |     |     |     |     | 32  | 39  |     |     |     |     |     | 38  |     |     |     |     |     |     | 37  |     |     |     |     |     |    |     |    |  |
| Hya  | AI   | L1 |    |     |     |     | 50  |     |     |     |     |     |     |     | 79  |     |     |     | 49s |     |     |     |     |     | 8   |     | 78s |     |     |     |     |    |     | 37 |  |
| Hya  | ET   | 90 | 2  |     |     |     |     | 32  |     | 38  |     |     |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |    |     |    |  |
| Lac  | RW   | L1 |    | 76s |     |     |     |     |     | 1   |     |     |     |     | 12s |     |     |     | 38  |     |     |     |     | 49s |     |     |     |     | 75  |     |     |    |     |    |  |
| Lac  | SW   | S1 |    |     |     | 67s | 63s |     |     |     | 64  | 60  |     |     | 65s | 61s |     |     | 65  | 62  | 58  |     |     | 63s | 59s | 55s | 63  | 60  | 56  |     |     |    | 61s |    |  |
| Lac  | UW   | ES |    |     | 29  |     |     |     |     | 58  |     |     |     |     | 87  |     |     |     |     |     | 16  |     |     |     |     | 45  |     |     |     |     | 74  |    |     |    |  |
| Lac  | CO   | EX |    |     | 67  |     |     |     | 50s |     |     | 59s |     |     | 47  |     |     |     | 55  |     |     | 64  |     |     |     | 47s |     | 55s |     |     |     |    | 43  |    |  |
| Lac  | CZ   | 90 |    |     | 64  |     | 67  |     | 53  |     | 56  |     |     |     | 58  |     | 60  |     |     |     |     |     |     | 63  | 49  |     | 54  |     |     | 57  |     |    |     |    |  |
| Lac  | V345 | EX |    | 31  |     | 96s |     |     |     |     | 80  |     |     | 45s |     |     |     | 29  |     | 94s |     |     |     |     | 78  |     |     | 43s |     |     |     |    |     |    |  |
| Lac  | V364 | EX |    |     |     |     |     |     |     |     |     |     |     |     | 64s |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |    |     |    |  |
| Leo  | RR   | RR |    | 52  | 43  | 33  |     | 59  | 50  | 40  |     | 57  |     | 47  | 38  |     | 55  |     | 45  | 36  |     |     | 52  | 43  |     |     | 50  | 40  |     |     |     |    | 48  |    |  |
| Leo  | SS   | RR | 3  |     | 55  |     | 42  |     |     | 56  |     | 44  |     |     |     |     | 45  |     |     |     |     |     | 46  | 34  |     | 47  |     | 35  |     |     |     | 48 |     |    |  |
| JD   | 582  | .. |    | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38 | 39  | 40 |  |

| 2018 | Apl  | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11 | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20  | 21  | 22  | 23 | 24  | 25  | 26  | 27 | 28  | 29  | 30  | 31 |     |    |    |
|------|------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|-----|----|----|
| Leo  | ST   | RR | 2 | 58  | 53  | 49  | 45  | 40  | 36  |     |     |     |    | 57  | 53  | 48  | 44  | 39  | 35  |     |    |     |     |     | 56 | 52  | 48  | 43  | 39 |     |     |     |    |     |    |    |
| Leo  | WY   | ES |   |     |     |     | 31  |     |     |     |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Leo  | AG   | ES |   | 53s |     |     |     |     |     |     | 32s |     |    | 41  |     |     |     |     |     | 50s |    |     |     |     |    |     |     |     |    |     |     |     | 37 |     |    |    |
| Leo  | AM   | S1 |   | 44s | 36+ | 45  | 37+ | 47s | 38+ | 48  | 39+ | 49s | 40 | 32+ | 42s | 33+ | 43  | 34+ | 44s | 35+ | 45 | 37+ | 46s | 38  | 48 | 39s | 49s | 40  | 50 | 41s | 51s | 43  |    |     |    |    |
| Leo  | FM   | EU | 3 |     |     |     |     |     |     |     |     | 51s |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Lyn  | TY   | ES |   |     |     |     |     |     |     |     |     |     |    | 57  |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Lyn  | CD   | ES |   |     |     | 32  |     | 59s |     |     |     |     |    | 41  |     |     |     |     |     |     |    |     | 51  |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Lyr  | RR   | RR |   | 48  | 62  |     |     |     | 45  | 59  |     | 42  |    | 55  | 53  | 55  | 58  | 60  |     |     |    | 49  | 62  |     |    | 46  | 59  |     |    | 43  | 56  |     |    |     |    |    |
| Lyr  | RZ   | 90 |   |     |     |     |     |     |     | 44  | 46  | 49  |    | 51  | 53  | 55  | 58  | 60  | 62  | 64  |    |     |     |     |    |     |     |     |    |     | 38  | 40  | 43 |     |    |    |
| Lyr  | UZ   | S1 |   |     |     |     |     |     |     |     | 66  | 61s |    | 55  | 50s | 44  |     |     |     |     |    |     |     |     |    |     |     |     |    | 63s | 57  | 52s | 47 |     |    |    |
| Lyr  | CN   | 90 |   | 48  |     | 54  |     | 60  |     | 65  | 48  |     | 53 |     | 59  | 54  | 59  | 65  |     |     | 53 |     | 58  |     | 64 | 46  |     | 52  |    |     | 58  | 40  | 63 | 46  |    |    |
| Lyr  | EZ   | RR |   | 46  | 51  | 56  | 61  | 67  |     |     |     |     |    | 44  | 49  | 54  | 59  | 65  |     |     |    |     |     | 42  | 47 |     | 52  | 57  | 63 |     |     |     |    |     |    |    |
| Lyr  | IO   | 90 | 3 |     | 48  | 63  |     |     | 52  |     |     |     | 56 |     |     | 44  | 60  |     |     |     | 48 | 64  |     |     | 52 |     |     | 41  | 56 |     |     |     | 45 | 60  |    |    |
| Lyr  | beta | S1 |   | 79s |     |     |     |     |     |     | 26  |     |    |     |     |     | 73s |     |     |     |    |     |     |     | 20 |     |     |     |    |     |     | 67s |    |     |    |    |
| Mon  | UX   | ES | 2 | 43  |     |     | 38s |     |     | 33  |     | 28s |    |     |     | 23  |     |     | 19s |     |    | 14  |     |     |    | 9s  |     |     |    |     |     |     |    |     |    |    |
| Mon  | VV   | ES | 2 |     | 30s |     |     | 32  |     |     |     | 35s |    | 37  |     |     | 40s |     |     | 42  |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Mon  | AR   | L1 | 1 |     |     |     |     |     | 97\ | 81s | 66\ |     |    |     |     |     |     |     |     | 57\ | 42 | 27\ |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Mon  | AV   | ES | 2 |     | 78s |     |     |     | 25  |     |     | 73s |    |     |     | 20  |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Mon  | EZ   | EU | 3 |     |     |     |     |     |     |     |     |     |    | 32s |     |     | 33s |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Mon  | IL   | ES | 2 | 50  |     |     |     | 53  |     |     |     | 55  |    |     |     | 58  |     |     |     |     |    |     |     | 60  |    |     | 63  |     |    |     |     |     |    |     | 66 |    |
| Mon  | V448 | ES |   |     |     | 37s |     |     |     |     |     |     |    | 32s |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Mon  | V530 | EU | 3 |     |     |     | 32s | 37s |     |     |     | 32  | 37 |     |     |     | 36s |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Oph  | U    | ST |   |     |     | 55  |     |     |     |     | 58  |     |    |     |     | 61  |     |     |     |     |    |     | 64  | 48s |    |     |     | 51s |    |     |     |     |    | 55s |    |    |
| Oph  | ST   | 90 | 2 |     | 62  | 52  |     |     | 67  | 57  |     |     |    | 62  | 52  |     |     |     | 58  | 48  |    |     |     |     |    |     |     |     |    |     |     |     |    |     | 54 |    |
| Ori  | Z    | ES | 2 | 77  |     |     |     |     | 97  |     |     |     |    |     | 17  |     |     |     |     |     |    |     |     |     |    |     | 58  |     |    |     |     |     |    |     |    |    |
| Ori  | CP   | ES | 2 | 40  |     |     |     |     | 72  |     |     |     |    |     | 4   |     |     |     |     |     |    |     | 36  |     |    |     |     | 68  |    |     |     |     |    |     |    |    |
| Ori  | DN   | L1 | 2 |     |     |     |     |     |     | 56  |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Ori  | FO   | L1 | 2 |     |     |     |     |     |     | 59  |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Ori  | FT   | EX |   |     |     |     |     |     |     |     |     |     |    |     | 33  |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | VV   | RR |   |     |     |     |     |     |     |     |     |     |    |     | 65  | 63  | 61  |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | VW   |    |   | 11  |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | AV   | RR |   |     |     |     | 67  |     | 62  |     |     |     |    |     |     | 64  | 60  |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | AW   | L1 |   |     |     |     |     | 70s |     |     |     |     |    | 1   |     |     |     |     | 32s |     |    |     |     | 63  |    |     |     |     |    |     |     |     |    | 94s |    |    |
| Peg  | BH   | 90 |   |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | BK   | ES |   |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | CG   | 90 |   | 62  |     |     |     |     |     |     | 62  |     |    |     |     |     | 63  |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    | 58 |
| Peg  | DF   | L1 |   |     |     |     | 26  |     |     |     |     |     |    |     |     |     |     |     |     |     |    | 95  |     |     | 64 | 57  |     |     |    |     |     |     |    |     |    |    |
| Peg  | DH   | RR | 3 |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| Peg  | GH   | ES |   |     |     |     |     |     | 63  |     |     |     |    |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |    |    |
| JD   | 582  | .. |   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27 | 28  | 29  | 30  | 31 | 32  | 33  | 34  | 35 | 36  | 37  | 38  | 39 | 40  |    |    |

| 2018 | Apl   |    | P | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |
|------|-------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Peg  | IP    | K1 |   |     |     |     |     |     | 33  |     |     |     |     |     |     |     |     |     | 65  |     |     | 53  |     |     |     |     |     |     |     |     |     |     |     | 62  |     |
| Per  | RW    | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Per  | AR    | 90 |   |     | 42  |     |     | 40  |     |     |     |     |     | 36  |     |     | 34  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |
| Per  | AY    | L1 |   |     |     |     |     |     |     |     |     |     | 90  |     |     |     |     |     |     |     |     |     |     | 67  |     |     |     |     |     |     |     |     |     |     |     |
| Per  | KN    | EU |   | 33  |     |     |     | 37s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Per  | LX    | L1 |   |     |     |     | 26  |     |     |     | 28s |     |     |     | 30  |     |     |     | 31s |     |     |     |     |     |     | 35s |     |     |     |     |     |     |     |     |     |
| Per  | beta  | S1 |   |     |     |     | 35s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Sge  | SY    | ES |   |     | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 57s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser  | VY    | RR |   |     |     | 44  |     | 58  |     |     | 44  |     | 58  |     |     | 43  |     | 58  |     |     | 43  |     |     |     |     | 43  |     | 57  |     |     |     |     |     |     | 57  |
| Ser  | AN    | 90 |   | 57  | 61  | 66  |     |     |     |     |     | 40  | 44  | 49  | 53  | 58  | 62  |     |     |     |     |     |     | 41  | 45  | 50  | 54  | 58  | 63  |     |     |     |     |     |     |
| Ser  | BH    | 90 |   | 55  | 42  |     |     | 59  | 46  |     | 63  | 50  | 37  |     | 54  | 41  |     | 59  | 45  |     | 63  | 50  | 37  |     | 54  | 41  |     | 58  | 45  |     | 62  | 49  | 36  |     |     |
| Ser  | EG    | L1 |   |     |     |     |     | 32s |     |     |     |     |     |     |     |     |     | 27s |     |     |     |     |     |     |     |     |     | 22s |     |     |     |     |     |     | 19  |
| Ser  | LX    | K1 |   | 53  | 48+ | 43+ | 38+ | 49+ | 44+ | 39+ | 50+ | 45+ | 40+ | 35+ | 46+ | 41+ | 36+ | 47+ | 42+ | 37+ | 48+ | 43+ | 38+ | 49  | 44+ | 39+ | 34+ | 45+ | 40+ | 35+ | 46+ | 41+ | 36+ |     |     |
| Sex  | T     | 90 |   | 49  | 46  | 44  | 41  | 39  | 36  | 34  |     |     |     |     |     |     |     | 48  | 45  | 43  | 40  | 37  | 35  |     |     |     |     |     |     |     |     |     |     | 39  |     |
| Tau  | EN    | ES | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tau  | V1094 | L1 |   | 73s |     |     | 85  |     |     |     |     |     | 72s |     |     | 84  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| UMa  | W     | S1 |   | 32+ | 32+ | 32+ | 32+ | 32+ | 32+ | 33+ | 33+ | 33+ | 33+ | 33+ | 33+ | 33+ | 33+ | 33+ | 33+ | 33+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ | 34+ |
| UMa  | RV    | RR |   | 37  | 31  |     | 65  | 58  | 52  | 46  | 39  | 33  |     |     | 61  | 54  | 48  | 41  |     | 35  |     |     |     | 35  |     |     | 63  | 56  | 50  | 44  | 37  |     |     |     |     |
| UMa  | RW    | ES |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 34s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| UMa  | TU    | RR |   | 55  | 67  |     | 34  | 45  | 57  |     |     | 36  | 47  | 59  |     |     | 38  | 49  | 61  |     |     |     |     | 61  |     |     | 40  | 51  | 63  |     |     | 41  | 53  |     |     |
| UMa  | TX    | S1 | 3 |     |     |     |     |     |     |     |     |     |     |     | 37  |     |     |     | 43  |     |     | 49  |     |     |     | 55  |     | 62  |     |     |     |     |     |     |     |
| UMi  | W     | S1 | 3 |     |     |     |     | 52  |     |     |     |     | 62  |     | 32  |     |     |     |     | 42  |     |     |     |     |     | 53  |     |     |     | 63  |     |     |     |     |     |
| Vir  | ST    | 90 | 2 |     | 60  | 42  | 66  | 48  |     | 53  |     | 59  | 41  | 64  | 46  |     | 52  |     | 57  | 39  | 62  | 45  |     |     | 50  |     | 55  | 38  | 61  | 43  |     | 48  |     | 54  |     |
| Vir  | AG    | ED |   | 55s | 51  | 48s | 44  | 41s | 37  | 33s | 62s | 58  | 55s | 51  | 47s | 44  | 40s | 37  | 33s |     | 58  | 54s | 51  |     | 47s | 44  | 40s | 36  |     | 58  | 54s | 50  | 47s |     |     |
| Vir  | AH    | S1 |   | 46s | 48  | 50s | 31+ | 33+ | 35+ | 37+ | 39+ | 41+ | 43+ | 45  | 46s | 48  | 50s | 52  | 34+ | 35+ | 37+ | 39+ | 41  |     | 43s | 45  | 47s | 49  | 51s | 52  | 34+ | 36+ | 38  | 40s |     |
| Vir  | AT    | 90 | 2 | 47  | 52  | 57  |     |     |     |     |     | 36  | 41  | 46  | 51  | 56  |     |     |     |     |     | 34  | 40  |     | 45  | 50  | 55  |     |     |     |     |     |     | 39  |     |
| Vir  | AV    | 90 |   | 32  | 64  |     | 61  |     | 58  |     | 55  |     | 52  |     | 49  |     | 46  |     | 43  |     | 40  |     | 37  |     |     | 35  |     |     | 60  |     | 57  |     |     |     |     |
| Vir  | CG    | ES |   | 52s | 46s | 40s |     |     | 67  | 60  | 54  | 47  | 41  |     |     |     | 62s | 55s | 49s | 42s | 36s |     |     |     | 63  | 57  | 50  | 44  | 37  |     |     | 58s | 52s |     |     |
| Vul  | Z     | S1 |   |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     | 52  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Vul  | BN    | 90 |   |     | 58  |     |     | 55  |     |     | 52  |     |     | 49  |     |     |     |     |     |     |     | 62  |     |     |     | 59  |     | 56  |     |     | 53  |     |     |     | 50  |
| Vul  | DR    | EX |   |     |     |     |     |     |     | 64s | 55  |     |     |     |     |     |     |     |     | 64s | 55  |     |     |     |     |     | 64s | 55  |     |     |     |     |     |     |     |
| Vul  | EV    | ES |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |
| JD   | 582   | .. |   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  |     |     |

| 2018 | Mai |    | P | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14  | 15 | 16 | 17  | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |    |
|------|-----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| And  | SW  | RR |   |    |    | 63 |    |    |    |    | 61 |    |    |    |    |    |     |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 60 |
| And  | SY  | L1 | 1 |    |    |    |    |    |    |    |    |    |    |    |    |    | 41\ |    | 46 | 51\ |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| JD   | 582 | .. |   | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53  | 54 | 55 | 56  | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |    |



| 2018 | Mai  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26 | 27  | 28  | 29  | 30  | 31  |  |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|--|
| CVn  | W    | 90 | 47  | 57  |     |     |     | 43  | 54  |     |     |     | 40  | 50  | 61  |     |     | 37  | 47  | 57  |     |     | 43  | 54  |     |     |     | 40 | 50  |     |     |     |     |  |
| CVn  | Z    | 90 |     | 51  |     | 48  |     | 44  |     | 40  |     | 36  |     |     |     |     | 59  |     | 55  |     | 52  |     | 48  | 44  |     | 40  |     |    |     |     |     |     |     |  |
| CVn  | RS   | S1 |     |     |     |     |     |     |     |     |     |     | 46s |     |     |     |     |     |     |     |     |     |     | 45  |     |     |     |    |     |     |     |     |     |  |
| CVn  | RZ   | 90 | 44  | 58  |     |     | 42  | 55  |     |     | 39  | 52  |     |     | 36  | 49  |     |     |     |     | 47  | 60  |     | 44  | 57  |     | 41  | 54 |     |     | 38  | 52  |     |  |
| Cas  | RX   | L1 | 2   | \   | \   | 23  | /   | /   | /   | /   |     |     |     |     |     |     | \   | \   | \   | \   | 40s | /   | /   | /   | /   |     |     |    |     |     |     |     | \   |  |
| Cas  | RZ   | S1 |     | 37  | 56  |     |     |     |     |     | 54  |     |     |     |     |     | 52  |     |     |     |     |     | 49  |     |     |     |     | 47 |     |     |     |     |     |  |
| Cas  | SX   | L1 | 2   | 7\  | 90  | /   | 73/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | TV   | S1 |     |     |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     | 52  |     |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | TW   | S1 |     |     |     |     |     | 59  |     |     | 45  |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     | 59  |    | 58  |     |     | 39  |     |  |
| Cas  | TX   | ES |     | 38  |     |     |     |     |     |     |     |     |     |     | 56s |     |     |     | 48s |     |     | 41s |     |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | AQ   | L1 | 3   | 18s | 23/ |     | 98\ | \   | 4   | 9/  |     |     | 85\ | 90s | 95/ |     |     | 71\ | 76  | 81/ |     |     |     | 57\ | 62s | 67/ |     |    | 43\ | 48  | 54/ |     |     |  |
| Cas  | DN   | ES |     |     |     | 50s |     |     |     |     |     |     | 43s | 59  |     |     |     |     |     |     |     |     |     |     |     |     | 45  |    |     |     |     |     |     |  |
| Cas  | GG   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     | 46  |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | GU   | EU |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | IL   | ES |     |     |     |     |     | 42  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     | 58  |  |
| Cas  | IT   | EX |     | 57  |     |     |     |     | 62s |     |     |     | 51s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | OX   | EX |     |     |     |     | 53  |     |     |     |     | 51  |     |     |     |     | 49  |     |     |     |     | 47  |     |     |     | 45  |     |    |     |     | 43  |     |     |  |
| Cas  | PV   | EX |     | 62s | 45  | 37s |     |     |     | 62s | 45  | 37s |     |     |     |     |     | 46  | 37s |     |     |     |     | 46  | 38s |     |     |    |     | 46  |     | 38s |     |  |
| Cas  | V368 | ES |     | 47s |     |     |     |     |     |     |     |     | 60  |     |     |     |     |     |     |     |     |     | 50  |     |     |     |     |    |     |     |     |     |     |  |
| Cas  | V375 | ED |     |     | 44s |     |     | 39s |     | 60  |     |     | 55  |     | 49  |     |     |     | 44  |     |     | 39  |     | 60s |     | 54s |     |    | 49s |     |     | 44s |     |  |
| Cas  | V381 | EX |     | 56s |     |     |     |     | 54s |     |     |     |     |     |     |     | 53s |     |     |     |     |     | 51s |     |     |     |     |    | 49s |     |     |     |     |  |
| Cas  | V459 | L1 |     |     | 16  |     |     | 33s |     |     |     | 62  |     |     |     |     |     |     |     |     |     |     |     | 25s |     |     |     | 54 |     |     |     |     | 70s |  |
| Cep  | RZ   | 90 | 49  | 42  |     | 58  | 50  | 43  | 36  | 59  | 52  | 44  | 37  | 60  | 53  | 45  | 38  | 61  | 54  | 47  | 39  |     | 55  | 48  | 40  |     | 56  | 49 | 42  |     | 58  | 50  | 43  |  |
| Cep  | VW   | S1 | 44+ | 41+ | 38+ | 36+ | 47+ | 45+ | 42+ | 39+ | 37+ | 48+ | 46+ | 43+ | 40+ | 38+ | 49s | 46+ | 44+ | 41+ | 39+ | 50s | 47+ | 45+ | 42+ | 40+ | 37+ | 48 | 46+ | 43+ | 41+ | 38+ | 49  |  |
| Cep  | XX   | S1 |     |     |     |     | 39  |     |     |     |     |     | 40  |     |     |     |     |     |     |     |     |     | 41  |     |     |     |     | 43 |     |     |     |     |     |  |
| Cep  | XY   | ES |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     |     | 41  |     |     |     |     |    |     |     |     |     |     |  |
| Cep  | ZZ   | S1 |     |     |     | 47  |     | 61  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |    |     |     |     |     |     |  |
| Cep  | AI   | ES |     |     |     |     | 42  |     | 53s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 43s |     | 55  |    |     |     |     |     |     |  |
| Cep  | CW   | EX |     |     |     |     |     |     | 41  |     |     |     | 42s |     |     |     | 60  |     |     |     |     |     |     |     |     |     |     | 51 |     |     |     |     | 52s |  |
| Cep  | EI   | L1 |     |     | 75s |     |     |     |     | 97  |     |     |     |     | 19s |     |     |     | 41  |     |     |     | 63s |     |     | 85  |     |    |     |     |     |     | 7s  |  |
| Cep  | EX   | L1 | 2   |     |     |     |     |     | 19  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 62  |     |     |     |    |     |     |     |     |     |  |
| Cep  | NN   | ES |     | 41  | 44s | 47  | 50s | 56s | 59  | 62s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| Com  | S    | 90 | 52  |     |     | 46  |     |     | 39  | 56  |     |     | 50  |     |     | 43  |     |     |     |     |     |     | 47  |     | 40  |     |     |    |     |     |     |     | 44  |  |
| Com  | ST   | 90 |     | 41  | 61  |     | 40  | 60  |     | 40  | 60  |     | 39  | 59  |     | 39  | 58  |     | 38  | 58  |     | 38  |     | 57  |     | 37  | 57  | 37 | 56  |     |     | 56  |     |  |
| CrB  | U    | S1 |     |     |     | 57  |     |     |     |     |     |     | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| CrB  | RV   | 90 | 59  | 59  | 58  | 58  | 57  | 57  | 56  | 56  | 55  | 55  | 54  | 54  | 53  | 53  | 52  | 52  | 51  | 51  | 50  | 50  | 49  | 49  | 48  | 48  | 47  | 47 | 46  | 46  | 45  | 45  | 44  |  |
| Crt  | W    | 90 | 2   |     | 36  |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |  |
| Cyg  | Y    | S1 |     |     | 49  |     |     | 49  |     |     | 48  |     |     | 48  |     |     | 47  |     |     |     |     | 47  |     |     | 46  |     |     | 46 |     | 38s |     | 46  |     |  |
| Cyg  | UY   | RR |     | 52  |     |     |     |     | 57  |     |     |     | 49  | 61  |     |     |     | 54  |     |     |     | 46  |     | 58  |     |     | 51  |    |     |     | 43  |     | 56  |  |
| JD   | 582  | .. | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65 | 66  | 67  | 68  | 69  | 70  |  |

| 2018 | Mai   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Cyg  | XZ    | RR | 38  |     |     |     | 58  | 52  | 45  | 38  |     |     |     | 58  | 52  | 45  | 38  |     |     |     | 58  | 52  | 45  | 38  |     |     | 58  | 51  | 45  | 38  |     |     |     |     |  |
| Cyg  | BO    | ES |     |     | 52s |     |     |     |     |     |     | 55s |     |     |     |     |     |     | 57s | 45  |     |     | 58  | 48  | 60s | 48  |     |     |     |     |     |     |     |     |  |
| Cyg  | BR    | ES | 49  |     | 49s |     | 49  |     |     | 49s |     | 49  | 49s |     | 48  |     | 48s |     | 48  |     | 48s |     | 48  | 48s | 48  |     | 48s |     | 48  |     |     |     | 47s |     |  |
| Cyg  | DM    | RR |     | 61  |     |     | 55  |     |     | 48  |     | 58  |     |     | 52  |     |     | 46  |     | 56  |     |     | 50  | 60  | 44  |     | 54  |     | 48  |     |     |     | 58  |     |  |
| Cyg  | EM    | K1 | 3   | 55  | 43  | 59  | 46  |     | 50  |     | 54  | 41  | 57  | 44  | 61  | 48  |     | 52  | 39  | 55  | 43  | 59  | 46  | 50  | 37  | 54  | 41  | 57  | 44  |     | 48  |     |     |     |  |
| Cyg  | V367  | L1 | 2   | /   | /   |     |     | \   | \   | \   | 19s | /   | /   |     |     |     | 41  |     | \   | \   | 48  | /   | /   |     | \   |     | \   | 78s | /   | /   | /   |     |     |     |  |
| Cyg  | V463  | ES |     |     |     |     |     |     |     |     |     |     |     |     |     | 41  |     | 46s | 52  | 58s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V477  |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 44s |     |     |     | 43  |     | 48s |     |     |     | 47  |     |     | 52s |     |     |     |  |
| Cyg  | V541  | L1 |     | 51  |     |     |     |     |     |     | 54s |     |     |     |     |     |     |     | 85  |     |     |     |     | 48s |     | 88s |     |     |     |     |     |     |     |     |  |
| Cyg  | V548  | ES | 38s |     |     |     |     |     |     | 60s | 50  | 40s |     |     |     |     |     |     |     |     | 52  | 43s |     |     |     |     |     | 55  | 45s |     |     |     |     |     |  |
| Cyg  | V788  | L1 |     |     |     |     |     |     |     | 57  | 53  | 49  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 52  |     |     | 43  |     |  |
| Cyg  | V891  | ES |     |     |     |     |     |     |     | 56  |     | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 43s |     |     |     |     |  |
| Cyg  | V909  | ES |     |     |     |     | 58  |     |     |     |     |     |     | 60s |     | 40s |     |     |     |     |     | 61  |     | 42  |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V1061 | ES |     | 62  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |     |     |     |     | 43  |     |     |     |     |     |  |
| Cyg  | V1918 | ED | 3   | 53  | 36+ | 39+ | 42+ | 46s | 49  | 52s | 56  | 38+ | 42+ | 45  | 48s | 51  | 55s | 37+ | 41+ | 44s | 47  | 51s | 54  | 57s | 40+ | 43  | 46s | 50  | 53s | 56  | 39+ | 42s | 45  | 49s |  |
| Del  | DX    | 90 |     |     |     |     |     | 61  | 56  |     |     |     |     |     |     |     | 59  | 54  | 48  |     |     |     |     | 57  | 52  |     | 46  |     |     |     |     |     |     |     |  |
| Dra  | RW    | RR | 55  | 44  |     |     | 54  | 43  |     |     |     | 41  |     | 51  | 40  |     |     | 61  | 50  | 38  |     |     | 60  | 48  | 37  |     | 59  | 47  |     | 57  | 46  |     |     |     |  |
| Dra  | SU    | RR | 50  |     | 48  |     | 47  |     | 45  |     | 43  |     | 41  |     | 39  |     | 37  |     | 49  |     |     |     |     |     |     | 47  | 61  | 60  | 58  |     | 56  |     |     |     |  |
| Dra  | SW    | RR |     |     | 39  | 53  |     |     | 38  | 52  |     |     | 36  | 50  |     |     |     |     | 49  |     |     |     |     |     |     | 47  | 61  |     | 45  | 59  |     |     |     |     |  |
| Dra  | TZ    | ED |     | 55  | 42  |     | 58s | 45s |     | 61  | 48  |     |     | 51s | 37s |     | 54  | 41  |     | 57s | 44s |     | 60  | 47  |     |     | 50s | 37s | 53  | 40  |     |     | 56s |     |  |
| Dra  | VZ    | 90 | 47  | 43  | 39  | 35  |     | 60  | 56  | 53  | 49  | 45  | 42  | 38  |     | 59  |     | 55  | 52  | 48  | 44  | 40  | 37  |     | 61  | 58  | 54  | 50  | 47  | 43  | 39  |     |     |     |  |
| Dra  | WW    | S1 | 3   |     |     |     |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |     |     |     |     |     |  |
| Dra  | XZ    | RR | 49  | 44  | 40  | 35  |     |     |     |     | 59  | 54  | 50  | 45  | 40  | 36  |     |     |     |     |     | 60  | 55  | 50  | 46  | 41  |     |     |     | 60  | 56  |     | 51  |     |  |
| Dra  | AI    | S1 |     |     |     |     | 47  |     |     |     |     |     | 47  |     |     |     |     |     |     | 46  |     |     |     |     | 46  |     |     |     |     | 45  |     |     |     |     |  |
| Dra  | BF    |    | 76  |     |     |     |     |     |     |     |     |     |     | 97  |     |     |     |     |     |     | 39s |     |     |     |     |     | 18  |     |     |     | 60s |     |     |     |  |
| Dra  | BK    | 90 | 38  | 57  |     |     | 53  |     |     | 49  |     |     | 45  |     | 41  | 59  |     |     | 37  | 55  |     |     | 51  |     |     | 47  |     | 43  |     |     | 39  |     | 58  |     |  |
| Dra  | BU    | ES |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     | 52s |     | 43  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Dra  | DD    | 90 |     | 63  | 61  | 59  | 57  | 55  | 53  | 51  | 49  | 47  | 45  | 43  | 41  | 39  | 38  |     |     |     |     | 60  |     | 58  | 56  | 54  | 53  | 51  | 49  | 47  | 45  | 43  | 41  | 39  |  |
| Dra  | EX    | K1 | 53  | 37+ | 42+ | 47  | 52  | 36+ | 41+ | 46  | 51  | 56  | 40+ | 44  | 49  | 54  | 38+ | 43  | 48  | 53  | 37+ | 42  | 47  | 52  | 57  | 41  | 46  | 51  | 56  | 40  | 45  | 50  | 55  |     |  |
| Dra  | GV    | L1 | 3   |     |     |     |     |     |     |     |     |     | 63  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Equ  | S     | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Gem  | U     | K1 | 3   |     | 39  |     |     | 39  |     |     | 40  |     |     |     | 36  |     |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     |     |     |     |     |  |
| Gem  | RR    | 90 | 3   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     |     |  |
| Gem  | RY    | L1 | 3   | 55  |     |     |     | 20s |     |     |     | 85  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Gem  | SZ    | 90 | 3   | 36  | 36  | 36  | 37  | 37  | 37  | 37  | 38  | 38  | 38  | 38  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Gem  | YY    | S1 |     |     | 37s |     | 41  |     |     |     |     |     |     |     | 37  |     |     | 40s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Her  | TW    | RR | 50  |     | 50  |     | 49  |     | 49  |     |     |     | 49  |     | 49  |     | 48  |     | 48  |     |     |     | 48  |     | 48  |     | 47  |     | 47  |     | 47  |     |     | 47  |  |
| Her  | TX    | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  | 42s | 45  | 48s | 51  | 54s | 57  | 60s |     |     |  |
| Her  | UX    | ED |     |     | 42s |     |     | 52s |     |     | 61s | 39  |     |     | 49  |     |     | 58  |     |     |     |     | 46s |     |     | 55s |     |     | 43  |     |     |     | 52  |     |  |
| JD   | 582   | .. | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  |     |  |

| 2018 | Mai  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11 | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21 | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Her  | VX   | RR | 35  |     | 62  | 53  | 44  | 36  |     |     |     | 54  | 45 | 36  |     |     | 55  | 46  | 37  |     |     | 56  | 47 | 38  |     |     | 57  | 48  | 39  |     |     | 58  | 49  | 40  |    |
| Her  | VZ   | 90 | 43  |     |     | 52  | 40  |     |     |     | 60  | 48  | 36 | 56  | 44  |     | 52  |     | 41  |     | 61  | 49  | 37 |     |     | 57  | 45  | 53  | 41  |     |     | 50  | 38  |     |    |
| Her  | AK   | S1 | 57  | 41+ | 46s |     | 52  | 36+ | 41+ | 47  | 52s | 36+ | 42 | 47s | 53  | 37+ | 42s | 48  | 53s | 37+ | 43  | 48s | 53 | 38+ | 43s | 49  | 54s | 38+ | 44  | 49s | 54  | 39+ | 44s | 49  |    |
| Her  | AR   | 90 |     |     |     | 59  | 53  | 47  | 41  |     |     |     |    |     | 58  | 52  | 46  | 40  |     |     |     |     | 57 | 51  | 45  | 39  |     |     |     |     | 56  | 50  | 44  | 38  |    |
| Her  | AW   | L1 |     |     |     |     |     |     |     | 18  |     |     |    |     |     |     |     |     | 98  |     |     |     |    |     |     | 78  |     |     |     |     |     |     |     |     |    |
| Her  | DI   | L1 |     |     |     |     |     |     | 8s  |     | 50  |     |    |     |     |     |     |     |     | 63s |     | 5   |    |     |     |     |     |     |     | 18s |     | 60  |     |     |    |
| Her  | GU   | EU |     |     |     |     |     | 44  |     | 61s |     |     |    |     |     |     |     |     |     |     |     | 47  |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Her  | LV   |    |     |     | 74  |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |    | 18  |     |     |     |     |     |     |     |     |     |     |    |
| Hya  | WZ   | 90 | 2   | 36  |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Hya  | AI   | L1 |     |     |     | 7s  |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Lac  | RW   | L1 |     | 86s |     |     |     |     |     | 11  |     |     |    |     | 23s |     |     |     |     | 48  |     |     |    |     | 60s |     | 85  |     |     |     |     |     |     |     |    |
| Lac  | SW   | S1 | 57s | 53s |     | 62  | 58  | 54  |     | 62s | 59s | 55s |    | 51s | 60  | 56  | 52  |     | 60s | 57s | 53s | 49s | 61 | 58  | 54  | 50  | 46  | 58s | 55s | 51s | 47s | 59  | 56  |     |    |
| Lac  | UW   | ES |     |     |     | 3   |     |     |     |     | 32  |     |    |     |     | 61  |     |     |     |     |     | 90  |    |     |     | 19  |     |     |     |     |     |     | 48  |     |    |
| Lac  | CO   | EX |     |     | 52  |     |     | 60  |     |     |     | 43s |    |     | 52s |     |     | 60s | 40  |     |     |     | 48 |     | 57  |     | 40s |     |     |     | 48s |     |     |     |    |
| Lac  | CZ   | 90 | 59  | 45  |     | 61  | 48  |     |     | 50  |     |     |    | 53  |     | 55  | 42  |     | 58  | 44  |     | 60  | 47 |     | 49  |     | 51  | 38  |     | 54  |     |     |     |     |    |
| Lac  | V345 | EX | 27  |     | 92s |     |     |     |     | 77  |     |     |    | 41s |     |     |     | 26  |     | 91s |     |     |    |     | 75  |     | 40s |     |     |     |     |     |     | 24  |    |
| Leo  | RR   | RR | 38  |     |     |     | 45  | 36  |     |     |     | 43  |    |     |     | 40  |     |     |     |     | 48  | 38  |    |     |     | 45  |     |     |     |     | 43  |     |     |     |    |
| Leo  | SS   | RR | 3   | 36  |     |     | 49  | 37  |     |     |     |     |    | 38  |     |     |     | 39  |     |     |     |     |    | 40  |     |     | 41  |     |     |     |     |     |     | 42  |    |
| Leo  | ST   | RR | 2   |     |     |     | 51  | 47  | 43  | 38  |     |     |    |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     | 46  | 41  |     |     |     |    |
| Leo  | AG   | ES |     |     |     |     | 46s |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |    | 42s |     |     |     |     |     |     |     |     |     |     |    |
| Leo  | AM   | S1 | 44s | 35  | 45  | 36s | 46s | 38  | 47  | 39s | 49s | 40  |    | 41s |     | 42  |     | 44s | 45  |     | 46s | 37  |    | 39s | 40  |     | 41s |     | 42  |     |     |     |     | 43s |    |
| Leo  | FM   | EU | 3   |     |     |     |     | 42s |     |     |     |     |    |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyn  | CD   | ES |     |     |     |     |     |     | 44s |     |     |     |    |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyr  | RR   | RR | 39  | 53  |     |     | 36  | 50  |     |     |     | 46  | 60 |     |     | 43  | 57  |     |     |     |     | 40  | 53 |     |     | 37  | 50  |     |     |     |     |     |     |     | 44 |
| Lyr  | RZ   | 90 | 45  | 47  | 49  | 52  | 54  | 56  | 58  | 61  |     |     |    |     |     |     |     |     |     |     |     |     |    | 39  | 41  | 43  | 45  | 48  | 50  | 52  | 54  | 57  | 59  |     |    |
| Lyr  | UZ   | S1 | 41s |     |     |     |     |     |     |     |     |     |    |     |     |     | 60  | 54s | 49  | 43s | 38  |     |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyr  | CN   | 90 | 51  |     | 57  | 39  | 63  | 45  |     | 51  |     | 56  | 39 | 62  | 44  | 50  |     | 56  | 38  | 61  | 44  |     |    |     | 49  | 55  | 37  | 61  | 43  |     | 49  |     |     | 54  |    |
| Lyr  | EZ   | RR | 40  | 45  | 50  | 55  | 61  |     |     |     |     |     | 38 | 43  | 48  | 53  | 59  |     |     |     |     |     |    |     | 41  | 46  | 51  | 57  |     |     |     |     |     |     |    |
| Lyr  | IO   | 90 | 3   |     | 49  |     | 38  | 53  |     |     | 42  | 57  |    |     |     | 46  | 61  |     |     |     |     |     |    | 50  |     | 38  |     |     |     |     |     |     |     |     |    |
| Lyr  | beta | S1 |     |     |     | 14  |     |     |     |     |     | 61s |    |     |     |     |     | 9   |     |     |     |     |    |     |     | 56s |     |     |     |     |     |     | 3   |     |    |
| Oph  | U    | ST |     |     | 58s | 42  |     |     |     |     | 61s | 45  |    |     |     |     | 48  |     |     |     |     | 51  |    |     |     | 54  | 38s |     |     |     |     | 58  |     | 41s |    |
| Oph  | ST   | 90 | 2   | 44  |     | 59  | 49  |     |     |     | 55  | 45  |    |     | 60  | 50  | 40  |     |     |     | 55  | 45  |    |     | 61  | 51  | 41  |     |     |     |     |     |     |     |    |
| Peg  | VV   | RR |     |     |     | 63  |     | 61  | 59  | 56  |     |     |    |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     | 59  | 56  | 54  |     |    |
| Peg  | VW   |    |     |     |     |     |     |     |     |     |     |     |    |     | 26  |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |
| Peg  | AV   | RR | 60  |     | 55  |     |     |     |     |     |     | 58  |    | 53  |     |     |     | 61  |     | 56  |     |     |    | 51  |     |     | 59  |     | 54  |     | 49  |     |     |     |    |
| Peg  | AW   | L1 |     | 25  |     |     |     |     |     | 56s |     |     |    |     | 87  |     |     |     |     | 19s |     |     |    |     |     | 50  |     |     |     |     |     |     |     |     |    |
| Peg  | BH   | 90 |     |     |     |     |     | 59  |     |     |     |     |    |     |     | 56  |     |     |     |     |     |     |    |     |     | 54  |     |     |     |     |     |     |     |     | 59 |
| Peg  | BK   | ES |     |     |     |     |     |     |     |     |     | 61  |    |     |     |     |     |     |     |     |     |     |    | 59  |     |     |     |     |     |     |     |     |     |     |    |
| Peg  | CG   | 90 |     |     |     |     |     |     | 59  | 52  |     |     |    |     |     |     | 59  | 53  |     |     |     |     |    | 60  | 53  | 47  |     |     |     |     | 54  | 48  |     |     |    |
| JD   | 582  | .. | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50 | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60 | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  |     |    |













| 2018 | Jun | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17 | 18 | 19  | 20  | 21 | 22  | 23  | 24  | 25 | 26  | 27  | 28  | 29  | 30 |  |
|------|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|-----|----|--|
| Ser  | EG  | L1 |     |     |     | 1s  |     |     |     | 98  |     |     |     |     | 95s |     |     |     | 93 |    |     |     |    | 90s |     |     |    |     | 87  |     |     |    |  |
| Ser  | LX  | K1 | 52  | 47  | 42+ | 53  | 48  | 43+ | 38+ | 49  | 44+ | 39+ | 50  | 45  | 41+ | 51  | 46  | 42+ | 52 | 47 | 43+ | 38+ | 49 | 44+ | 39+ | 50  | 45 | 40+ | 51  | 46  | 41+ | 52 |  |
| Tri  | RU  | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     | 60s |     |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |
| Tri  | UX  | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |     | 55  |    |     |     |     |    |     |     | 56  |     |    |  |
| UMa  | W   | S1 | 54s | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 39  | 39  | 39  | 39  | 39 | 39 | 39  | 39  | 39 | 39  | 40  | 40  | 40 | 40  | 40  | 40  | 40  | 40 |  |
| UMa  | RV  | RR |     |     | 56  | 50  | 43  |     |     |     |     |     | 52  | 45  | 39  |     |     |     | 60 | 54 | 48  | 41  |    |     |     | 56  |    | 50  | 43  |     |     |    |  |
| UMa  | TU  | RR |     | 45  |     |     |     |     |     | 47  |     |     |     |     |     |     |     | 39  |    |    |     |     | 41 |     |     |     |    | 43  |     |     |     |    |  |
| UMa  | TX  | S1 | 3   | 38  |     |     | 44  |     |     | 50  |     |     |     |     |     |     |     |     |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |
| UMi  | W   | S1 | 3   |     |     |     |     |     |     | 46  |     |     |     | 56  |     |     |     |     |    |    |     |     |    |     |     | 47  |    |     |     |     | 57  |    |  |
| Vir  | ST  | 90 | 2   |     | 40  |     | 46  | 51  |     |     | 39  |     | 44  |     | 49  |     |     |     |    | 42 |     | 48  |    |     |     |     | 41 |     | 46  |     |     |    |  |
| Vir  | AG  | ED |     |     |     |     | 46s | 42  | 38s |     |     |     |     |     |     |     | 42  | 38s |    |    |     |     |    |     | 41  | 38s |    |     |     |     |     |    |  |
| Vir  | AH  | S1 | 39  | 41s | 42  | 44s | 46  |     |     |     |     |     |     | 39  | 41s | 43  | 45s |     |    |    |     |     |    | 39  | 41s |     |    |     |     |     |     |    |  |
| Vir  | AT  | 90 | 2   |     |     |     |     |     |     |     |     | 40  |     |     |     |     |     |     |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |
| Vir  | AV  | 90 |     | 42  |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |
| Vir  | CG  | ES |     |     |     |     | 53  | 46  | 40  |     |     |     |     | 54s | 48s | 41s |     |     |    |    |     |     | 43 |     |     | 44  | 41 | 38  | 50s | 44s | 38s |    |  |
| Vul  | Z   | S1 |     |     |     |     |     |     |     | 53  |     |     |     |     | 44  |     |     |     |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |
| Vul  | BN  | 90 | 59  |     |     | 56  |     |     |     | 53  |     | 50  |     |     | 47  |     |     | 44  |    |    | 41  | 60  |    | 38  | 57  |     | 54 |     |     | 51  |     |    |  |
| Vul  | DR  | EX | 56  |     |     |     |     |     |     | 41s |     | 57  |     |     |     |     |     | 41s |    |    |     |     |    |     |     | 42s |    |     |     | 57  |     |    |  |
| Vul  | EV  | ES |     | 48  |     |     |     |     |     |     |     |     |     |     |     |     |     | 59  |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |
| JD   | 582 | .. | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87 | 88 | 89  | 90  | 91 | 92  | 93  | 94  | 95 | 96  | 97  | 98  | 99  | 00 |  |
| JD   | 583 | .. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |     |     |    |     |     |     |    |     |     |     |     |    |  |

| 2018 | Jul   | P  | 1  | 2  | 3  | 4   | 5  | 6  | 7  | 8   | 9  | 10  | 11 | 12  | 13 | 14  | 15  | 16 | 17 | 18 | 19 | 20 | 21  | 22 | 23  | 24 | 25  | 26 | 27  | 28  | 29  | 30  | 31 |
|------|-------|----|----|----|----|-----|----|----|----|-----|----|-----|----|-----|----|-----|-----|----|----|----|----|----|-----|----|-----|----|-----|----|-----|-----|-----|-----|----|
| And  | SW    | RR |    |    |    | 54  |    |    |    | 52  |    |     |    | 50  |    |     | 60  | 48 |    |    | 58 | 46 |     |    | 56  | 44 |     | 54 | 42  |     |     | 52  |    |
| And  | SY    | L1 | 1  |    |    |     |    |    |    |     |    |     |    |     |    |     |     |    |    |    |    |    |     |    | 23\ | 28 | 33/ |    |     |     |     |     |    |
| And  | TW    | S1 |    | 56 |    |     |    |    |    |     |    |     |    |     |    |     |     |    |    |    |    |    |     |    |     |    |     |    |     | 36s |     | 42  |    |
| And  | XX    | 90 |    |    |    |     | 57 |    |    | 46  |    |     |    |     | 52 |     |     |    |    | 58 |    |    | 47  |    |     |    | 53  |    |     | 42  |     | 59  |    |
| And  | CD    | L1 | 2  |    |    |     |    | 7\ | \  | 13  | /  | 20/ |    |     |    |     |     |    |    |    |    |    |     |    |     |    |     |    |     |     |     |     |    |
| And  | OV    | 90 | 44 |    |    |     |    | 56 | 50 | 44  |    |     |    |     |    |     | 56  | 50 | 44 | 38 |    |    |     |    | 56  | 50 | 44  | 38 | 50  | 42  | 62  | 56  |    |
| Aqr  | SW    | RR | 3  |    |    | 54  | 46 |    |    | 59  | 51 |     | 43 |     |    | 56  |     | 48 | 40 |    |    | 61 | 53  | 45 | 37  |    | 58  | 50 |     |     |     |     |    |
| Aqr  | SX    | 90 |    | 43 | 50 | 57  |    |    |    |     | 46 |     | 53 | 60  |    |     |     |    |    | 43 | 50 | 57 |     |    |     | 39 | 46  | 53 | 60  |     |     |     |    |
| Aqr  | CD    | ES |    | 4  |    |     |    |    |    |     |    |     | 71 |     |    |     |     | 55 |    |    |    |    | 39  |    |     |    | 23  |    |     |     |     | 6   |    |
| Aqr  | HH    | 90 | 2  |    |    |     | 50 |    |    |     | 52 |     |    |     | 55 |     |     |    | 57 |    |    |    | 59  |    |     | 46 | 61  |    |     | 48  |     |     |    |
| Aqr  | LL    | L1 | 3  |    |    |     |    |    |    |     |    |     |    |     |    |     | 99s |    |    |    |    |    |     |    |     |    |     | 8  |     |     |     |     |    |
| Aql  | AA    | RR |    | 50 | 59 |     | 48 |    |    |     |    | 46  | 55 |     |    | 44  | 53  | 61 | 42 | 51 | 59 |    | 40  | 49 | 57  |    | 38  | 46 | 55  |     | 36  | 44  |    |
| Aql  | V341  | 90 | 3  |    |    | 39  | 55 |    | 44 | 59  |    |     |    | 48  |    |     | 37  | 53 |    |    |    |    |     |    | 42  | 57 |     | 51 |     | 40  | 56  |     |    |
| Aql  | V889  | L1 |    |    |    |     | 17 |    |    | 11s |    |     |    |     |    |     | 29  |    |    |    |    |    |     |    |     |    | 41  |    |     |     | 35s |     |    |
| Aql  | V1353 | ES |    |    |    | 49s |    |    |    |     | 44 |     |    | 56s |    | 39s |     |    | 51 |    |    |    | 46s |    | 59  |    | 42  |    | 54s |     |     | 37s |    |
| JD   | 583   | .. | 01 | 02 | 03 | 04  | 05 | 06 | 07 | 08  | 09 | 10  | 11 | 12  | 13 | 14  | 15  | 16 | 17 | 18 | 19 | 20 | 21  | 22 | 23  | 24 | 25  | 26 | 27  | 28  | 29  | 30  | 31 |

| 2018 | Jul   | P  | 1   | 2   | 3   | 4  | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |  |
|------|-------|----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Aql  | V1426 | ES | 10+ | 27+ | 45s | 4+ | 21+ | 39+ | 56  | 15+ | 33+ | 50s | 9+  | 26+ | 44  | 3+  | 20+ | 38+ | 55s | 14+ | 31+ | 49  | 8+  | 25+ | 43s | 2+  | 19+ | 37+ | 54  | 13+ | 30+ | 48s | 7+  |  |
| Aql  | V1430 | ES | 48s |     |     | 54 | 41  |     | 59s | 47s |     |     | 53  | 40  |     | 58s | 46s |     |     | 52  | 39  |     | 57s | 45s |     | 50  | 38  |     | 56s | 44s |     |     |     |  |
| Ari  | X     | RR | 3   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |     |     |     |     |     |     |     |     |     |  |
| Ari  | RS    | L1 | 2   |     |     |    |     |     |     | 69  |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     | 30  |     |     |     |     |     |     |  |
| Aur  | CQ    | L1 | 3   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     |     | 70s |     |     |     |  |
| Aur  | V432  | ES |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |     |     |     |     |     |  |
| Boo  | RS    | RR |     | 47  |     |    | 49  |     |     | 51  |     | 39  | 52  |     | 41  |     |     | 43  |     |     | 45  |     |     | 47  |     |     | 49  | 37  |     |     |     | 39  |     |  |
| Boo  | TW    | 90 |     |     |     |    | 43  | 49  | 56  |     |     |     |     |     | 41  | 48  | 54  |     |     |     |     |     | 40  | 46  | 53  |     |     |     |     | 38  | 44  |     | 51  |  |
| Boo  | UU    | 90 | 59  | 50  | 42  |    |     |     | 53  | 44  |     |     |     |     | 56  | 47  | 38  |     |     |     |     |     |     |     | 52  | 44  |     |     |     | 46  | 38  |     |     |  |
| Boo  | UY    | 90 |     |     |     |    |     |     |     |     | 46  |     | 41  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     |     |     |  |
| Boo  | AC    | ED | 44s | 50s | 38+ | 44 | 50  | 38+ | 44s | 49s | 38+ | 43  | 49  | 37+ | 43+ | 49s | 37+ | 42+ | 48  | 54  | 42+ | 48s | 53s | 42  | 47  | 53  | 41s | 47s | 53s | 41  | 46  | 52  | 40s |  |
| Boo  | CM    | 90 | 50  |     |     |    |     |     |     |     | 42  |     |     | 46  |     |     |     |     |     |     |     |     |     |     | 43  |     |     |     |     |     |     |     |     |  |
| Boo  | CQ    | 90 | 43  |     | 40  |    | 38  | 50  |     | 48  |     | 45  |     |     | 42  |     | 40  | 37  |     |     |     | 47  |     |     | 42  |     | 39  | 36  |     |     |     |     |     |  |
| Boo  | CS    | 90 | 46  |     |     |    |     | 44  |     |     |     |     | 42  |     |     |     |     | 40  |     |     |     |     |     | 38  |     |     |     | 36  |     |     |     |     |     |  |
| Cam  | SS    | ES | 80s |     |     | 21 |     | 62s |     |     | 3   |     | 44s |     | 86  |     |     | 27s |     | 68  |     |     |     | 9s  |     | 50  |     | 91s |     |     | 32  |     | 74s |  |
| Cam  | SV    | S1 | 54  | 43s |     | 50 | 39s | 58s | 47  |     | 55s | 44  |     | 51s | 40  | 59  | 48s | 37  | 55  | 44s |     | 52  | 41s | 59s | 48  | 37s | 56s | 45  |     | 52s | 41  | 60  | 49s |  |
| Cam  | AK    | ES | 3   |     |     |    | 38s | 50  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 43s | 54  |     |     |     |     |     |     |  |
| Cam  | AN    |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 7   |     |     |     |     |     |     |     |     |     |     |  |
| Cam  | AT    | ES |     |     |     |    | 43  |     | 52s |     |     |     |     | 41  |     | 50s |     | 60  |     |     |     |     | 39  |     | 48s |     | 57  | 37  |     | 46s |     | 55  |     |  |
| CVn  | W     | 90 |     |     |     | 47 |     |     |     |     | 44  | 54  |     |     |     | 40  | 51  |     |     |     |     |     | 37  | 47  |     |     | 44  |     |     |     |     |     | 40  |  |
| CVn  | Z     | 90 |     |     |     |    |     |     |     |     |     |     | 49  |     | 45  |     | 41  |     | 37  |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |  |
| CVn  | RS    | S1 |     |     |     |    |     |     |     |     |     | 43  |     |     |     |     |     |     |     |     |     |     |     |     | 42s |     |     |     |     |     |     |     |     |  |
| CVn  | RZ    | 90 |     |     | 43  |    |     |     | 40  |     |     |     | 37  | 51  |     |     |     | 48  |     |     |     |     |     |     |     | 42  |     |     |     |     | 39  |     |     |  |
| Cas  | RX    | L1 | 2   | \   | \   | \  | \   | 90  | /   | /   | /   | /   |     |     |     |     |     |     |     |     |     |     |     | \   | \   |     |     | /   | /   |     |     |     |     |  |
| Cas  | RZ    | S1 |     |     | 52  |    |     |     |     |     | 50  |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     | 7s  | /   | /   |     | 43  | 62  |     |  |
| Cas  | SX    | L1 | 2   |     |     |    |     |     |     |     |     |     |     |     | 20\ | \   |     | 3   | 86/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | TV    | S1 |     |     |     |    |     |     | 46  |     |     |     |     |     |     |     |     | 52  |     |     |     |     |     |     |     |     | 58  |     | 39  |     |     |     |     |  |
| Cas  | TW    | S1 |     |     |     |    | 58  |     |     | 44  |     |     |     |     |     |     | 58  |     |     |     |     |     |     |     |     | 58  |     |     |     | 43  |     |     |     |  |
| Cas  | TX    | ES |     |     |     |    |     |     |     |     |     |     |     |     | 56  |     |     | 48  |     |     |     | 41  |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | AQ    | L1 | 3   |     | 59\ | 64 | 70/ |     |     |     | 45\ | 50s | 56/ |     |     |     | 31\ | 37  | 42/ |     |     |     | 17\ | 23s | 28/ |     |     | 3\  | 9   | 14/ |     |     |     |  |
| Cas  | BM    | L1 | 3   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 49  |     |     |     |     |     |     |     |  |
| Cas  | DN    | ES |     | 43  | 58s |    |     |     |     |     |     | 52s |     |     |     |     |     |     | 45s | 60  |     |     |     |     |     | 38s | 54  |     |     |     |     |     |     |  |
| Cas  | GG    | ES |     |     | 59  |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |     |     |     |     |     |     |     |  |
| Cas  | GU    | EU |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |  |
| Cas  | IL    | ES |     |     |     |    |     |     | 55  |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     | 51  |     |     |     |     |     |     |     |     |     |  |
| Cas  | IT    | EX |     |     |     |    |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |     |     | 40  | 55s |     |     |     |     | 45s |     |     |  |
| Cas  | OX    | EX |     |     |     |    | 47s |     |     |     |     | 45s |     |     |     |     | 42s |     |     |     |     |     |     |     |     |     | 38s |     |     |     |     | 36s |     |  |
| Cas  | PV    | EX |     |     |     | 47 | 39s |     |     |     |     |     | 47  | 39s |     |     |     |     |     |     |     |     |     |     |     |     | 48  | 39s |     |     |     |     |     |  |
| Cas  | V368  | ES |     |     |     |    |     |     |     |     | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 51s |  |
| JD   | 583   | .. | 01  | 02  | 03  | 04 | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |  |

| 2018 | Jul   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |    |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|--|
| Cas  | V375  | ED | 38s |     | 59  |     |     | 54  |     |     |     | 48  |     | 43  |     |     | 38  |     |     |     |     | 59s |     |     | 48s |     | 53s |     |     | 43s |     |     | 37s |     | 58 |    |  |
| Cas  | V381  | EX |     | 60  | 41s |     |     |     |     |     | 58  | 40s |     |     |     |     |     | 57  | 38s |     |     |     |     | 55  | 36s |     |     |     |     |     | 60s | 53  |     |     |    |    |  |
| Cas  | V459  | L1 |     |     |     | 54s |     |     |     | 83  |     |     |     | 00s |     |     |     |     |     |     |     |     | 29  |     |     | 45s |     |     |     |     |     | 91s |     |     |    |    |  |
| Cep  | RZ    | 90 | 60  | 53  | 45  | 38  |     | 54  | 46  | 39  |     | 55  | 48  | 40  |     | 56  | 49  | 41  |     |     | 57  | 50  | 43  |     | 59  | 51  | 44  | 36  | 60  | 52  | 45  | 38  | 61  | 54  |    |    |  |
| Cep  | VV    | S1 | 39+ | 50  | 47s | 45+ | 42+ | 40+ | 51  | 48s | 46+ | 43+ | 40+ | 38+ | 49s | 47+ | 44+ | 41+ | 39+ | 50s | 48+ | 45+ |     | 42+ | 40+ | 37+ | 49+ | 46+ | 43+ | 41+ | 38+ | 36+ | 47+ | 44+ |    |    |  |
| Cep  | XX    | S1 |     |     |     |     |     |     | 50  |     |     |     |     |     |     | 51  |     |     |     |     |     |     |     | 52  |     |     |     |     |     |     | 54  |     |     |     |    |    |  |
| Cep  | XY    | ES |     |     |     |     |     |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     |     |    |    |  |
| Cep  | ZZ    | S1 |     |     | 44  |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |
| Cep  | AI    | ES | 46s |     | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 59s |     |     |     |     |     |     |     |     |    |    |  |
| Cep  | CW    | EX |     |     |     |     |     | 45  |     |     |     | 46s |     |     |     |     |     |     |     |     |     | 37  |     |     |     |     | 37s |     |     | 55  |     |     |     | 56s |    |    |  |
| Cep  | EI    | L1 |     | 83s |     |     |     |     | 5   |     |     |     |     | 27s |     |     | 49  |     |     |     |     |     |     |     | 93  |     |     |     |     |     | 15s |     |     |     |    |    |  |
| Cep  | EX    | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     |     |     |     |     | 79  |     |     |     |     |    |    |  |
| Cep  | NN    | ES |     |     |     |     |     |     |     |     | 40  |     | 42s | 45  | 48s | 51  | 54s | 57  | 60s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |
| Cet  | RR    | RR | 2   |     |     |     |     | 59  |     |     |     |     | 57  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |    |    |  |
| Cet  | RV    | 90 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 62  |     |    |    |  |
| Cet  | TU    | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     | 8   |     |     |     |     |     | 47  |     |     | 86  |     |     |     |     |     | 25  |     |     |     |    |    |  |
| Cet  | TV    | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 32  |     | 82s |     |     |     |     | 43  |     |     |     | 92s |     |    |    |  |
| Cet  | XY    | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61s |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |
| Com  | S     | 90 |     |     |     |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |
| CrB  | U     | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |
| CrB  | RV    | 90 |     |     | 60  | 60  |     | 59  | 59  | 58  | 58  | 57  | 57  | 56  | 56  | 55  | 55  | 54  | 54  | 53  | 52  | 52  | 51  | 51  | 50  | 50  | 49  | 49  | 48  | 48  | 48  | 47  | 47  | 47  | 46 |    |  |
| Cyg  | Y     | S1 |     | 41  |     |     | 41  |     |     | 41  |     |     | 40  |     | 40  |     |     | 39  |     |     |     |     |     |     | 39  |     |     |     |     |     |     |     |     |     |    |    |  |
| Cyg  | UY    | RR |     | 52  |     |     |     | 56  |     |     |     |     | 61  |     |     | 41  | 53  |     |     |     |     |     |     |     | 38  | 50  |     |     |     |     | 43  | 55  |     |     |    |    |  |
| Cyg  | XY    | RR |     | 51  | 44  | 38  |     |     | 58  | 51  | 44  |     |     |     |     | 57  | 51  | 44  | 37  |     |     |     |     | 57  | 51  | 44  | 37  |     |     |     |     |     | 57  | 51  | 44 | 37 |  |
| Cyg  | BO    | ES |     |     |     |     |     |     | 50s | 38  |     |     |     |     |     | 53s | 41  |     |     |     |     |     |     | 55s | 43  |     |     |     |     |     |     |     | 58s | 46  |    |    |  |
| Cyg  | BR    | ES |     | 46s | 45  |     |     | 45s |     | 45  |     | 45s |     | 45  |     | 45s |     | 45  |     | 45s |     | 45  |     |     | 44s | 44  |     | 44s |     | 44  |     | 44s |     | 44s |    |    |  |
| Cyg  | DM    | RR |     | 49  | 59  | 43  |     |     | 52  | 46  |     |     |     | 56  | 40  | 50  |     | 60  | 44  |     | 54  |     |     | 38  | 48  |     | 58  | 42  |     | 52  | 36  | 62  |     |     |    |    |  |
| Cyg  | EM    | K1 | 3   | 48  | 52  | 39  | 55  | 43  | 59  | 46  | 50  |     | 37  | 54  | 41  | 57  | 44  | 61  | 48  |     | 52  | 39  |     | 55  | 43  | 59  | 46  | 50  | 37  | 54  | 41  | 57  |     |     |    |    |  |
| Cyg  | V367  | L1 | 2   | \   | \   | 98s | /   | /   | /   |     |     |     | \   | \   | \   | 28  | /   | /   |     |     |     |     | \   | \   | 58s | /   | /   |     |     |     |     | \   | \   |     |    |    |  |
| Cyg  | V463  | ES |     |     |     |     |     |     |     | 40s | 46  | 52s | 58  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 40  | 46s | 52  | 58s |     |     |     |    |    |  |
| Cyg  | V477  |    |     | 38s |     |     |     |     |     |     |     | 42s |     | 41  |     |     |     | 46s |     |     |     |     |     |     | 50s |     |     |     | 50  |     |     |     |     | 55s |    |    |  |
| Cyg  | V541  | L1 |     | 86  |     |     |     |     |     |     |     | 89s |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |  |
| Cyg  | V548  | ES |     |     | 56s | 46  |     |     |     |     |     |     |     | 58s | 49  | 39s |     |     |     |     |     |     |     | 61s | 51  | 42s |     |     |     |     |     |     |     |     |    |    |  |
| Cyg  | V788  | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 26/ |     |     |     |     |     |     |     |     |     |     |    |    |  |
| Cyg  | V891  | ES |     |     |     |     |     |     |     | 55  |     | 45  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |     | 51  |     |     |     |    |    |  |
| Cyg  | V909  | ES |     |     | 50  |     |     |     |     |     |     | 51s |     |     |     |     |     |     |     |     |     |     |     |     |     | 54s |     |     |     |     |     |     |     |     |    |    |  |
| Cyg  | V1061 | ES |     |     |     |     |     |     |     |     |     |     |     |     |     | 37  |     |     |     |     |     |     |     | 41  |     |     |     |     |     |     |     |     | 45  |     |    |    |  |
| Cyg  | V1918 | ED | 3   | 48s | 51  | 54s | 57  | 40  | 43s | 47  | 50s | 53  | 57s | 39+ | 42  | 46s | 49  | 52s | 56  | 38+ | 42s | 45  | 48s | 51  | 55s | 37+ | 41+ | 44s | 47  | 51s | 54  | 37+ | 40+ |     | 43 |    |  |
| Del  | DX    | 90 | 38  |     |     |     |     | 58  | 53  | 47  | 42  |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     | 60  | 54  | 49  | 43  | 38  |     |     |     |     |    |    |  |
| JD   | 583   | .. | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |    |  |

| 2018 | Jul  | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |
|------|------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Dra  | RW   | RR |    | 56  | 45  |     |     | 55  | 43  |     |     | 53  | 42  |     |     | 52  | 41  |     |     | 51  | 39  |     | 61  | 49  | 38  |     | 59  | 48  | 37  |     | 58  | 47  |     |     |    |
| Dra  | SU   | RR |    | 58  |     |     | 56  | 55  |     |     |     | 51  |     | 49  |     | 47  |     | 45  |     | 43  |     | 41  |     | 40  |     | 38  |     | 36  |     |     |     |     |     |     |    |
| Dra  | SW   | RR |    |     |     |     | 48  |     |     |     | 47  |     |     | 46  | 60  |     |     | 45  | 58  |     |     | 43  | 57  |     |     | 42  | 56  |     |     | 41  | 55  |     |     |     |    |
| Dra  | TZ   | ED |    | 60s | 47s |     |     | 50  |     |     |     | 53s | 40s | 56  | 43  |     | 60s | 46s |     |     | 49  |     |     | 52s | 39s |     | 55  | 42  |     | 59s | 45s |     | 62  |     |    |
| Dra  | VZ   | 90 | 46 | 42  | 38  |     |     | 59  | 56  | 52  | 48  | 45  | 41  | 37  |     |     | 58  | 54  | 51  | 47  | 43  | 40  |     |     | 61  | 57  | 53  | 50  | 46  | 42  | 38  |     |     |     |    |
| Dra  | WW   | S1 | 3  |     |     |     | 43  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Dra  | XZ   | RR |    | 48  | 43  | 39  |     |     |     |     |     | 58  | 53  | 49  | 44  | 39  |     |     |     |     |     | 59  | 54  |     |     | 49  | 44  | 40  |     |     |     | 59  | 54  | 50  |    |
| Dra  | AI   | S1 |    |     |     |     | 41  |     |     |     |     | 41  |     | 61  |     |     |     | 40  | 60  |     |     |     |     | 40  | 59  |     |     |     |     | 39  | 59  |     |     |     |    |
| Dra  | BF   |    |    |     |     |     |     |     |     | 3   |     |     |     |     |     |     |     |     |     |     | 44s |     |     |     |     |     |     |     |     |     |     |     | 45  |     |    |
| Dra  | BK   | 90 |    | 55  |     |     | 51  |     |     | 47  |     |     |     | 43  |     |     | 39  | 58  |     |     | 54  |     |     |     | 46  |     |     | 42  | 60  |     |     | 38  | 56  |     |    |
| Dra  | BU   | ES |    | 46s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60s |     | 52  |     | 43s |     |     |     |     |     |     |     |     |    |
| Dra  | DD   | 90 |    | 43  | 41  | 39  |     |     |     |     |     | 60  | 58  | 56  | 54  | 52  | 50  | 49  | 47  | 45  | 43  | 41  | 39  | 37  |     |     | 62  | 60  | 58  | 56  | 54  | 52  | 50  |     |    |
| Dra  | EX   | K1 |    | 41  | 46  | 51  | 56  | 40  | 45  | 50  | 55  | 39+ | 44  | 49  | 54  | 38+ | 43  | 48  | 53  | 37+ | 41  | 46  | 51  | 56  | 40+ | 45  | 50  | 55  | 39+ | 44  | 49  | 54  | 38+ | 43  |    |
| Dra  | GV   | L1 | 3  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 19  |     |     |     |     |     |     |     |     |     |    |
| Equ  | S    | S1 |    |     |     |     |     |     |     |     |     |     |     |     | 51  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Her  | TW   | RR |    | 44  |     |     | 43  | 43  |     | 43  |     | 43  |     | 43  |     | 42  |     | 42  |     | 42  |     | 42  |     | 42  | 61  | 41  | 61  | 41  | 61  | 41  | 61  | 41  | 61  | 41  |    |
| Her  | TX   | S1 |    | 53  | 56s | 59  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41s |     |     | 51s |     |     |     |     | 37  | 40s |     |    |
| Her  | UX   | ED |    |     |     | 60  |     |     |     | 47s |     |     | 57s |     |     | 44  |     |     |     | 54  |     |     |     | 40  |     |     | 50  | 41  |     |     | 38  |     | 51  | 42  |    |
| Her  | VX   | RR |    |     |     |     | 55  | 46  |     |     |     | 56  | 47  | 38  |     | 57  | 48  | 39  |     |     |     | 49  |     | 40  |     |     | 50  | 41  |     |     |     | 51  | 42  |     |    |
| Her  | VZ   | 90 |    | 52  | 40  |     | 60  | 48  |     |     |     | 57  | 45  |     |     | 53  | 41  | 61  | 49  | 37  |     | 57  | 45  |     |     | 54  | 42  |     | 62  | 50  | 38  |     | 58  |     |    |
| Her  | AK   | S1 |    | 48s | 53  | 58s | 43s | 48  | 53s | 38+ | 43  | 48s | 54  | 38+ | 44s | 49  | 54s | 39s | 44  | 49s | 55  | 39  | 44s | 50  | 55s | 40s | 45  | 50s | 56  | 40  | 45s | 51  |     | 40s |    |
| Her  | AR   | 90 |    | 40  |     |     |     | 57  | 51  | 45  | 39  |     |     |     |     | 56  | 50  | 44  |     |     |     |     | 44  | 38  |     |     | 37  | 61  | 55  | 49  | 43  | 37  | 60  | 54  | 48 |
| Her  | AW   | L1 |    |     |     |     |     |     |     | 79  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |     |     |     |     |    |
| Her  | DI   | L1 |    | 25  |     |     |     |     |     |     |     | 38s |     | 80  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 48s |     |    |
| Her  | GU   | EU |    |     |     |     |     |     |     | 41s |     | 59  |     |     |     |     |     |     |     |     |     |     |     | 44s |     |     |     |     |     |     |     |     |     |     |    |
| Her  | LV   |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 49  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Lac  | RW   | L1 |    |     |     |     | 8s  |     |     |     |     | 33  |     |     |     | 45s |     |     |     |     |     | 70  |     |     |     |     | 82s |     |     |     |     |     | 7   |     |    |
| Lac  | SW   | S1 |    | 51s | 47s | 43+ | 39+ | 51  | 48  | 44+ | 40+ | 52s | 49s | 45+ | 41+ | 37+ | 50  | 46  | 42+ | 38+ | 50s | 47s | 43+ | 39+ | 51  | 48  | 44+ | 40+ | 36+ | 48s | 45+ | 41+ | 37+ | 49  |    |
| Lac  | UW   | ES |    | 22  |     |     |     | 51  |     |     |     |     |     | 80  |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     | 67  |     |     |     |     |     |    |
| Lac  | CO   | EX |    |     |     | 41s |     | 49s |     |     |     | 58s | 38  |     |     | 46  |     | 55  |     |     |     |     |     |     |     | 46s |     | 54s |     |     |     |     | 43  |     |    |
| Lac  | CZ   | 90 | 51 | 38  |     |     | 54  | 40  | 56  | 42  |     | 58  | 45  |     | 61  | 47  |     | 50  |     |     |     | 52  | 39  |     | 55  | 41  |     | 57  | 44  |     | 60  | 46  | 46  |     |    |
| Lac  | V345 | EX |    |     | 86s |     |     |     | 70  |     |     | 35s |     |     |     |     | 19  |     | 84s |     |     |     |     |     | 68  |     |     | 33s |     |     |     |     | 18  |     |    |
| Lac  | V364 | EX |    |     | 50s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Lyn  | CD   | ES |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |    |
| Lyr  | RR   | RR |    |     |     |     | 45  | 58  |     |     | 42  | 55  |     | 39  | 52  |     |     |     |     |     | 49  |     |     | 46  | 59  |     | 42  | 56  |     |     |     | 39  | 53  |     |    |
| Lyr  | RZ   | 90 |    |     |     |     |     | 38  | 40  | 42  | 44  | 47  | 49  | 51  | 53  | 56  | 58  | 60  |     |     |     |     |     |     |     |     |     |     |     |     | 36  | 38  | 40  | 43  | 45 |
| Lyr  | UZ   | S1 |    |     |     |     |     |     |     | 55  | 50s | 44  | 39s |     |     |     |     |     |     |     |     |     |     |     |     |     | 57  | 52s | 46  | 41s | 36  |     |     |     |    |
| Lyr  | CN   | 90 | 40 |     | 46  |     | 51  |     | 57  | 39  |     | 45  |     | 51  |     | 56  | 39  |     | 44  |     | 50  |     | 56  | 38  | 61  | 44  |     | 49  |     | 55  | 37  | 61  | 43  |     |    |
| Lyr  | EZ   | RR |    | 38  | 44  | 49  | 54  | 59  |     |     |     |     |     |     |     | 42  | 47  | 52  | 57  |     |     |     |     |     |     | 40  | 45  | 50  | 55  | 60  |     |     |     |     |    |
| JD   | 583  | .. | 01 | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |



| 2018 | Jul   | P  | 1 | 2   | 3   | 4  | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16 | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|-------|----|---|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lyr  | IO    | 90 | 3 | 51  |     |    | 40  | 55  |     |     | 44  | 59  |     | 48  |     |     |     | 52 |     |     | 40  | 56  |     |     | 44  | 60  |     | 48  |     |     | 37  | 52  |     |     |  |
| Lyr  | beta  | S1 |   | 38s |     |    |     |     |     | 85  |     |     |     |     | 32s |     |     |    |     |     |     | 79  |     |     |     |     |     | 26s |     |     |     |     |     |     |  |
| Oph  | U     | ST |   | 45  |     |    |     |     | 48  |     |     |     |     | 51  |     |     |     |    | 38s |     |     |     |     | 41s |     |     |     | 44s |     |     |     |     |     |     |  |
| Oph  | ST    | 90 | 2 |     |     | 49 | 39  |     |     | 54  | 44  |     |     | 50  | 40  |     |     |    | 45  |     |     |     | 50  | 40  |     |     | 46  | 36  |     |     |     | 41  |     |     |  |
| Peg  | U     | S1 |   |     | 60s | 54 | 47s | 60s | 53  | 47s | 60s | 53  | 47s | 59s | 53  | 47s | 59s | 53 | 47s | 59s | 53  | 46s | 59s | 53  | 46s | 59s | 52  | 46s | 59s | 52  | 46s | 52  | 46s |     |  |
| Peg  | VV    | RR |   |     |     |    |     |     |     |     |     | 59  | 56  | 54  | 52  | 49  | 47  | 45 |     |     |     |     |     |     |     |     |     |     |     | 61  | 59  |     | 56  |     |  |
| Peg  | VW    |    |   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Peg  | AV    | RR |   | 50  |     | 45 |     | 41  | 58  |     | 53  |     | 48  |     | 43  | 60  | 38  | 56 |     | 51  |     | 46  |     | 41  | 58  | 36  | 53  | 49  |     | 44  | 61  | 39  | 56  |     |  |
| Peg  | AW    | L1 |   |     |     |    | 99  |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     | 23  |     |     |     |     | 54s |     |  |
| Peg  | BH    | 90 |   |     |     |    | 56  |     | 48  |     |     |     |     | 61  |     | 54  |     | 46 |     |     |     |     |     | 51  |     | 43  |     |     |     | 56  |     |     | 48  |     |  |
| Peg  | BK    | ES |   |     |     |    | 51  |     |     |     |     |     |     |     |     |     | 49  |    |     |     |     |     |     |     |     |     |     | 47  |     |     |     |     |     |     |  |
| Peg  | CG    | 90 |   |     |     | 58 | 51  | 44  | 38  |     |     |     | 58  | 52  | 45  | 39  |     |    |     | 59  | 52  | 46  | 39  |     |     |     | 60  | 53  | 47  | 40  |     |     | 60  |     |  |
| Peg  | DF    | L1 |   |     | 45  |    |     |     |     |     |     |     |     |     |     |     |     |    | 15  |     |     |     |     |     |     |     |     |     |     |     |     |     | 85  |     |  |
| Peg  | DH    | RR | 3 | 54  | 56  | 58 | 60  |     |     |     | 43  | 46  | 48  | 50  | 52  | 54  | 57  | 59 | 61  |     | 40  | 42  | 44  | 47  | 49  | 51  | 53  | 55  | 58  | 60  | 36+ | 39  | 41  | 43  |  |
| Peg  | GH    | ES |   |     | 54  |    |     |     |     |     |     |     |     | 49s |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 38s |     |     |  |
| Peg  | IP    | K1 |   | 48  | 59  | 54 | 49  | 44+ | 54  | 49  | 44+ | 55  | 50  | 45+ | 56  | 51  | 45+ | 56 | 51  | 46  | 41+ | 52  | 47  | 42+ | 52  | 47  | 42+ | 53  | 48  | 43+ | 38+ | 48  | 43+ | 38+ |  |
| Per  | RW    | L1 | 2 |     |     |    |     |     |     | 72  |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | RY    | ES |   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | AR    | 90 |   |     |     |    |     |     |     | 59  |     |     | 57  |     |     |     |     |    |     |     |     |     |     |     | 49  |     | 62  |     |     | 60  |     |     | 57  |     |  |
| Per  | AY    | L1 |   | 33  |     |    |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | IQ    |    |   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | KN    | EU |   |     |     |    |     |     |     |     | 55s |     |     |     | 58  |     |     |    |     |     |     | 51  |     |     |     |     |     |     |     | 61s | 57  |     |     |     |  |
| Per  | LX    | L1 |   | 68  |     |    |     | 70s |     |     |     | 72  |     |     |     | 73s |     |    |     | 75  |     |     |     | 77s |     |     |     |     |     |     |     |     |     |     |  |
| Per  | beta  | S1 |   |     |     |    |     |     | 54  |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 81s |  |
| Psc  | RU    | 90 |   |     | 55  |    | 50  |     |     |     |     | 58  |     | 53  |     | 48  |     |    | 57s |     |     |     |     |     |     |     |     | 61  |     |     |     | 48  |     |     |  |
| Psc  | RY    | 90 | 2 |     | 55  |    |     |     |     |     |     |     |     | 55  | 61  |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Psc  | SS    | 90 |   |     |     |    |     |     |     |     | 51  | 53  |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Sge  | SY    | ES |   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | VY    | RR |   |     | 41  |    |     |     |     | 41  |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | AN    | 90 |   | 41  | 45  | 50 | 54  |     |     |     |     |     |     |     | 37  | 42  | 46  | 50 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | BH    | 90 |   | 50  |     |    | 54  | 41  |     |     | 46  |     |     | 50  | 37  |     |     | 41 |     |     | 45  |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | EG    | L1 |   |     |     |    | 85s |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | LX    | K1 |   | 47  | 42  | 53 | 48  | 43  | 38+ | 49  | 44  | 39+ | 50  | 45  | 40  | 51  | 46  | 41 | 52  | 47  |     | 42  | 37  | 48  | 43  | 38  | 49  | 44  | 39  | 50  | 45  | 40  | 46  | 41  |  |
| Tau  | V1094 | L1 |   |     |     |    |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Tri  | X     | S1 |   |     |     |    |     |     | 59  | 56  | 53  | 50  |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Tri  | RU    | ES | 2 |     |     | 57 |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Tri  | UX    | 90 |   |     |     |    | 56  | 50  |     |     |     |     |     | 57  | 50  |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| UMa  | W     | S1 |   | 40  | 40  | 40 | 40  | 41  | 41  | 41  | 41  | 41  | 41  | 41  | 41  | 41  | 41  | 41 | 42  | 42  | 42  | 42  | 42  | 42  | 42  | 42  | 42  | 42  | 42  | 42  | 43  | 43  |     |     |  |
| UMa  | RV    | RR |   |     | 58  | 52 | 45  | 39  |     |     |     |     |     | 47  | 41  |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| JD   | 583   | .. |   | 01  | 02  | 03 | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15 | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |  |

| 2018 | Jul | P  | 1  | 2  | 3   | 4   | 5   | 6  | 7  | 8  | 9  | 10 | 11  | 12  | 13  | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22  | 23 | 24 | 25 | 26 | 27  | 28 | 29 | 30 | 31  |
|------|-----|----|----|----|-----|-----|-----|----|----|----|----|----|-----|-----|-----|----|----|----|----|----|----|----|----|-----|----|----|----|----|-----|----|----|----|-----|
| UMa  | TU  | RR |    |    |     |     |     |    |    |    |    |    |     |     |     |    | 39 |    |    |    |    |    |    |     |    |    |    |    |     |    |    |    |     |
| UMa  | TX  | S1 | 3  |    |     |     |     |    |    |    |    |    |     |     |     |    |    |    |    |    |    | 39 |    |     |    |    |    |    |     |    |    |    |     |
| UMi  | W   | S1 | 3  |    |     |     |     | 38 |    |    |    |    | 48  |     |     |    |    | 58 |    |    |    |    |    | 39  |    |    |    |    |     | 49 |    |    |     |
| Vir  | ST  | 90 | 2  |    | 39  |     |     |    |    |    | 38 |    |     |     |     |    |    |    |    |    |    |    |    |     |    |    |    |    |     |    |    |    |     |
| Vir  | AG  | ED |    |    |     |     | 38s |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |     |    |    |    |    |     |    |    |    |     |
| Vir  | AH  | S1 |    |    | 38s | 40  |     |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |     |    |    |    |    |     |    |    |    |     |
| Vir  | AV  | 90 |    |    |     |     |     |    |    |    |    |    |     |     |     |    |    |    |    |    |    | 37 |    |     |    |    |    |    |     |    |    |    |     |
| Vir  | CG  | ES |    |    |     |     | 45  | 39 |    |    |    |    | 47s | 40s |     |    |    |    |    |    |    |    | 42 |     |    |    |    |    | 37s |    |    |    |     |
| Vul  | Z   | S1 |    |    |     |     | 53  |    |    |    |    | 44 |     |     |     |    |    |    |    |    |    |    |    |     |    |    |    |    |     |    |    |    |     |
| Vul  | BN  | 90 |    | 48 |     |     | 45  |    |    | 42 |    |    | 39  | 58  |     | 37 | 55 |    |    |    |    | 52 |    | 49  |    | 47 |    | 44 | 62  |    | 41 | 60 |     |
| Vul  | DR  | EX |    |    |     | 42s |     |    | 58 |    |    |    |     |     | 42s |    |    | 58 |    |    |    |    |    | 43s |    | 58 |    |    |     |    |    |    | 43s |
| Vul  | EV  | ES |    |    | 52  |     |     |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    | 45 |     |    |    |    |    |     |    |    |    |     |
| JD   | 583 | .. | 01 | 02 | 03  | 04  | 05  | 06 | 07 | 08 | 09 | 10 | 11  | 12  | 13  | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22  | 23 | 24 | 25 | 26 | 27  | 28 | 29 | 30 | 31  |

| 2018 | Aug   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16 | 17  | 18  | 19  | 20 | 21  | 22  | 23 | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| And  | SW    | RR | 40  |     | 62  | 50  | 38  |     | 60  | 48  | 36  |     | 58  | 46  | 35  |     | 56  | 44 | 33  | 65  | 54  | 42 |     | 63  | 52 | 40  |     | 61  | 50  | 38  | 59  | 48  |     |
| And  | SY    | L1 | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |    |     |     |     | 14\ | 19  | 23\ |     |     |
| And  | TW    | S1 |     | 48s |     | 55  |     | 61s |     |     |     |     | 43  |     | 60  |     |     | 49 |     |     |     | 38 |     | 55  |    | 44  |     | 61  | 33  |     | 50  |     | 34s |
| And  | XX    | 90 |     |     | 48  |     |     | 37  |     | 54  |     |     | \   | 58s | /   | 64\ |     |    |     |     |     |    |     |     |    |     |     |     |     |     |     |     | 67  |
| And  | CD    | L1 | 2   |     |     |     |     |     |     |     | 51\ |     |     |     |     |     |     |    |     |     |     |    |     |     |    |     |     |     |     |     |     |     |     |
| And  | OV    | 90 | 50  | 44  | 38  |     |     |     | 62  | 56  | 50  | 44  | 38  |     |     | 62  |     | 56 | 50  | 44  | 38  |    |     |     | 62 | 56  | 50  | 44  | 38  | 32  |     | 67  | 62  |
| Aqr  | SW    | RR | 3   | 56  | 47  | 39  |     | 61  | 53  | 44  | 36  |     |     | 58  | 50  | 42  |     | 42 | 50  | 57  |     |    |     |     | 52 | 44  | 36  |     | 57  | 49  |     | 41  |     |
| Aqr  | SX    | 90 | 42  | 50  | 57  |     |     |     |     | 39  | 46  | 53  |     | 60  |     |     | 35  |    |     |     |     |    |     |     | 39 | 46  | 53  | 60  |     |     | 35  |     | 42  |
| Aqr  | CD    | ES |     |     |     | 90  |     |     |     |     | 74  |     |     |     |     | 58  |     |    |     |     |     | 41 |     |     |    | 25  |     |     |     | 9   |     |     |     |
| Aqr  | HH    | 90 | 2   | 50  |     |     | 52  |     |     | 54  |     |     |     | 42  | 57  |     |     | 44 | 59  |     |     | 46 | 61  |     |    | 48  |     | 35  | 50  |     |     | 37  |     |
| Aqr  | LL    | L1 | 3   |     |     |     |     | 17s |     |     |     |     |     |     |     |     |     | 26 |     |     |     |    |     |     |    |     | 35s |     |     |     |     |     |     |
| Aql  | AA    | RR | 62  |     | 42  | 51  | 59  |     | 40  | 49  | 57  |     | 38  | 47  | 55  |     | 36  | 45 | 53  |     | 34  | 43 | 51  |     | 32 | 41  | 49  |     | 39  | 47  |     |     |     |
| Aql  | V341  | 90 | 3   | 45  | 60  |     |     | 49  |     |     | 38  | 54  |     |     | 43  | 59  |     |    | 48  |     |     |    | 52  |     | 41 |     |     |     | 46  |     |     |     | 35  |
| Aql  | V889  | L1 |     |     |     |     |     | 53  |     |     |     | 47s |     |     |     |     |     |    | 65  |     |     |    | 59s |     |    |     |     |     | 77  |     |     |     |     |
| Aql  | V1353 | ES |     | 49  |     | 61s |     |     | 44s |     | 56  |     |     | 39  |     | 52s |     |    | 35s |     | 47  |    |     |     |    | 42s |     | 54  |     | 37  |     |     | 49s |
| Aql  | V1426 | ES | 24+ | 42  | 59s | 18+ | 35+ | 53s | 12+ | 29+ | 47  | 6+  | 23+ | 41+ | 58s | 17+ | 34+ | 52 | 11+ | 28+ | 46s | 4+ | 22+ | 39+ | 57 | 16+ | 33+ | 51s | 9+  | 27+ | 45  | 3+  | 21+ |
| Aql  | V1430 | ES | 49  | 37  |     | 55s | 43s |     |     | 48  | 36  |     | 54s | 42s |     | 47  |     | 35 |     | 53s | 41s |    |     |     | 46 | 34  | 52s | 40s |     | 45  | 33  |     |     |
| Ari  | X     | RR | 3   |     |     |     | 63  |     | 58  |     | 53  |     |     |     |     |     |     |    |     |     |     |    |     |     | 56 |     | 51  |     |     |     |     |     | 67  |
| Ari  | RS    | L1 | 2   |     |     | 10  |     |     |     |     |     |     |     | 91  |     |     |     |    |     |     |     |    | 71  |     |    |     |     |     |     |     | 51  |     |     |
| Aur  | TZ    | 90 | 3   |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |    |     |     |     |    |     |     |    |     |     | 63  |     | 59  |     |     | 54  |
| Aur  | CQ    | L1 | 3   |     |     | 1   |     |     |     |     | 32s |     |     |     |     | 63  |     |    |     |     |     |    |     |     |    | 25  |     |     |     |     |     | 56s |     |
| Aur  | IY    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63 |     |     |     |    |     |     |    |     |     |     |     |     |     |     | 60  |
| JD   | 583   | .. | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47 | 48  | 49  | 50  | 51 | 52  | 53  | 54 | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  |

| 2018 | Aug  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17 | 18  | 19  | 20  | 21 | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Aur  | V432 | ES |     |     |     |     |     |     |     |     |     |     |     | 55s |     |     | 63s |     |    |     |     |     |    |     |     |     |     |     |     |     |     |     | 50  |     |     |
| Boo  | RS   | RR |     | 41  |     |     | 43  |     |     | 45  |     |     |     | 35  |     |     |     | 37  |    |     | 39  |     |    | 41  |     |     |     |     |     |     |     |     | 33  |     |     |
| Boo  | TW   | 90 |     |     |     |     |     | 36  | 43  | 49  |     |     |     |     |     | 35  | 41  | 48  |    |     |     |     | 33 | 40  | 46  |     |     |     |     |     |     | 32  |     | 38  |     |
| Boo  | UU   | 90 |     |     | 49  | 40  |     |     |     |     |     | 43  | 34  |     |     |     |     |     |    |     |     | 39  |    |     |     | 42  | 33  |     |     |     |     |     |     | 36  |     |
| Boo  | UY   | 90 |     |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |    |     |     |     |    |     |     | 32  |     |     |     |     |     |     |     |     |     |
| Boo  | AC   | ED | 46s | 52s | 40  | 46  | 51  | 39s | 45s | 51s | 39  | 45  | 51  | 39s | 44s | 50s | 38  | 44  | 50 | 38s | 44s | 49s | 37 | 43  | 49  | 37s | 43s | 48s | 37  | 42  | 48  | 36s |     | 42s |     |
| Boo  | CM   | 90 |     |     |     | 39  |     |     |     |     |     |     |     |     |     | 35  |     |     |    |     |     |     |    |     |     | 32  |     |     |     |     |     |     |     |     |     |
| Boo  | CQ   | 90 | 44  |     | 41  |     | 38  |     | 36  |     |     |     |     |     |     | 40  |     | 38  |    | 35  |     |     |    |     |     |     |     |     | 37  |     | 34  |     |     | 32  |     |
| Boo  | CS   | 90 |     |     |     |     |     |     |     |     |     |     | 41  |     |     |     |     | 39  |    |     |     |     | 37 |     |     |     |     | 35  |     |     |     |     |     | 33  |     |
| Cam  | SS   | ES |     | 15  |     | 56s |     | 97  |     |     | 38s |     | 79  |     | 20s |     |     | 62  |    |     | 3s  |     | 44 |     | 85s |     | 26  |     | 67s |     |     |     |     | 8   |     |
| Cam  | SV   | S1 | 38  | 57  | 45s |     | 53  | 42s | 61s | 50  | 39s | 57s | 46  | 35s | 54s | 43  | 61  | 50s | 39 | 58  | 47s | 36+ | 54 | 43s | 32+ | 51  | 40s | 58s | 47  | 36+ | 55s | 44  |     | 33+ |     |
| Cam  | AK   | ES | 3   |     | 45  | 56s |     |     |     |     |     |     |     | 35  | 47s | 58  |     |     |    |     |     |     |    | 37s | 49  | 60s |     |     |     |     |     |     |     |     |     |
| Cam  | AN   |    |     |     |     |     | 41s |     |     |     |     | 7   |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     | 41s |     |     |     |     |     | 7   |     |
| Cam  | AT   | ES |     | 35  |     | 44s |     | 53  |     | 63s |     |     | 42s |     | 51  | 61s |     |     |    |     | 40s | 49  |    |     |     |     |     | 59s |     | 38s |     |     |     | 66  |     |
| Cnc  | RU   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     | 73  |     |     |     |     |     |     |     |
| Cnc  | RZ   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     | 97\ | \   | 59 | /   | 21/ |     |     |     |     |     |     |     | 79\ |     |     |
| Cnc  | UU   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |
| CVn  | W    | 90 |     |     |     | 37  | 47  |     |     |     |     | 34  | 44  |     |     |     | 40  |     |    |     |     |     |    |     |     | 34  |     |     |     |     |     |     |     | 41  |     |
| CVn  | Z    | 90 | 41  |     | 37  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |
| CVn  | RS   | S1 |     |     | 41  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |
| CVn  | RZ   | 90 | 36  |     |     |     |     |     |     |     |     |     |     |     |     | 42  |     |     |    |     | 39  |     |    |     |     |     |     | 33  |     |     |     |     |     |     |     |
| Cas  | RX   | L1 | 2   |     |     | \   | \   | \   | \   | 24  | /   | /   | /   | /   | /   |     |     |     |    |     |     |     | \  | \   | \   | \   | 41s | /   | /   | /   | /   | /   | /   |     |     |
| Cas  | RZ   | S1 |     | 40  | 60  |     |     |     |     | 38  | 58  |     |     |     |     | 36  | 55  |     |    |     |     |     | 33 | 53  |     |     |     |     | 50  |     |     |     |     |     |     |
| Cas  | SX   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | TV   | S1 |     |     |     |     | 46  |     |     |     |     |     |     |     |     | 52  |     |     |    |     | 77\ | \   |    |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | TW   | S1 |     |     |     | 57  |     |     | 43  |     |     |     |     |     |     | 57  |     |     | 43 |     |     |     |    |     |     | 57  |     |     | 43  |     |     |     |     |     |     |
| Cas  | TX   | ES |     | 58s |     | 51s |     |     | 43s |     |     | 36s |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     | 46  |     | 39  |     |     |     |     |     |
| Cas  | AQ   | L1 | 3   | 89\ | 95s | /   | 0/  |     | 75\ | 81  | 86/ |     |     | 61\ | 67s | 72/ |     |     |    |     |     |     |    |     |     |     |     | 58/ |     | 34\ |     |     |     |     | 20\ |
| Cas  | BM   | L1 | 3   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /  | /   | /   | /   | /  | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   |
| Cas  | DN   | ES | 47  | 63s |     |     |     |     |     | 40  | 56s |     |     |     |     | 34  |     | 49s | 65 |     |     |     |    |     |     |     |     |     |     |     |     |     | 36s |     | 51  |
| Cas  | GG   | ES |     |     |     |     |     | 42  |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | GU   | EU |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    | 35  |     |     |    |     | 54  |     |     |     | 63  |     |     |     |     |     |     |
| Cas  | IL   | ES |     |     |     |     |     |     | 61  |     |     |     |     |     |     | 52  |     |     |    |     |     |     |    | 42  |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | IT   | EX |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |    |     | 57  |     |     | 47  |     | 32  |     |     |     |     | 37  |
| Cas  | OX   | EX |     |     |     |     |     |     |     |     |     | 62  |     |     |     | 60  |     |     |    |     |     |     |    |     |     |     | 56  |     |     |     |     |     |     |     | 54  |
| Cas  | PV   | EX | 48  | 40s |     |     |     |     |     | 48  | 40s |     |     |     |     | 48  |     | 40s |    |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |
| Cas  | V368 | ES |     |     |     |     |     |     | 41s |     | 63  |     |     |     |     |     |     |     |    |     | 54  |     |    |     |     |     |     |     | 44  |     |     |     |     |     |     |
| Cas  | V375 | ED |     |     | 53  |     |     | 48  |     |     | 42  |     | 64s | 37  |     | 58s |     |     |    |     | 53s |     |    |     |     | 42s | 63  | 37s |     | 58  | 32s |     |     | 53  |     |
| Cas  | V381 | EX |     |     |     |     | 58s | 52  |     |     |     |     |     | 57s | 50  |     |     |     |    |     |     |     |    |     |     |     |     | 54s | 47  |     |     |     |     |     |     |
| JD   | 583  | .. | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48 | 49  | 50  | 51  | 52 | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  |     | 62  |     |

| 2018 | Aug   | P    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |  |
|------|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Cas  | V459  | L1   |     |     | 20  |     |     | 37s |     |     |     |     | 66  |     |     |     | 83s |     |     |     |     | 12  |     |     | 29s |     |     |     | 58  |     |     |     |     |  |
| Cep  | RZ    | 90   | 46  | 39  | 62  | 55  | 47  | 40  | 63  | 56  | 49  | 41  | 34  | 57  | 50  | 42  | 35  | 58  | 51  | 44  | 36  | 60  | 52  | 45  | 37  | 61  | 53  | 46  | 39  | 62  | 55  | 47  | 40  |  |
| Cep  | VW    | S1   | 42+ | 39+ | 37+ | 48+ | 45+ | 43+ | 40+ | 37+ | 35+ | 46+ | 44+ | 41+ | 38+ | 36+ | 47+ | 45+ | 42+ | 39+ | 37+ | 34+ | 46+ | 43+ | 40+ | 38+ | 35+ | 33+ | 44+ | 41+ | 39+ | 36+ | 34+ |  |
| Cep  | XX    | S1   |     |     | 55  |     |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     | 57  |     |     |     |     | 58  |     |     |     |     |     |     |     |  |
| Cep  | XY    | ES   | 55  |     |     |     |     |     |     |     |     |     |     |     |     | 42  |     |     |     |     |     |     |     |     |     |     | 52  |     |     |     |     |     |     |  |
| Cep  | ZZ    | S1   |     | 43  |     | 57  |     |     |     |     |     |     |     |     |     |     |     | 42  |     |     | 56  |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | AI    | ES   |     |     |     |     |     | 38  |     | 49s |     | 60  |     |     |     |     |     |     |     |     |     |     |     |     |     | 39s |     | 50  |     | 62s |     |     |     |  |
| Cep  | CW    | EX   |     |     |     |     | 47  |     |     |     | 48s |     |     |     |     |     |     | 39  |     |     |     | 39s |     |     | 57  |     |     | 58s |     |     |     | 31s |     |  |
| Cep  | EI    | L1   | 37  |     |     |     | 59s |     |     |     | 80  |     |     |     | 2s  |     |     |     |     | 24  |     |     |     | 46s |     |     |     | 68  |     |     | 90s |     |     |  |
| Cep  | EX    | L1 2 |     |     |     |     |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     | 66  |     |     |     |     |     |     |     |     |     |  |
| Cep  | NN    | ES   |     |     |     |     |     |     |     |     |     |     |     |     | 36s | 39  | 42s | 44  | 47s | 50  | 53s | 56  | 59s | 62  | 65s |     |     |     |     |     |     |     |     |  |
| Cet  | RR    | RR 2 | 58  |     |     |     |     | 56  |     |     |     |     | 54  | 64  |     |     |     | 52  | 62  |     |     |     | 49  | 60  |     |     |     | 47  | 58  |     |     |     | 45  |  |
| Cet  | RV    | 90 2 |     |     | 61  |     |     |     |     | 60  |     |     |     |     |     | 59  |     |     |     |     | 57  |     |     |     |     | 56  |     |     |     |     | 55  |     |     |  |
| Cet  | TU    | ES 2 | 64  |     |     |     |     | 3   |     |     |     | 42  |     |     | 82  |     |     |     |     |     | 21  |     |     |     | 60  |     |     | 99  |     |     |     |     |     |  |
| Cet  | TV    | L1   |     |     | 53  |     |     |     |     |     | 2s  |     |     |     | 63  |     |     |     |     |     | 13s |     |     | 74  |     |     |     | 23s |     |     |     |     | 84  |  |
| Cet  | XY    | ES 2 |     |     |     |     |     |     |     |     |     |     | 64s |     |     |     |     |     |     | 59  |     |     |     |     |     |     | 54s |     |     |     |     |     |     |  |
| Com  | S     | 90   |     |     | 38  |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     | 32  |     |     |     |     |     |     |     |     |  |
| CrB  | RV    | 90   | 46  | 45  | 45  | 44  | 44  | 43  | 43  | 42  | 42  | 41  | 41  | 40  | 40  | 39  | 39  | 38  | 38  | 37  | 37  | 36  | 36  | 35  | 35  | 34  | 34  | 33  | 33  | 32  | 32  | 31  | 31  |  |
| Cyg  | Y     | S1   | 38  |     |     | 37  |     |     |     | 37  |     | 36  |     |     |     | 36  |     |     |     |     | 35  |     |     | 35  |     |     | 35  |     |     | 34  |     |     | 34  |  |
| Cyg  | UY    | RR   | 35  | 48  | 60  |     |     | 40  | 52  |     |     |     | 45  | 57  |     |     | 37  | 49  | 62  |     |     | 42  | 54  |     | 34  | 47  | 59  |     |     | 39  | 51  | 63  |     |  |
| Cyg  | XZ    | RR   |     |     | 57  | 50  |     | 44  | 37  |     | 64  |     | 57  | 50  | 44  | 37  |     | 64  | 57  | 50  | 44  | 37  | 37  |     | 63  | 57  | 50  | 43  | 37  |     |     |     | 63  |  |
| Cyg  | BO    | ES   |     |     | 60s | 48  |     | 36s |     |     |     |     | 63s | 51  | 38s |     |     |     |     |     | 65s | 53  | 41s |     |     |     |     | 56  | 43s |     |     |     |     |  |
| Cyg  | BR    | ES   | 44  |     | 44s | 44  |     |     | 44s | 43  |     |     | 43s |     | 43  | 43s |     | 43  |     |     | 43s |     | 43  |     | 43s | 42  |     | 42s |     | 42  |     |     | 42s |  |
| Cyg  | DM    | RR   |     | 56  | 40  | 50  |     |     | 59  | 43  |     | 53  | 37  | 63  | 47  | 57  |     | 41  |     | 51  | 35  | 61  | 45  |     | 55  | 39  | 65  | 49  | 33  | 59  | 43  |     | 53  |  |
| Cyg  | EM    | K1 3 | 61  | 48  | 35  | 52  | 39  | 55  | 43  | 59  | 46  | 34+ | 50  | 37  | 54  | 41  | 57  | 44  | 61  | 48  | 35  | 52  | 39  | 55  | 43  | 59  | 46  | 34  | 50  | 37  | 54  | 41  | 57  |  |
| Cyg  | V367  | L1 2 | /   | /   | /   |     |     |     | \   | \   | \   | 17s | /   | /   |     |     |     |     | \   | \   | 47  | /   | /   |     |     |     |     | \   | \   | 77s | /   | /   | /   |  |
| Cyg  | V463  | ES   |     |     |     |     |     |     |     |     |     |     | 34  | 40s | 46  | 52s |     | 58  | 64s |     |     |     |     |     |     |     |     |     |     |     | 34s |     | 40  |  |
| Cyg  | V477  |      |     |     | 54  |     |     | 59s |     |     |     | 58  |     |     |     | 63s |     |     |     |     |     |     |     |     |     | 36s |     |     |     | 35  |     |     |     |  |
| Cyg  | V541  | L1   |     | 54  |     |     |     |     |     |     | 56s |     |     |     |     |     |     |     |     |     |     |     |     |     | 90s |     |     |     |     |     |     |     |     |  |
| Cyg  | V548  | ES   | 44s |     |     |     |     |     |     |     | 57  | 47s | 37  |     |     |     |     |     |     |     | 59  | 49s | 40  |     |     |     |     | 62  | 52s | 42  | 33s |     |     |  |
| Cyg  | V788  | L1   |     |     |     |     |     |     |     |     |     |     | 27\ | 23  | 18\ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V891  | ES   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 57  |     |     | 47  |     | 38  |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V909  | ES   |     |     | 36  |     |     |     |     | 56s |     | 37s |     |     |     | 58  |     | 38  |     |     |     |     | 59s |     | 40s |     |     |     | 60  |     |     |     |     |  |
| Cyg  | V1061 | ES   |     |     |     | 49  |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     | 57  |     |     |     |     |     | 61  |     |     |     |     |     |     |  |
| Cyg  | V1918 | ED 3 | 46s | 50  | 53s | 36+ | 39+ | 42+ | 46  | 49s | 52  | 35+ | 38+ | 41+ | 45s | 48  | 51s | 34+ | 37+ | 40+ | 44+ | 47s | 50  | 33+ | 36+ | 40+ | 43+ | 46  | 49s | 32+ | 35+ | 39+ | 42+ |  |
| Del  | DX    | 90   | 58  | 52  | 47  | 41  | 36  |     |     |     | 61  | 55  | 50  | 45  | 39  | 34  |     |     |     |     | 59  | 53  | 48  | 43  | 37  | 32  |     |     | 57  | 51  | 46  | 40  | 35  |  |
| Dra  | RW    | RR   |     | 57  | 45  |     |     | 55  | 44  |     |     | 54  | 43  |     | 64  | 53  | 41  |     |     | 63  | 51  | 40  |     | 61  | 50  | 38  |     | 48  | 37  | 58  | 47  | 36  |     |  |
| Dra  | SU    | RR   |     | 62  |     | 60  |     | 59  |     | 57  |     | 55  |     |     | 53  |     | 51  |     | 49  |     | 47  |     | 45  |     | 44  |     | 42  |     | 40  |     | 38  |     | 36  |  |
| Dra  | SW    | RR   | 40  | 54  |     |     | 38  | 52  |     |     | 37  | 51  |     |     |     | 36  | 50  | 64  |     | 35  | 49  | 63  |     | 33  | 47  | 61  |     | 46  | 60  |     |     | 45  | 59  |  |
| JD   | 583   | ..   | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  |  |

| 2018 | Aug  | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Dra  | TZ   | ED | 48 | 35  |     | 51s | 38s |     | 54  | 41  |     | 58s | 44s |     | 61  | 47  | 34  | 64s | 50s | 37s |     | 54  | 40  |     | 57s | 43s | 60  | 46  | 33  | 63s | 49s | 36s |     |     |  |
| Dra  | VZ   | 90 | 59 | 56  | 52  | 48  | 45  | 41  | 37  |     | 62  | 58  | 55  | 51  | 47  | 44  | 40  | 36  | 65  | 61  | 57  | 53  | 50  | 46  | 42  | 39  | 35  | 63  | 60  | 56  | 52  | 49  | 45  |     |  |
| Dra  | WW   | S1 | 3  |     |     |     |     |     |     |     | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     |  |
| Dra  | XZ   | RR |    | 45  | 40  | 36  |     |     |     | 60  | 55  | 50  | 46  | 41  | 36  |     |     |     | 65  | 60  | 56  | 51  | 46  | 41  | 37  | 32  |     |     | 66  | 61  | 56  | 51  | 47  |     |  |
| Dra  | AI   | S1 |    |     |     | 38  | 58  |     |     |     |     | 38  | 58  |     |     |     | 37  | 57  |     |     |     |     | 37  | 57  |     |     |     |     | 36  | 56  |     |     |     |     |  |
| Dra  | BF   |    |    |     |     |     |     |     |     |     |     | 66  |     |     |     |     |     |     |     |     |     |     | 87  |     |     |     |     |     |     |     |     |     |     |     |  |
| Dra  | BK   | 90 |    |     | 52  |     |     | 48  |     |     | 44  | 63  |     | 40  | 59  |     | 36  | 55  |     |     | 51  |     |     |     | 47  | 65  |     | 43  | 61  |     | 39  | 57  |     | 35  |  |
| Dra  | BU   | ES |    |     |     |     |     |     |     |     |     |     |     | 57s |     | 49  |     | 40s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Dra  | DD   | 90 | 48 | 46  | 44  | 42  | 40  | 38  | 36  |     |     | 63  | 61  | 59  | 57  | 55  | 53  | 51  | 49  | 47  | 45  | 43  | 41  | 39  | 37  | 35  | 33+ | 64  | 62  | 60  | 58  | 56  | 54  |     |  |
| Dra  | EX   | K1 | 48 | 53  | 37+ | 42+ | 47  | 52  | 36+ | 41+ | 46  | 51  | 35+ | 40+ | 45  | 50  | 34+ | 39+ | 44+ | 49  | 33+ | 37+ | 42+ | 47  | 52  | 36+ | 41+ | 46  | 51  | 35+ | 40+ | 45+ | 50  |     |  |
| Dra  | GV   | L1 | 3  |     |     |     |     |     |     |     |     |     |     |     |     | 4   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Equ  | S    | S1 |    |     |     |     |     | 56  |     |     |     |     |     |     | 43  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Eri  | SV   | 90 | 2  |     |     |     |     |     |     |     |     |     | 62  |     |     |     |     | 61  |     |     |     |     |     | 61  |     |     |     |     | 61  |     |     |     |     | 60  |  |
| Gem  | RR   | 90 | 3  |     |     |     |     |     |     |     |     | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Gem  | RY   | L1 | 3  |     |     |     |     |     |     |     |     |     |     | 62  |     |     |     |     |     |     |     |     |     |     |     |     |     | 80s |     |     |     |     | 45  |     |  |
| Gem  | SZ   | 90 | 3  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63  | 64  |     |  |
| Gem  | WW   | ES |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 65s |     |     |     |     |  |
| Gem  | YY   | S1 |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64  |     |     | 61  |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Her  | TW   | RR |    | 41  | 60  | 40  | 60  | 40  | 60  | 40  | 60  | 40  | 40  |     | 39  |     | 39  |     | 39  |     |     | 39  |     | 39  |     | 38  |     | 38  |     | 59  | 38  | 63s | 38  |     |  |
| Her  | TX   | S1 |    | 43  | 46s | 49  | 52s | 55  | 58s | 61  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Her  | UX   | ED |    |     |     | 35s |     |     | 45s |     |     | 55s |     |     | 42  |     |     |     | 52  |     |     |     | 39s |     |     | 49s |     |     |     | 36  |     |     |     | 46  |  |
| Her  | VX   | RR |    |     |     |     | 43  |     |     |     |     | 44  | 35  |     |     | 45  |     | 36  |     |     |     | 45  | 36  |     |     |     |     | 37  |     |     |     |     | 38  |     |  |
| Her  | VZ   | 90 |    | 46  |     |     | 55  | 43  |     | 51  | 39  |     |     | 47  | 35  | 55  | 43  |     |     |     |     | 52  | 40  |     | 48  | 36  |     |     | 44  | 32  |     | 52  | 41  |     |  |
| Her  | AK   | S1 |    | 46  | 51s | 35s | 41  | 46s | 52  | 36  | 41s | 47  | 36s | 42  | 47s |     | 37  | 42s | 48  |     |     | 37s | 43  | 48s |     | 38  | 43s | 33  | 38s | 44  |     | 33s | 39  |     |  |
| Her  | AR   | 90 |    | 42  | 36  |     |     | 59  | 53  | 47  | 41  | 35  |     |     |     | 52  |     | 46  | 40  | 34  |     |     |     |     |     | 51  | 45  | 39  | 33  |     |     |     |     | 50  |  |
| Her  | AW   | L1 |    |     |     | 19  |     |     |     |     |     |     |     | 99  |     |     |     |     |     |     |     |     | 79  |     |     |     |     |     |     |     |     | 59  |     |     |  |
| Her  | DI   | L1 |    | 90  |     |     |     |     |     |     |     | 3s  |     |     | 45  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 13s |  |
| Her  | GU   | EU |    |     |     | 47s |     |     |     |     |     |     |     |     |     |     |     | 50s |     |     |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |  |
| Her  | LV   |    |    | 38s |     | 92  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     |  |
| Lac  | RW   | L1 |    |     |     | 19s |     |     |     |     | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Lac  | SW   | S1 |    | 46+ | 42+ | 38+ | 50s | 46+ | 43+ | 39+ | 35+ | 47+ | 44+ | 40+ | 36+ | 48+ | 44+ | 41+ | 37+ | 33+ | 45+ | 42+ | 38+ | 34+ | 46+ | 43+ | 39+ | 35+ | 47+ | 43+ | 40+ | 36+ | 32+ | 44+ |  |
| Lac  | UW   | ES |    | 96  |     |     |     |     |     | 25  |     |     |     |     |     | 54  |     |     |     |     |     |     | 83  |     |     |     |     |     |     |     |     |     |     |     |  |
| Lac  | CO   | EX |    |     | 51  |     | 59  |     |     |     |     | 42s |     |     | 51s |     | 59s | 39  |     |     |     | 47  |     |     | 56  |     | 64  | 39s |     |     |     | 47s |     |     |  |
| Lac  | CZ   | 90 |    | 62  | 48  | 35  |     | 37  |     | 53  | 40  |     | 56  | 42  |     | 58  | 45  |     | 61  | 47  | 33  | 63  | 49  | 36  | 66  | 52  | 38  |     | 54  | 41  |     | 57  | 43  |     |  |
| Lac  | V345 | EX |    | 83s |     |     |     | 67  |     |     |     | 32s |     |     |     | 16  |     | 81s |     |     |     |     | 65  |     |     |     | 30s |     |     |     | 14  |     |     | 79s |  |
| Lac  | V364 | EX |    |     |     | 53  |     |     |     |     |     |     |     |     |     |     | 61s |     |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     | 31s |     |  |
| Lyn  | CD   | ES |    |     |     |     |     |     |     |     |     |     |     | 43  | 56  |     | 40  | 53  |     |     |     | 37  | 50  | 63  |     | 33  | 47  | 60  |     |     | 44  | 57  |     |     |  |
| Lyr  | RR   | RR |    |     | 36  | 49  | 63  |     |     | 46  | 60  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Lyr  | RZ   | 90 |    | 47  | 49  | 52  | 54  | 56  | 58  | 61  | 63  |     |     |     |     |     |     |     |     |     | 34  | 36  | 39  | 41  | 43  | 45  | 48  | 50  | 52  | 54  | 57  |     |     |     |  |
| JD   | 583  | .. |    | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  |  |

| 2018 | Aug  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Lyr  | UZ   | S1 |     |     |     |     |     |     |     |     |     | 59  | 54s | 49  | 43s | 38  |     |     |     |     |     |     |     |     |     |     |     |     | 62  | 56s | 51  | 45s | 40  |     |     |    |
| Lyr  | CN   | 90 |     | 49  |     | 54  | 37  | 60  | 42  |     | 48  |     | 54  | 36  | 59  | 42  |     | 47  |     | 53  | 35  | 59  | 41  |     | 47  | 52  | 35  |     | 40  |     | 46  |     |     |     |     |    |
| Lyr  | EZ   | RR |     | 38  | 43  | 48  | 53  | 58  | 63  |     |     |     |     | 36  | 41  | 46  | 51  | 56  | 61  |     |     |     |     | 34  | 39  | 44  | 49  | 54  | 59  |     |     |     |     |     |     |    |
| Lyr  | IO   | 90 | 3   |     | 41  | 56  |     |     |     | 45  | 60  |     | 49  |     |     | 37  | 53  |     |     |     | 41  | 57  |     |     | 45  | 34  | 49  |     |     | 38  | 53  |     |     |     |     |    |
| Lyr  | beta | S1 |     | 73  |     |     |     |     |     |     |     | 20s |     |     |     | 67  |     |     |     |     |     |     |     | 14s |     |     |     |     | 61  |     |     |     |     |     |     |    |
| Oph  | U    | ST | 48s |     |     |     |     |     | 35  |     |     |     |     | 38  |     |     |     | 41  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Oph  | ST   | 90 | 2   |     |     | 46  | 37  |     |     |     | 42  |     |     |     | 37  |     |     |     |     | 43  | 33  |     |     |     | 38  |     |     |     | 33  |     |     |     |     |     |     |    |
| Ori  | Z    | ES | 2   |     |     | 65  |     |     |     |     | 85  |     |     |     |     |     | 5   |     |     |     |     | 26  |     |     |     |     | 46  |     |     |     | 66  |     |     |     |     |    |
| Ori  | BM   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 49  |     |     |     |     |     | 96  |     |     |     |     |     |     |     |     |    |
| Ori  | CP   | ES | 2   |     |     |     |     |     | 9   |     |     |     |     | 41  |     |     |     | 73  |     |     |     |     |     |     | 5   |     |     |     | 37  |     |     |     |     |     |     |    |
| Ori  | DN   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     | 22  |     |     |     |     |     |     |     |     |     |     |     |     | 19  |     |     |     |     |     |     |    |
| Ori  | FO   | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 19  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | FT   | EX |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60s | 64  |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | GG   | EX |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | V536 | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63  |     |    |
| Peg  | U    | S1 |     | 39+ | 52  | 46s | 39+ | 52  | 45s | 39+ | 52  | 45+ | 39+ | 51  | 45+ |     |     | 39+ | 51  | 45+ | 38+ | 51  |     | 45+ | 38+ | 51  | 44+ | 38+ | 50  | 44+ | 38+ | 50  | 44+ | 38+ |     |    |
| Peg  | VV   | RR |     | 54  | 52  | 50  | 47  | 45  | 43  | 40  | 38  | 36  |     |     |     |     |     |     |     |     | 64  | 61  | 59  |     | 57  | 54  | 52  | 50  | 47  |     | 45  | 43  | 40  | 38  | 36  |    |
| Peg  | VW   |    |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Peg  | AV   | RR |     |     | 51  |     | 46  |     | 42  | 59  | 37  | 54  |     | 49  |     | 44  | 61  | 40  | 57  | 35  | 52  |     | 47  |     | 64  | 42  | 59  | 37  | 55  |     | 33  | 50  |     | 45  | 62  | 40 |
| Peg  | AW   | L1 |     |     |     |     | 86  |     |     |     |     |     | 17s |     |     |     |     |     | 48  |     |     |     |     |     | 79s |     |     |     |     |     |     |     |     |     |     |    |
| Peg  | BH   | 90 |     |     | 41  |     | 61  |     | 53  |     | 46  |     | 38  |     | 58  |     |     | 51  |     | 43  |     | 35  |     | 64  |     | 56  |     | 48  |     | 40  |     | 33  | 61  |     |     |    |
| Peg  | BK   | ES |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     |     |     | 43  |     |     |     |     |     |     |     | 66s |     | 41  |     |     |     |     |     |    |
| Peg  | CG   | 90 |     | 54  | 47  | 41  |     |     | 61  | 55  | 48  | 41  | 35  |     | 62  | 55  |     | 49  | 42  | 36  |     |     |     | 63  | 56  | 49  | 43  | 36  |     | 63  | 57  | 50  |     | 44  |     |    |
| Peg  | DF   | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 24  |     |     |     |    |
| Peg  | DH   | RR | 3   | 45  | 47  | 50  | 52  | 54  | 56  | 58  | 35+ | 37+ | 40  | 42  | 44  | 46  | 48  | 51  | 53  | 55  | 57  | 34+ | 36+ |     | 38+ | 40  | 43  | 45  | 47  | 49  | 51  | 54  | 56  | 33+ | 35+ |    |
| Peg  | GH   | ES |     |     |     |     |     |     |     |     |     |     |     | 44  |     |     |     |     |     |     |     | 55  |     |     |     |     |     | 39s |     |     |     |     | 33  | 61s |     |    |
| Peg  | IP   | K1 |     | 49  | 44+ | 39+ | 50  | 45+ | 39+ | 50  | 45+ | 40+ | 35+ | 46+ | 41+ | 36+ | 46+ | 41+ | 36+ | 47+ | 42+ | 37+ | 47+ |     | 42+ | 37+ | 32+ | 43+ | 38+ | 33+ | 44+ | 38+ | 33+ | 44+ | 39+ |    |
| Per  | RW   | L1 | 2   |     |     |     | 12  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Per  | RY   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Per  | AG   | EX |     |     |     |     |     |     |     |     |     |     |     | 49  |     | 52  | 49s | 55  | 52s | 58  | 55s | 61  |     | 58s | 64  | 60s |     | 63s |     | 66s |     |     |     |     |     |    |
| Per  | AR   | 90 |     |     | 55  |     | 53  |     |     | 51  |     | 64  | 49  |     | 62  | 47  |     | 60  | 45  |     | 57  | 43  |     |     | 55  | 40  |     | 53  |     | 66  | 51  |     | 64  | 49  |     |    |
| Per  | AY   | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 21  |     |     |     |    |
| Per  | IQ   |    |     |     |     |     | 58s | 54  |     |     |     |     | 56s | 52  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Per  | KN   | EU |     | 51  |     |     |     |     | 57  | 44  |     |     | 56s | 52  |     | 64  | 50  |     |     |     |     |     |     | 44  |     | 60s | 47s |     | 51s | 47  | 64  | 50  |     | 53s | 40s |    |
| Per  | LX   | L1 |     |     | 83  |     |     | 85s |     |     |     | 87  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96s |     |    |
| Per  | beta | S1 |     |     |     |     |     |     |     | 51s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45s |    |
| Psc  | RU   | 90 |     | 61  |     | 56  |     | 51  | 47  |     | 42  | 59  |     | 54  |     | 49  |     | 45  | 62  | 40  | 57  |     | 52  |     | 47  | 64  | 42  | 60  | 38  | 55  |     | 50  |     | 67  |     |    |
| Psc  | RY   | 90 | 2   |     |     |     |     | 51  | 57  | 63  |     |     |     |     |     | 46  | 52  | 58  | 64  |     |     |     |     |     |     | 46  | 52  | 58  | 64  |     |     |     |     | 41  |     |    |
| Psc  | SS   | 90 |     |     | 55  |     | 57  | 43  | 58  | 44  | 59  | 46  | 61  | 47  | 62  | 49  | 64  | 50  | 52  |     |     | 53  | 39  | 54  | 41  | 56  | 42  | 57  | 44  | 59  | 45  | 60  | 47  |     | 62  |    |
| JD   | 583  | .. |     | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  |     | 62  |    |

| 2018 | Aug   | P  | 1  | 2   | 3  | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |
|------|-------|----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sge  | SY    | ES |    |     |    |     | 52  |     |     |     |     |     | 59  |     | 36s |     |     |     |     |     |     | 44s |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser  | VY    | RR | 41 |     |    |     |     | 40  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser  | AN    | 90 |    |     |    |     | 39  | 43  |     |     |     |     |     |     |     |     |     | 35  | 40  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser  | BH    | 90 | 36 |     |    |     | 40  |     |     | 44  |     |     | 35  |     |     |     | 39  |     |     |     |     |     | 35  |     |     | 39  |     |     |     |     |     |     |     |     | 34  |
| Ser  | EG    | L1 |    | 69s |    |     |     |     |     | 66  |     |     |     | 64s |     |     |     | 61  |     |     |     |     | 58s |     |     |     |     |     | 56  |     |     |     |     |     |     |
| Ser  | LX    | K1 | 36 | 47  | 42 | 37  |     | 43  | 38  |     | 44  | 39  | 34  | 45  | 40  | 35  |     | 41  | 36  |     | 42  | 37  |     |     | 38  | 33  |     | 39  | 34  |     | 40  | 35  |     |     |     |
| Tau  | RW    | S1 | 3  |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tau  | CD    | S1 | 3  |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tau  | EN    | ES | 2  |     |    |     |     |     |     | 61s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 56s |
| Tau  | V1094 | L1 |    |     |    |     | 57s |     |     | 69  |     |     |     |     | 56s |     |     | 68  |     |     |     |     |     | 55s |     |     |     | 67  |     |     |     |     |     |     |     |
| Tri  | X     | S1 |    |     |    |     |     |     | 62  | 59  | 56  |     | 53  | 51  | 48  | 45  | 42  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tri  | RU    | ES | 2  |     |    | 63s |     |     | 53  |     |     |     |     |     | 44s |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |     |     |     |     |     | 41  |
| Tri  | UX    | 90 | 58 | 51  | 45 |     |     |     | 58  | 52  | 45  |     |     |     |     | 59  |     | 52  | 45  | 39  |     |     |     | 59  | 52  | 46  | 39  |     |     |     | 66  | 59  | 53  | 46  |     |
| UMa  | W     | S1 |    |     |    |     |     | 60s | 60s | 60s | 60s | 60s | 61s | 61s | 61s | 61s | 61s | 61s | 61s | 61s | 61s | 61s | 61s | 61s | 62s | 62s | 62s | 62s | 62s | 62s | 62s | 62s | 62s | 62s | 62s |
| UMa  | RV    | RR | 54 | 47  | 41 | 35  |     |     |     |     | 49  | 43  | 37  |     |     |     |     | 45  | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| UMi  | W     | S1 | 3  | 60  |    |     |     |     |     | 40  |     |     |     |     | 50  |     |     |     |     |     |     | 61  |     |     |     |     |     |     | 41  |     |     |     |     |     | 52  |
| Vir  | CG    | ES |    |     |    | 38  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Vul  | Z     | S1 | 54 |     |    |     |     | 45  |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 54  |
| Vul  | RR    | ES |    |     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 38  |     |     |     |     |     | 43  |     |     |     |     |     |     |     | 48  |     |
| Vul  | BN    | 90 |    | 38  | 57 |     | 35  | 54  |     | 51  |     |     |     | 48  |     | 45  |     |     |     |     |     | 42  | 61  | 39  | 58  |     | 36  | 55  |     |     | 33  | 52  |     | 49  |     |
| Vul  | DR    | EX |    |     | 59 |     |     |     |     | 43s | 34  |     |     | 59  |     |     |     |     |     | 44s | 34  |     | 59  |     |     |     |     |     | 44s | 34  |     |     | 60  |     |     |
| Vul  | EV    | ES |    |     | 57 |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     | 50  |     |     | 32  |     |     |     |     |     |     |     |     |     |     |
| JD   | 583   | .. | 32 | 33  | 34 | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  |     | 62  |     |

| 2018 | Spt  | P  | 1  | 2  | 3  | 4   | 5  | 6  | 7  | 8   | 9  | 10 | 11 | 12 | 13  | 14 | 15  | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |    |  |
|------|------|----|----|----|----|-----|----|----|----|-----|----|----|----|----|-----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| And  | SW   | RR | 36 |    | 57 | 46  | 34 | 67 | 55 | 44  | 32 | 65 | 53 | 42 | 30  | 63 | 51  | 40 | 28 | 61 | 50 | 38 |    | 59 | 48 | 36 | 69 | 57 | 46 | 34 | 67 | 55 |    |  |
| And  | TW   | S1 |    | 40 |    | 47s |    | 53 |    | 59s |    | 65 |    |    |     |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| And  | XX   | 90 | 39 |    | 56 |     |    | 45 |    | 62  | 34 |    | 51 |    | 68  | 40 |     | 57 | 29 |    | 46 |    | 63 | 35 |    | 52 | 69 | 41 |    | 58 | 30 |    |    |  |
| And  | CD   | L1 | 2  |    |    |     |    |    |    |     |    |    |    |    | 95\ | \  | \   | 2  | /  | 9/ |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| And  | OV   | 90 | 56 | 50 | 44 | 38  | 32 |    | 67 | 62  | 56 | 50 | 44 | 38 | 32  |    | 67  | 62 | 56 | 50 | 44 | 38 | 32 |    | 67 | 62 | 56 | 50 | 44 | 38 | 32 | 26 |    |  |
| Aqr  | SW   | RR | 3  | 33 |    | 54  | 46 | 38 | 30 |     | 51 |    | 43 | 35 |     |    |     | 49 | 40 | 32 |    |    |    | 46 | 38 | 29 |    |    | 43 | 35 | 26 |    |    |  |
| Aqr  | SX   | 90 | 50 | 57 |    |     |    | 32 | 39 | 46  | 53 |    |    |    |     | 35 | 42  | 50 |    |    |    |    | 32 | 39 | 46 | 53 |    |    | 28 | 35 | 42 |    |    |  |
| Aqr  | CD   | ES |    | 93 |    |     |    |    | 77 |     |    |    |    | 60 |     |    |     |    | 44 |    |    |    |    |    |    |    |    |    | 12 |    |    |    |    |  |
| Aqr  | HH   | 90 | 2  | 52 |    |     | 39 | 54 |    | 42  | 56 |    |    | 44 |     |    | 31  | 46 |    |    | 33 | 48 |    |    |    | 35 | 50 |    |    | 37 | 52 |    |    |  |
| Aqr  | LL   | L1 | 3  |    |    |     | 44 |    |    |     |    |    |    |    |     |    | 53s |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Aql  | AA   | RR | 37 | 45 |    |     | 35 | 43 |    |     | 33 | 41 | 50 |    | 31  | 39 | 48  |    | 29 | 37 | 46 |    |    | 35 | 44 |    |    | 33 | 42 |    |    |    | 31 |  |
| Aql  | V341 | 90 | 3  | 50 |    |     | 39 |    |    | 44  |    |    | 33 | 49 |     | 38 |     |    |    |    |    |    |    | 31 | 47 |    |    | 36 |    |    |    |    | 41 |  |
| JD   | 583  | .. | 63 | 64 | 65 | 66  | 67 | 68 | 69 | 70  | 71 | 72 | 73 | 74 | 75  | 76 | 77  | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 |    |  |

| 2018 | Spt   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |   |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
| Aql  | V889  | L1 | 71s |     |     |     | 45  |     | 89  |     |     |     |     | 83s |     |     |     |     |     |     |    | 1   |     |     | 95s |     |     |     |     |     |     |     |     |   |
| Aql  | V1353 | ES |     |     | 32s |     |     |     |     |     |     | 40s |     |     |     | 35  |     |     | 47s |     |    | 30s |     | 42  |     |     |     |     | 38s |     |     |     |     |   |
| Aql  | V1426 | ES | 38+ | 56s | 15+ | 32+ | 50  | 8+  | 26+ | 43s | 2+  | 20+ | 37+ | 55  | 13+ | 31+ | 48s | 7+  | 25+ | 42  | 1+ | 19+ | 36+ | 54s | 12+ | 30+ | 47  | 6+  | 24+ | 41+ | 59s | 17+ |     |   |
| Aql  | V1430 | ES |     | 39s |     |     | 44  | 32  |     |     | 38s |     |     | 43  | 31  |     |     | 36s |     |     | 42 | 30  |     |     | 35s |     |     | 41  | 29  |     |     | 34s |     |   |
| Ari  | X     | RR | 3   | 63  |     | 58  |     | 53  |     | 49  |     | 44  |     |     |     | 65  |     | 60  |     |     | 56 |     | 51  |     | 46  |     | 42  |     |     | 67  |     | 63  |     |   |
| Ari  | RS    | L1 | 2   |     |     |     |     |     | 31  |     |     |     |     |     |     |     |     |     | 12  |     |    |     |     |     |     |     | 92  |     |     |     |     |     |     |   |
| Ari  | AL    | ES |     |     |     |     |     |     |     |     | 66  |     |     |     | 40  |     |     |     |     |     |    |     |     |     |     |     |     |     |     | 39  |     |     |     |   |
| Aur  | TZ    | 90 | 3   |     |     |     | 64  |     | 59  |     | 55  |     | 51  | 69  |     | 64  |     | 60  |     |     | 56 |     | 52  | 69  | 48  | 65  |     | 61  |     | 57  |     | 53  | 70  |   |
| Aur  | CQ    | L1 | 3   |     |     | 88  |     |     |     |     |     | 19s |     |     |     |     | 50  |     |     |     |    | 81s |     |     |     |     |     | 12  |     |     |     |     |     |   |
| Aur  | IY    | ES |     |     |     |     |     |     |     |     |     |     |     |     | 57  |     |     |     |     |     |    |     |     |     |     |     |     |     |     | 53  |     |     |     |   |
| Aur  | V432  | ES |     | 58  |     |     | 67  |     |     |     |     |     |     |     |     | 45s |     |     |     | 53s |    |     | 62s |     |     | 70s |     |     |     |     |     |     |     |   |
| Boo  | RS    | RR |     |     | 35  |     |     | 37  |     |     |     |     |     |     | 29  |     |     | 31  |     |     |    | 33  |     |     |     |     |     |     |     |     |     |     | 27  |   |
| Boo  | TW    | 90 |     |     |     |     |     |     | 30  | 36  |     |     |     |     |     |     |     | 35  |     |     |    |     |     |     | 27  | 33  |     |     |     |     |     |     |     |   |
| Boo  | UU    | 90 |     |     |     |     | 39  | 30  |     |     |     | 41  | 33  |     |     |     |     | 35  |     |     |    |     | 38  | 29  |     |     |     |     | 32  |     |     |     |     |   |
| Boo  | AC    | ED |     | 48s | 36  | 41  |     | 41s |     | 35  | 41  |     | 33  | 34s | 40s |     | 34  | 40  |     |     |    |     | 39  | 27s | 33s | 39s | 27  | 32  | 38  | 26s | 32s | 38s |     |   |
| Boo  | CM    | 90 |     |     |     |     |     |     |     | 32  |     |     |     |     |     |     |     |     |     |     |    | 29  |     |     |     |     |     |     |     |     |     |     |     |   |
| Boo  | CQ    | 90 |     |     |     |     |     |     |     |     | 34  |     | 31  |     |     |     |     |     |     |     |    |     |     | 30  |     | 28  |     |     |     |     |     |     |     |   |
| Boo  | CS    | 90 |     |     |     |     | 31  |     |     |     |     | 30  |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |   |
| Cam  | SS    | ES |     | 50s |     | 91  |     |     | 32s |     | 73  |     |     | 14s |     | 55  |     | 96s |     |     | 38 |     | 79s |     |     | 20  |     | 61s |     |     | 2   |     |     |   |
| Cam  | SV    | S1 |     | 52s | 41  | 59  | 48s | 37+ | 56  | 45s | 34+ | 52  | 41s | 30+ | 49  | 38+ | 56s | 45  | 34+ | 53s | 42 | 31+ | 49s | 38+ | 27+ | 46s | 35+ | 53  | 42s | 31+ | 50  | 39+ | 28+ |   |
| Cam  | AK    | ES | 3   | 40  | 51s | 62  |     |     |     |     |     | 30  | 42s | 53  | 64s |     |     |     |     |     |    | 32s | 44  | 55s | 66  |     |     |     |     |     |     |     | 34  |   |
| Cam  | AN    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41s |     |     |    |     |     | 7   |     |     |     |     |     |     |     |     |     |   |
| Cam  | AT    | ES |     | 36s |     | 45  |     | 55s | 64  | 34s |     | 43  |     | 52s |     | 62  | 32s |     | 41  |     |    | 50s |     | 60  | 30s | 69s | 39  | 48s |     | 58  | 28s | 67s |     |   |
| Cnc  | S     | L1 | 3   | 8   |     |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |    | 5   |     |     |     |     |     |     |     |     |     |     | 53  |   |
| Cnc  | RU    | L1 | 2   |     |     |     | 90  |     |     |     |     |     |     |     |     |     |     |     | 7   |     |    |     |     |     |     |     |     | 24  |     |     |     |     |     |   |
| Cnc  | RW    | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     | 59  | 68  |     |   |
| Cnc  | RZ    | L1 | 2   | 41s | /   | 4/  |     |     |     |     |     | 61\ | /   | 23  | 86/ |     |     |     |     |     |    |     | 43\ | /   | 6s  | 68/ |     |     |     |     |     |     |     |   |
| Cnc  | TT    | 90 |     |     |     |     |     |     |     |     |     | 67  |     |     |     |     |     |     |     |     |    | 69  |     |     |     |     |     |     |     |     | 70  |     |     |   |
| Cnc  | TU    | ES | 3   |     |     |     | 97  |     |     |     |     |     | 53  |     |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |     | 21  |     |     |   |
| Cnc  | TW    | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     |     | 78\ | 84  | 90/ |     |     |     |   |
| Cnc  | UU    | L1 | 2   | /   | /   | /   | /   | /   | /   | /   | /   | /   | 48  | /   | /   | /   | /   | /   | /   | /   | /  | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | / |
| Cnc  | AQ    | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 68 |     |     |     |     |     |     |     |     |     |     |     | 65  |   |
| CVn  | W     | 90 |     |     |     |     | 37  |     |     |     |     | 34  |     |     |     | 30  |     |     |     |     |    |     |     |     |     |     |     |     |     |     |     |     |     |   |
| CVn  | Z     | 90 |     |     |     |     |     |     |     | 34  |     | 30  |     |     |     |     |     |     |     |     |    |     |     |     |     |     | 69  |     |     |     |     |     | 27  |   |
| CVn  | RZ    | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 33  |     |     |    | 30  |     |     |     |     | 27  |     |     |     |     |     |     |   |
| CMi  | AM    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64  | 66  | 68 | 70  |     |     |     |     |     |     |     |     |     |     |     |   |
| Cas  | RX    | L1 | 2   |     |     |     | /   | /   | /   | 58  | /   | /   | /   | /   | /   | /   |     |     |     |     |    |     |     | /   | /   | /   | 75s | /   | /   | /   | /   | /   | /   | / |
| Cas  | RZ    | S1 |     | 48  |     |     |     |     |     | 46  | 65  |     |     |     |     |     |     |     |     |     |    |     |     | 60  |     |     |     |     | 39  | 58  |     |     |     |   |
| Cas  | SX    | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |     |     |     | 33\ |     |     | 16  | 99/ |     |     |   |
| JD   | 583   | .. | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81 | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  |     |   |



| 2018 | Spt  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Cas  | TV   | S1 | 65  |     | 46  |     |     |     |     |     |     |     |     | 52  |     | 33  |     |     |     |     |     |     | 59  |     | 40  |     |     |     |     |     |     | 65  |    |
| Cas  | TX   | S1 |     |     | 57  |     |     | 43  |     |     |     |     |     |     | 57  |     |     | 42  |     |     | 28  |     |     |     | 57  |     |     | 42  |     |     | 28  | 71  |    |
| Cas  | TX   | ES | 31  |     |     |     |     |     |     | 63s |     |     | 56s |     |     | 48s |     |     | 41s |     |     |     | 34s |     |     |     |     | 42  | 65  |     |     | 58  |    |
| Cas  | AQ   | L1 | 3   | 25  | 30/ |     |     | 6\  | 11s | 16/ |     |     | 92\ | 97  | /   | 3/  |     | 78\ | 83s | 89/ |     |     |     | 64\ | 69  | 75/ |     |     |     | 50\ | 55s |     |    |
| Cas  | DN   | ES |     | 67s |     |     |     |     | 45  | 60s |     |     |     |     |     | 38  | 53s | 69  |     |     |     |     | 31  | 47s | 62  |     |     |     |     | 40s | 55  |     |    |
| Cas  | GG   | ES |     |     |     |     | 49  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 53  |     |     | 28  |     |     |     |     |     |     |     |    |
| Cas  | GU   | EU |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 29  |     |     |     | 38  |     | 47  |     |     |     | 57  |     |     | 66  |    |
| Cas  | IL   | ES |     |     |     |     |     | 68  |     |     |     |     |     |     |     | 58  |     |     |     |     |     | 49  |     |     |     |     |     |     | 39  |     |     |     |    |
| Cas  | IT   | EX |     | 52s |     |     |     |     |     |     | 31s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64  |     |     |     |     | 54  |    |
| Cas  | OX   | EX |     |     |     | 51  |     |     |     |     |     | 49  | 68s |     |     | 47  | 66s |     |     |     |     |     |     |     |     | 43  | 61s |     |     | 41  | 59s |     |    |
| Cas  | PV   | EX |     |     | 65s | 49  |     | 40s |     |     |     |     |     | 66s | 49  | 41s |     |     |     |     |     |     |     |     | 66s |     | 49  | 41s |     |     |     |     |    |
| Cas  | V368 | ES |     |     |     |     | 34  |     | 57s |     |     |     |     |     |     |     |     | 47s |     | 66s | 49  | 41s |     |     |     | 38s |     | 49  | 41s |     |     |     |    |
| Cas  | V375 | ED |     |     | 47  |     | 68s | 42  |     | 63s | 37  |     |     | 58s | 31  |     | 52s |     |     | 47s |     | 70  |     |     | 63  | 36s |     | 57  | 31s | 52  | 26s |     |    |
| Cas  | V381 | EX |     | 52s | 45  |     |     |     |     |     |     | 50s | 44  |     |     |     | 67  |     | 49s | 42  |     |     |     | 66  | 47s | 40  |     |     | 71s | 64  | 45s |     |    |
| Cas  | V459 | L1 |     | 75s |     |     |     | 4   |     |     |     |     |     |     |     | 50  |     |     |     |     | 66s |     |     | 95  |     |     |     |     |     | 12s |     |     |    |
| Cep  | RZ   | 90 | 32+ | 56  | 49  | 41  | 34+ | 57  | 50  | 42  | 35+ | 58  | 51  | 44  | 36+ | 29+ | 52  | 45  | 37+ | 30+ | 53  | 46  | 39+ | 31+ | 55  | 47  | 40+ | 32+ | 56  | 48  | 41+ | 34+ |    |
| Cep  | VW   | S1 | 31+ | 42+ | 40+ | 37+ | 34+ | 32+ | 43+ | 41+ | 38+ | 35+ | 33+ | 30+ | 42+ | 39+ | 36+ | 34+ | 31+ | 29+ | 40+ | 37+ | 35+ | 32+ | 30+ | 27+ | 38+ | 36+ | 33+ | 31+ | 28+ | 39+ |    |
| Cep  | XX   | S1 | 60  |     |     |     |     |     |     | 61  |     |     |     |     |     |     | 62  |     |     |     |     |     |     |     | 63  |     |     |     |     | 31  |     | 64  |    |
| Cep  | XY   | ES |     |     |     |     |     | 62  |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cep  | ZZ   | S1 | 41  |     | 55  |     |     |     |     |     |     |     |     |     |     |     |     | 41  |     | 55  |     | 69  |     |     |     |     |     |     |     |     |     | 26  |    |
| Cep  | AI   | ES |     |     |     |     |     |     |     |     |     |     |     | 29s |     | 41  |     | 52s |     | 63  |     |     |     |     |     |     |     |     |     |     |     | 31  |    |
| Cep  | CW   | EX |     |     |     | 49  |     |     |     | 50s |     |     |     | 68  |     | 41  |     | 69s |     |     |     | 41s |     |     | 60  |     |     | 32  | 60s |     |     | 33s |    |
| Cep  | EI   | L1 |     |     |     | 12  |     |     |     | 34s |     |     |     | 56  |     |     |     | 78s |     |     |     |     |     | 0   |     |     | 22s |     |     |     |     | 44  |    |
| Cep  | EX   | L1 | 2   |     |     |     |     | 10  |     |     |     |     |     |     |     |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     |     |     |     |    |
| Cep  | NN   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     | 29s |     | 32  | 35s | 38  | 41s | 44  | 47s | 49  | 52s | 55  | 58s | 61  | 64s | 67  | 70s |     |    |
| Cet  | RR   | RR | 2   | 55  | 66  |     | 42  | 53  | 64  |     |     | 40  | 51  | 61  |     |     |     | 49  | 59  | 70  |     |     |     | 46  | 57  | 67  |     | 44  | 55  | 65  |     |     |    |
| Cet  | RV   | 90 | 2   | 67  |     | 54  |     | 65  |     | 52  |     |     | 64  |     | 51  |     |     | 63  |     | 50  |     |     |     | 61  |     | 48  |     | 60  |     | 47  |     |     |    |
| Cet  | TU   | ES | 2   | 38  |     |     | 77  |     |     |     |     | 16  |     |     |     | 55  |     |     |     | 95  |     |     |     |     |     | 34  |     |     | 73  |     |     |     |    |
| Cet  | TV   | L1 |     |     |     |     | 33s |     |     |     | 94  |     |     |     |     | 44s |     |     |     |     |     | 5   |     |     |     | 54s |     |     |     | 15  |     |     |    |
| Cet  | XY   | ES | 2   | 49  |     |     | 66s |     |     |     |     |     |     | 62  |     |     |     |     |     |     |     | 57s |     |     |     |     |     | 52  |     |     |     | 69s |    |
| CrB  | U    | S1 |     | 39  |     |     |     |     |     |     | 30  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cyg  | Y    | S1 |     |     | 33  |     |     | 33  |     |     | 33  |     |     | 32  |     |     | 32  |     |     |     |     | 32  |     | 31  |     | 31  |     |     | 30  |     |     | 30  |    |
| Cyg  | UY   | RR |     | 31  | 44  | 56  |     |     | 36  | 48  | 60  |     | 29  | 41  | 53  |     |     | 33  | 45  | 58  |     |     |     | 38  | 50  |     | 30  | 43  | 55  |     | 35  |     |    |
| Cyg  | XZ   | RR |     | 57  | 50  | 43  | 37  | 30  | 63  | 57  | 50  | 43  | 37  | 30  |     | 63  | 56  | 50  | 43  | 36  | 30  |     |     | 63  | 56  | 50  | 43  | 36  | 30  | 63  | 56  | 50  |    |
| Cyg  | BO   | ES |     | 58  | 46s | 34  |     |     |     |     | 61  | 48s | 36  |     |     |     |     | 63  | 51s | 39  |     |     |     |     | 66  | 53s | 41  | 29s |     |     |     |     |    |
| Cyg  | BR   | ES |     | 42  |     | 42s |     | 42  | 42  | 42s |     | 42  |     | 41s |     | 41  |     | 41s |     | 41  |     | 41s |     |     | 41  |     | 41s | 41  |     | 41s |     | 40  |    |
| Cyg  | DM   | RR |     | 37  | 63  | 47  | 31  | 57  | 41  | 66  | 50  | 34  | 60  | 44  |     | 54  | 38  | 64  | 48  | 32  | 58  | 42  |     | 52  | 36  | 62  | 46  | 30  | 56  | 40  | 50  | 34  |    |
| Cyg  | EM   | K1 | 3   | 44  | 32  | 48  | 35  | 52  | 39  | 55  | 43  | 30  | 46  | 34  | 50  | 37  | 54  | 41  |     | 44  | 32  | 48  | 35  | 52  | 39  |     | 43  | 30  | 46  | 34  | 50  | 37  |    |
| Cyg  | V367 | L1 | 2   |     | \   | \   |     |     | 7   | /   | /   |     |     |     |     | \   | \   | 37s | /   | /   |     |     |     |     | \   | \   | 67  | /   | /   |     |     |     |    |
| JD   | 583  | .. |     | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92 |

| 2018 | Spt   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |  |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|--|--|
| Cyg  | V463  | ES | 46s | 52  | 58s |     |     |     |     |     |     |     |     |     |     |     |     |     | 34  | 40s | 46  | 52s |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V477  |    | 40s |     |     |     | 39  |     |     |     |     |     |     |     |     |     | 44  |     |     |     | 48s |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V541  | L1 |     | 21  |     |     |     |     |     |     |     | 24s |     |     |     |     |     |     |     |     | 55  |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V548  | ES |     |     |     |     | 64  |     | 55s | 45  | 35s |     |     |     |     | 67  | 57s | 48  | 38s | 28  |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V788  | L1 |     |     |     |     | 20  |     | 15  | 11/ |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V891  | ES |     |     |     |     |     |     |     | 53  |     | 44  |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V909  | ES |     |     |     |     |     |     |     | 42s |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V1061 | ES | 65  |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Cyg  | V1918 | ED | 3   | 45+ | 49  | 31+ | 34+ | 38+ | 41+ | 44+ | 48+ | 30+ | 34+ | 37+ | 40+ | 43+ | 47  | 29+ | 33+ | 36+ | 39+ | 43+ | 46s |    |    |    |    |    |    |    |    |    |  |  |
| Del  | DX    | 90 |     |     |     |     | 55  |     | 49  | 44  | 38  | 33  |     |     |     |     | 53  | 47  | 42  | 36  | 31  |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | RW    | RR |     | 57  | 46  | 34  |     |     | 56  | 44  | 33  |     | 54  |     |     |     |     |     | 30  |     | 52  | 40  | 29  |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | SU    | RR | 34  | 66  | 32  | 64  | 31  |     | 63  |     | 61  |     | 59  |     |     |     |     |     | 53  |     | 51  |     | 49  |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | SW    | RR |     |     | 44  | 58  |     |     |     | 43  | 56  |     |     |     |     |     |     |     | 40  |     | 39  | 53  |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | TZ    | ED |     | 53  | 39  |     | 56s |     | 42s |     | 59  | 45  | 32  |     |     |     |     |     | 52  |     | 55s | 41s | 28s |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | VZ    | 90 | 41  | 37  | 34  | 62  | 58  |     | 55  | 51  | 47  | 44  | 40  |     |     |     |     |     | 50  | 46  | 43  | 39  | 35  |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | WW    | S1 | 3   | 62  |     |     |     |     |     |     |     |     |     |     |     |     | 51  |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | XZ    | RR |     | 42  | 37  | 33  |     |     | 66  | 61  | 57  | 52  | 47  |     |     |     |     |     | 43  | 38  | 33  | 29  |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | AI    | S1 |     |     | 35  | 55  |     |     |     |     | 35  | 55  |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | BF    |    |     |     | 8   |     |     |     |     |     | 50s |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | BK    | 90 | 53  |     | 31  | 49  | 68  |     |     | 45  | 64  |     | 42  |     |     |     |     |     | 60  |     | 38  | 56  |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | BU    | ES |     |     |     |     | 54s |     | 46  |     | 37s |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | DD    | 90 | 52  | 50  | 48  | 47  | 45  |     | 43  | 41  | 39  | 37  | 35+ |     |     |     |     |     | 33+ | 31+ | 29+ | 60  | 58  |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | EX    | K1 | 34+ | 39+ | 44+ | 49  | 33+ |     | 38+ | 43+ | 48  | 32+ | 37+ |     |     |     |     |     | 42+ | 47+ | 31+ | 36+ | 41+ |    |    |    |    |    |    |    |    |    |  |  |
| Dra  | GV    | L1 | 3   |     |     |     |     |     |     |     | 90  |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Equ  | S     | S1 |     |     |     |     |     |     | 49  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Eri  | SV    | 90 | 2   |     |     |     | 60  |     |     |     |     |     | 60  |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Gem  | U     | K1 | 3   |     | 63  |     | 64  |     |     |     | 64  |     |     |     |     |     |     |     | 65  |     | 60  | 66  |     |    |    |    |    |    |    |    |    |    |  |  |
| Gem  | RR    | 90 | 3   |     |     |     | 67  |     | 65  |     | 64  |     | 63  |     |     |     |     |     |     | 61  |     | 60  |     | 56 |    |    |    |    |    |    |    |    |  |  |
| Gem  | RY    | L1 | 3   |     |     |     | 10s |     |     |     | 75  |     |     |     |     |     |     |     |     |     | 40s |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Gem  | SZ    | 90 | 3   | 64  | 64  | 64  | 64  | 65  | 65  | 65  | 65  | 66  | 66  |     |     |     |     |     | 66  | 66  | 66  | 67  | 67  |    |    |    |    |    |    |    |    |    |  |  |
| Gem  | WW    | ES |     | 61s |     |     |     |     | 56s |     |     | 65  |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Gem  | YY    | S1 |     |     |     |     |     |     | 59s |     | 62  |     | 66s |     |     |     |     |     |     | 69  |     |     | 54s |    |    |    |    |    |    |    |    |    |  |  |
| Gem  | V339  | EU | 2   |     | 63  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Her  | TW    | RR |     |     | 37  |     | 37  |     | 37  |     | 37  |     | 37  |     |     |     |     |     |     | 36  |     | 36  |     |    |    |    |    |    |    |    |    |    |  |  |
| Her  | TX    | S1 | 32  | 35s | 38  | 41s | 44  |     | 47s | 50  | 53s |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Her  | UX    | ED |     |     |     |     | 33s |     |     |     | 43s |     |     |     |     |     |     |     | 30  |     |     | 40  |     |    |    |    |    |    |    |    |    |    |  |  |
| Her  | VX    | RR |     |     |     |     | 39  |     | 30  |     |     |     | 40  |     |     |     |     |     | 31  |     |     |     |     |    |    |    |    |    |    |    |    |    |  |  |
| Her  | VZ    | 90 |     |     | 49  | 37  |     |     |     | 45  | 33  |     |     |     |     |     |     |     | 41  | 29  |     | 38  |     |    |    |    |    |    |    |    |    |    |  |  |
| Her  | AK    | S1 | 44s |     | 34  | 39s | 44  |     | 34s | 39  |     |     |     |     |     |     |     |     | 40  |     | 30s | 35  | 41s |    |    |    |    |    |    |    |    |    |  |  |
| JD   | 583   | .. | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 |  |  |

| 2018 | Spt  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Her  | AR   | 90 | 44  | 38  | 32  |     |     |     |     | 49  | 43  | 37  | 31  |     |     |     |     | 48  | 42  | 36  | 30  |     |     |     |     | 41  | 35  | 29  |     |     |     |     |     |
| Her  | AW   | L1 |     |     |     |     |     |     |     | 39  |     |     |     |     |     |     |     |     | 19  |     |     |     |     |     |     | 99  |     |     |     |     |     |     |     |
| Her  | DI   | L1 |     | 55  |     |     |     |     |     |     |     | 68s |     |     | 10  |     |     |     |     |     |     |     | 23s | 65  |     |     |     |     |     |     |     |     |     |
| Her  | GU   | EU |     |     |     |     |     |     |     |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Her  | LV   |    |     |     |     |     |     |     |     |     | 80  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 23  |     |     |     |
| Her  | MM   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     |     | 43s |     |     |     | 41  |     |     |     |
| Hya  | AI   | L1 |     |     |     |     |     |     |     |     |     | 0   |     |     | 70s |     |     |     |     | 29  |     |     | 99s |     |     |     | 58  |     |     |     | 28s |     |     |
| Hya  | ET   | 90 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 70  |     |     |     |     |     |     |     |     |
| Lac  | RW   | L1 |     |     |     |     | 30s |     |     |     |     | 55  |     |     |     |     | 66s |     |     |     |     | 92  |     |     |     | 3s  |     |     |     |     | 28  |     |     |
| Lac  | SW   | S1 | 41+ | 37+ | 33+ | 45+ | 41+ | 38+ | 34+ | 30+ | 42+ | 39+ | 35+ | 31+ | 43+ | 39+ | 36+ | 32+ | 28+ | 40+ | 37+ | 33+ | 29+ | 41+ | 38+ | 34+ | 30+ | 42+ | 38+ | 35+ | 31+ | 27+ |     |
| Lac  | UW   | ES |     | 70  |     |     |     |     | 99  |     |     |     |     |     | 28  |     |     |     |     |     |     | 57  |     |     | 86  |     |     |     |     |     | 15  |     |     |
| Lac  | CO   | EX | 56s | 35  |     | 64s | 44  |     |     | 52  |     |     | 61  | 35s |     | 69  | 44s |     |     |     |     | 52s | 32  | 60s | 40  | 69s | 49  |     |     | 57  | 31s |     |     |
| Lac  | CZ   | 90 |     | 59  | 46  | 32  | 62  | 48  | 35  | 64  | 51  | 37  | 67  | 53  | 39  | 69  | 55  | 42  | 28  | 58  | 44  | 31  | 60  | 47  | 33  | 63  | 49  | 36  | 65  | 52  | 38  | 68  |     |
| Lac  | V345 | EX |     |     |     |     | 64  |     |     |     | 29s |     |     |     |     | 13  | 78s |     |     |     |     |     |     |     | 27s |     |     |     |     | 11  |     | 76s |     |
| Lac  | V364 | EX |     |     |     |     |     | 67s |     |     |     |     |     |     |     |     |     | 64  |     |     |     |     | 37s |     |     |     |     |     |     |     |     |     |     |
| Leo  | RR   | RR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 70  |     |     |     |     | 67  |     |     |     |     |
| Lyn  | TY   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     | 51  |     |     |     |     |     |     |     |     |     |     |     |     |     | 51  |     |     |     |
| Lyn  | CD   | ES |     |     |     |     |     |     |     |     | 55  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 47s |     |     |     |     |     |     |     |
| Lyr  | RR   | RR | 40  | 54  |     |     | 37  | 51  |     |     | 34  | 47  | 61  |     | 31  | 44  | 57  |     | 28  | 41  | 54  |     |     | 38  | 51  |     |     | 35  | 48  |     |     | 31  |     |
| Lyr  | RZ   | 90 |     |     |     |     |     |     | 30  | 33  | 35  |     | 37  | 39  | 42  | 44  | 46  | 48  | 51  | 53  |     |     |     |     |     |     |     |     |     | 26  | 29  |     |     |
| Lyr  | UZ   | S1 | 34s |     |     |     |     |     |     |     |     |     |     |     |     | 58s | 53  | 47s | 42  | 37s | 31  |     |     |     |     |     |     |     |     |     |     |     |     |
| Lyr  | CN   | 90 | 52  | 34  |     | 40  |     | 45  |     | 51  | 33  |     | 39  |     | 45  | 50  |     | 33  |     | 38  |     | 44  |     | 50  | 32  |     | 38  | 43  | 26  |     | 31  |     |     |
| Lyr  | EZ   | RR | 32  | 37  | 42  | 47  | 52  | 57  |     |     |     |     | 30  | 35  | 40  | 45  | 50  | 55  |     |     |     |     |     | 28  | 33  | 38  | 43  | 48  |     |     |     |     |     |
| Lyr  | IO   | 90 | 3   | 42  |     |     | 30  | 46  |     |     | 34  | 50  |     |     |     |     |     |     | 42  |     |     | 31  | 46  |     |     | 35  |     |     | 39  |     |     |     |     |
| Lyr  | beta | S1 |     |     |     | 8s  |     |     |     |     |     | 55  |     |     |     |     |     |     |     |     |     |     |     |     | 49  |     |     |     |     |     | 96s |     |     |
| Mon  | UX   | ES | 2   |     |     |     |     |     |     |     |     |     |     |     | 75  |     |     | 70s |     |     | 66  |     |     | 61s |     |     | 56  |     | 51s |     |     |     |     |
| Mon  | VV   | ES | 2   |     | 58  |     |     | 61s |     |     | 63  |     |     |     | 66s |     | 68  |     |     |     | 71s |     |     | 73  |     | 76s |     |     | 78  |     |     | 81s |     |
| Mon  | AQ   | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 65  |     |     |     |     |     |     |     |     |     |     |     |
| Mon  | AR   | L1 | 1   |     |     |     |     |     |     |     |     |     |     |     | 2\  | 72\ |     |     |     |     |     |     |     |     |     | 63\ | 48s | 32\ |     |     |     |     |     |
| Mon  | AV   | ES | 2   |     |     |     |     | 9   |     |     | 57s |     |     |     |     |     |     | 51s |     |     | 99  |     |     |     | 46s |     |     | 94  |     |     |     |     | 41s |
| Mon  | EZ   | EU | 3   |     |     |     |     |     |     |     |     | 67  |     |     |     |     |     | 69  |     |     | 70  |     |     | 71  |     |     | 71  |     |     | 72  |     | 60s |     |
| Mon  | IL   | ES | 2   |     |     |     |     |     |     |     | 55  |     |     |     |     |     |     |     | 60  |     |     |     |     | 63  |     |     | 66  |     |     |     | 68  |     |     |
| Mon  | V448 | ES |     |     |     |     |     |     |     | 63  |     |     |     |     |     |     |     |     |     |     | 70  |     |     |     | 61s |     |     |     | 65  |     |     |     |     |
| Mon  | V530 | EU | 3   |     |     |     |     | 67  |     |     |     |     |     | 66s |     |     |     |     | 65  | 70  |     |     | 59s | 65s | 70s |     |     | 59  | 64  | 69  |     |     |     |
| Mon  | V536 |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 65  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Mon  | V634 | EU |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 31  |     |     |     |     |     | 65  |     |     |
| Oph  | U    | ST |     | 35s |     |     |     |     | 38s |     |     |     |     |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Oph  | ST   | 90 | 2   | 39  |     |     |     | 34  |     |     |     |     | 29  |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     |     |     | 31  |     |     |     |
| Ori  | Z    | ES | 2   |     |     | 87  |     |     |     |     |     | 7   |     |     |     |     | 27  |     |     |     |     |     |     |     |     |     | 68  |     |     |     |     |     | 88  |
| JD   | 583  | .. | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  |     |

| 2018 | Spt   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ori  | BM    | ES | 43  |     |     |     |     | 90  |     |     |     |     |     |     | 37  |     |     |     |     |     | 84  |     |     |     |     |     |     | 32  |     |     |     |     |     |  |
| Ori  | CP    | ES | 2   | 69  |     |     |     |     | 1   |     |     |     |     | 33  |     |     |     |     | 65  |     |     |     |     |     | 98  |     |     |     |     |     | 30  |     |     |  |
| Ori  | DN    | L1 | 2   |     |     |     |     |     |     |     |     | 15  |     |     |     |     |     |     |     |     |     |     |     | 12  |     |     |     |     |     |     |     |     |     |  |
| Ori  | EW    | EX |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 62  |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |     |  |
| Ori  | FO    | L1 | 2   |     |     |     | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 79  |     |     |     |     |     |     |     |     |     |  |
| Ori  | FT    | EX |     |     |     |     |     |     |     |     |     |     | 55  |     | 65s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ori  | GG    | EX |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 66s |     |  |
| Ori  | V536  | ES | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |     |     |     |     |     |  |
| Ori  | V1016 | L1 | 3   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 51  |     |  |
| Ori  | V1031 | ES | 2   | 66  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     |     |     |     |     |     |     |  |
| Peg  | U     | S1 | 31+ | 44+ | 37+ | 31+ | 44+ | 37+ | 31+ | 43+ | 37+ | 31+ | 43+ | 37+ | 31+ | 43+ | 37+ | 30+ | 43+ | 37+ | 30+ | 43+ | 36+ | 30+ | 43+ | 36+ | 30+ | 42+ | 36+ | 30+ | 42+ | 36+ |     |  |
| Peg  | VV    | RR | 31  |     |     |     |     |     |     | 64  | 61  | 59  | 57  | 54  | 52  | 50  | 47  | 45  | 43  | 40  | 38  | 36  | 33  | 31  | 29  |     |     |     |     |     |     |     |     |  |
| Peg  | VW    |    | 33s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     | 40s |     |     |     |     |     |     |     |     |     |  |
| Peg  | AV    | RR | 57  | 35  | 52  | 31  | 48  | 65  | 43  | 60  | 38  | 55  | 33  | 50  |     | 45  | 63  | 41  | 58  | 36  | 53  | 31  | 48  | 43  | 60  | 39  | 56  | 34  | 51  | 29  | 46  |     |     |  |
| Peg  | AW    | L1 | 41s |     |     |     |     | 72  |     |     |     |     |     | 3s  |     |     |     |     | 35  |     |     |     |     | 66s |     |     |     |     |     |     |     |     |     |  |
| Peg  | BH    | 90 | 53  |     | 46  |     | 38  | 66  | 30  | 58  |     | 51  |     | 43  |     | 35  | 63  |     | 56  |     | 48  |     | 40  |     | 33  | 61  | 53  |     | 45  |     | 38  |     |     |  |
| Peg  | BK    | ES |     |     |     |     | 64s |     |     | 39  |     |     |     |     |     |     |     | 62s |     |     | 37  |     |     |     |     |     |     |     | 60s |     |     | 35  |     |  |
| Peg  | CG    | 90 | 37  |     |     | 64  | 57  | 51  | 44  | 38  | 31  |     |     | 58  | 51  | 45  | 38  | 32  |     |     | 59  | 52  | 46  | 39  | 32  |     | 59  | 53  | 46  | 40  | 33  |     |     |  |
| Peg  | DF    | L1 |     |     |     |     |     |     |     |     |     |     |     |     | 94  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 64  |     |     |     |  |
| Peg  | DH    | RR | 3   | 37+ | 39  | 41  | 44  | 48  | 50  | 52  | 55  | 31+ | 33+ | 36  | 38  | 40  | 42  | 44  | 47  | 49  | 51  | 28+ | 30+ | 32+ | 34  | 37  | 39  | 41  | 43  | 45  | 48  | 50  |     |  |
| Peg  | GH    | ES |     |     |     | 45  |     |     |     |     | 56  |     |     |     |     |     |     |     | 39s |     | 50s |     |     |     | 34  |     |     |     | 45  |     |     |     |     |  |
| Peg  | IP    | K1 | 34+ | 45+ | 40+ | 35+ | 30+ | 40+ | 35+ | 30+ | 41+ | 36+ | 31+ | 41+ | 36+ | 31+ | 42+ | 37+ | 32+ | 43+ | 38+ | 32+ | 43+ | 38+ | 33+ | 28+ | 39+ | 34+ | 29+ | 39+ | 34+ | 29+ |     |  |
| Per  | RW    | L1 | 2   |     |     |     |     |     |     |     |     |     |     | 72  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | RY    | ES |     |     |     |     |     | 57  |     |     |     |     |     |     | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60s |  |
| Per  | AR    | 90 |     | 62  | 47  |     | 60  | 45  |     | 58  | 43  |     | 55  | 41  | 68  | 53  | 38  | 66  | 51  | 36  | 64  | 49  | 34  | 62  | 47  | 32  | 60  | 45  | 30  | 58  | 43  | 70  |     |  |
| Per  | AY    | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | IQ    |    | 48s | 44  |     |     |     |     | 67  | 45s | 42  |     |     |     | 68s | 65  | 43s | 39  |     |     |     |     |     | 66s |     |     |     |     | 63s | 59  | 38s | 34  |     |  |
| Per  | KN    | EU |     | 57  | 43  |     | 60s | 47s |     | 63  | 50  | 37  | 67s | 53s | 40s |     | 56  | 43  |     | 60s | 46s | 33s | 63  | 50  | 36  | 66s | 53s | 40s | 69  | 56  | 43  | 29  |     |  |
| Per  | LX    | L1 |     |     |     | 98  |     |     |     |     | 0s  |     |     |     | 2   |     |     | 4s  |     |     |     |     |     |     |     |     |     |     |     | 10  |     |     |     |  |
| Per  | beta  | S1 |     |     |     |     |     |     | 62  |     |     | 49  |     |     | 35  |     |     |     | 65s |     |     | 52s |     |     |     | 39s |     |     | 69  |     |     | 56  |     |  |
| Psc  | RU    | 90 | 45  | 62  | 40  | 57  | 36  | 53  |     | 48  | 65  | 43  | 60  | 38  | 55  | 33  | 51  | 68  | 46  | 63  | 41  | 58  | 36  | 53  | 31+ | 48  | 66  | 44  | 61  | 39  | 56  | 34  |     |  |
| Psc  | RY    | 90 | 2   | 47  | 53  | 59  | 65  |     |     |     | 42  | 47  | 53  | 59  | 65  |     |     | 53  | 36  | 42  | 48  | 54  | 60  |     |     |     | 37  | 43  | 49  | 55  | 60  |     |     |  |
| Psc  | SS    | 90 | 48  | 63  | 50  | 36+ | 51  | 37+ | 52  | 39+ | 54  | 40  | 55  | 42  | 57  | 43  | 58  | 45  | 31+ | 46  | 32+ | 47  | 34+ | 49  | 35+ | 50  | 37+ | 52  | 38+ | 53  | 40+ | 55  |     |  |
| Sge  | SY    | ES |     |     |     |     | 37  |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | AN    | 90 |     |     |     |     |     |     |     | 32  | 37  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | BH    | 90 |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |     |     | 29  |     |     |     |     |     |     |     |     |     |     |     |     |     | 28  |  |
| Ser  | EG    | L1 | 53s |     |     |     |     | 51  |     |     |     |     | 48s |     |     |     |     | 45  |     |     |     |     | 43s |     |     |     |     | 40  |     |     |     |     |     |  |
| Ser  | LX    | K1 |     | 36  | 31  |     | 37  | 32  |     |     | 34  |     |     | 35  | 30  |     | 36  | 31  |     |     |     |     |     |     | 33  | 28  |     | 29  |     |     |     | 30  |     |  |
| Sex  | T     | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 70  |  |
| JD   | 583   | .. | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  |     |  |

| 2018       | Spt       | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |    |    |
|------------|-----------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| Tau        | RW        | S1 | 3 |     |     |     |     |     |     |     |     |     | 48  |     |     |     |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |    |    |
| Tau        | CD        | S1 | 3 |     |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     |     | 61s |     |     |     |     |     |     |     |     | 48s |    |    |
| Tau        | EN        | ES | 2 |     |     | 63  |     |     |     |     | 58  |     |     |     | 54  |     |     |     |     |     | 50  |     |     |     |     | 69s |     |     |     |     |     | 65s |    |    |
| Tau        | V1094     | L1 |   | 54s |     |     | 66  |     |     |     |     |     | 53s |     | 65  |     |     |     |     |     |     | 52s |     | 64  |     |     |     |     |     |     |     | 50s |    |    |
| Tri        | X         | S1 |   |     |     |     |     |     |     |     | 68  | 65  | 62  | 59  | 57  | 54  | 51  | 48  | 45  | 42  | 40  | 37  | 34  | 31  |     |     |     |     |     |     |     |     |    |    |
| Tri        | RU        | ES | 2 |     |     |     |     |     |     | 59s |     |     |     |     | 49  |     |     |     |     |     | 39s |     | 66s |     | 30  |     |     |     |     |     |     | 56  |    |    |
| Tri        | UX        | 90 |   | 39  |     |     | 66  | 60  | 53  | 47  | 40  | 33  | 67  | 60  | 54  | 47  | 40  | 34  |     | 67  | 61  | 54  | 47  | 41  | 34  | 27  | 68  | 61  | 54  | 48  | 41  | 34  |    |    |
| UMa        | W         | S1 |   | 62s | 63s | 63s | 63s | 63s | 30+ | 30+ | 30+ | 30+ | 30+ | 30+ | 64s | 64s | 64s | 64s | 64s | 64s | 64s | 64s | 48+ | 48+ | 48+ | 48+ | 48+ | 48+ | 48+ | 48+ | 48+ | 48+ |    |    |
| UMa        | RV        | RR |   | 43  | 37  |     |     |     |     |     | 45  | 39  | 32  |     |     |     |     | 41  | 34  | 28  | 68  |     |     |     | 37  | 30  |     |     |     |     |     |     |    |    |
| UMa        | TU        | RR |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 67 |    |
| UMa        | TX        | S1 | 3 |     |     |     |     |     |     |     |     | 62  |     |     |     |     |     |     |     |     |     | 65  |     |     |     |     |     |     |     |     |     |     |    |    |
| UMi        | W         | S1 | 3 |     |     |     |     |     |     | 32  |     |     |     |     | 42  |     |     |     |     |     | 53  |     |     | 63  |     | 33  |     |     |     |     |     |     | 43 |    |
| Vir        | CG        | ES |   |     |     | 31  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |    |    |
| Vul        | Z         | S1 |   |     | 45  |     |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    | 46 |
| Vul        | RR        | ES |   |     | 53  |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| <b>Vul</b> | <b>BN</b> | 90 |   |     |     | 46  |     |     | 43  |     |     | 40  |     |     | 37  |     | 34  | 53  |     | 31  | 50  |     | 28  | 47  |     |     | 44  |     |     |     |     |     | 41 |    |
| Vul        | DR        | EX |   |     |     |     | 45s |     | 35  |     | 60  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45s | 35  |     |     |     |     |    |    |
| Vul        | EV        | ES |   |     |     |     |     |     | 43  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 36  |     |     |     |     |     |    |    |

JD 583 ... 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92

| 2018 | Okt   | P  | 1  | 2   | 3  | 4   | 5   | 6   | 7   | 8   | 9   | 10 | 11  | 12  | 13  | 14  | 15  | 16 | 17 | 18  | 19  | 20  | 21  | 22  | 23  | 24 | 25  | 26  | 27 | 28  | 29  | 30 | 31  |     |
|------|-------|----|----|-----|----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|
| And  | SW    | RR | 44 | 32  | 65 | 53  | 42  | 30  | 63  | 51  | 40  | 28 | 61  | 49  | 38  | 26  | 59  | 47 | 36 | 24  | 57  | 45  | 34  |     | 55  | 43 | 32  | 64  | 53 | 41  | 30  | 63 | 51  |     |
| And  | SY    | L1 | 1  |     | 5\ | 10  | 14/ |     |     |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |     |    |     |     |    |     |     |    |     |     |
| And  | TW    | S1 |    | 26  |    | 33s | 39  |     | 45s |     | 51  |    | 57s |     | 63  |     |     |    |    |     |     |     |     |     |     |    |     |     |    |     |     |    |     |     |
| And  | XX    | 90 |    | 47  |    |     | 64  | 36  | 53  | 25  | 70  | 42 |     | 59  | 31  |     | 48  |    |    | 65  | 37  |     | 54  | 26  | 71  | 43 |     | 60  | 32 |     | 49  |    | 66  | 38  |
| And  | CD    | L1 | 2  |     |    |     |     |     |     |     |     |    |     |     |     |     |     |    |    |     | 40\ | \   | 46s | /   | 53/ |    |     | 32  |    | 49  |     |    |     |     |
| And  | OV    | 90 | 67 | 61  | 56 | 50  | 44  | 38  | 32  | 26+ | 67  | 61 | 56  | 50  | 44  | 38  | 32  | 26 | 67 | 61  | 56  | 50  | 44  | 38  | 32  | 26 | 67  | 61  | 56 | 50  | 44  | 38 |     | 32  |
| Aqr  | SW    | RR | 3  |     | 48 | 40  | 32  |     |     |     | 45  | 37 | 29  |     |     |     | 42  | 34 | 26 |     |     |     |     | 39  | 31  | 23 |     |     | 36 | 28  |     |    |     |     |
| Aqr  | SX    | 90 |    | 50  |    |     | 25  | 32  | 39  | 46  |     |    |     |     | 28  | 35  | 42  |    |    |     |     | 25  |     | 32  | 39  |    |     |     | 28 | 35  | 42  |    |     |     |
| Aqr  | CD    | ES |    | 96  |    |     |     | 79  |     |     |     |    | 63  |     |     |     |     | 47 |    |     |     |     | 31  |     |     |    |     | 14  |    |     |     |    | 98  |     |
| Aqr  | HH    | 90 | 2  | 39  |    |     | 26  | 41  |     |     | 29  | 43 |     | 31  | 46  |     |     | 33 | 48 |     |     |     |     |     |     | 37 |     | 24  | 39 |     |     |    |     | 26  |
| Aqr  | LL    | L1 | 3  |     |    |     | 71s |     |     |     |     |    |     |     |     | 80  |     |    |    |     |     |     |     |     |     |    |     |     |    |     |     |    |     |     |
| Aql  | AA    | RR |    | 40  |    |     | 29  | 38  |     |     | 27  | 35 |     | 25  | 33  |     |     |    |    | 31  | 40  |     |     | 29  | 38  |    |     | 27  |    |     | 25  | 34 |     |     |
| Aql  | V341  | 90 | 3  |     |    | 30  | 45  |     |     | 34  |     |    | 39  |     |     | 28  |     |    |    |     |     | 19s |     |     |     |    | 37  |     |    |     | 31  |    |     |     |
| Aql  | V889  | L1 |    | 13  |    |     | 7s  |     |     |     |     |    |     | 25  |     |     |     |    |    |     |     |     |     |     |     | 37 |     |     |    |     |     |    |     |     |
| Aql  | V1353 | ES |    |     | 33 |     | 45s |     |     | 28s |     | 40 |     |     |     | 35s |     |    |    |     |     | 30  |     |     |     |    | 26s | 38  |    |     |     |    |     | 33s |
| Aql  | V1426 | ES |    | 35+ | 52 | 11+ | 29+ | 46s | 5+  | 23+ | 40+ | 58 | 16+ | 34+ | 51s | 10+ | 28+ | 45 | 4+ | 21+ | 39+ | 56s | 15+ | 33+ | 50  | 9+ | 27+ | 44s | 3+ | 20+ | 38+ | 55 | 14+ | 32+ |
| JD   | 583   | .. | 93 | 94  | 95 | 96  | 97  | 98  | 99  |     |     |    |     |     |     |     |     |    |    |     |     |     |     |     |     |    |     |     |    |     |     |    |     |     |
| JD   | 584   | .. |    |     |    |     |     |     |     | 00  | 01  | 02 | 03  | 04  | 05  | 06  | 07  | 08 | 09 | 10  | 11  | 12  | 13  | 14  | 15  | 16 | 17  | 18  | 19 | 20  | 21  | 22 |     | 23  |

| 2018 | Okt   | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |
|------|-------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Aql  | V1430 | ES |   |     | 40  | 28  |     |     | 33s |     |     | 39  | 27  |     |     | 32s |     | 38  | 26  |     |     |     | 31s |     |     | 25  |     |     |     | 30s |     |     |     |     |     |
| Ari  | X     | RR | 3 | 58  |     | 53  |     | 49  |     | 44  |     | 39  | 70  | 35  | 65  |     | 60  | 56  |     |     | 51  |     | 46  | 42  |     | 37  | 67  | 33  | 63  |     | 58  |     | 13  |     |     |
| Ari  | RS    | L1 | 2 |     |     | 72  |     |     |     |     |     |     |     |     | 53  |     |     |     |     |     |     |     | 33  |     |     |     |     |     |     |     |     |     |     |     |     |
| Ari  | AL    | ES |   |     |     |     |     |     |     |     | 64  |     |     |     | 38  |     |     |     |     |     |     |     |     |     | 63  |     |     |     | 37  |     |     |     |     |     |     |
| Aur  | TZ    | 90 | 3 | 49  | 66  | 44  | 62  | 58  |     | 54  | 71  | 49  | 67  | 45  | 63  | 41  | 59  | 55  | 72  | 50  | 68  |     | 46  | 64  | 42  | 60  | 38  | 55  | 73  | 51  | 69  | 47  | 65  |     |     |
| Aur  | CQ    | L1 | 3 | 43s |     |     |     | 74  |     |     |     |     |     | 5s  |     |     |     | 37  |     |     |     |     | 68s |     |     |     |     | 99  |     |     |     |     |     |     |     |
| Aur  | IY    | ES |   |     |     |     |     |     |     |     | 71  |     |     | 50  |     |     |     |     |     |     |     |     |     |     | 68  |     | 47  |     |     |     |     |     |     |     |     |
| Aur  | V432  | ES |   | 40  |     |     | 48  |     |     |     |     |     | 65  |     |     | 73  |     |     |     |     | 35s |     | 43s |     |     | 51s |     |     | 60s |     |     |     | 68s |     |     |
| Boo  | RS    | RR |   |     | 29  |     |     |     |     |     |     |     |     |     | 24  |     |     | 25  |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     | 22  |     |     |
| Boo  | TW    | 90 |   | 32  |     |     |     |     |     |     |     | 30  |     |     |     |     |     | 75  | 29  |     |     |     |     |     |     | 74  | 27  |     |     |     |     |     |     |     |     |
| Boo  | UU    | 90 |   | 35  | 26  |     |     |     |     | 29  |     |     |     |     | 31  |     |     |     |     |     | 25  |     |     |     | 28+ |     |     |     | 76  | 22  |     |     |     |     |     |
| Boo  | UY    | 90 |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 76  |     |     |     |     |     |     |
| Boo  | AC    | ED |   | 26  | 32  | 37  | 25s | 31s | 37s | 25  | 31  | 36+ | 25s | 30s | 36+ | 24  | 30  | 71  | 24s | 29s | 70s | 23  | 29  | 70  | 23s | 29s | 70s | 23+ | 28  | 69  | 22+ | 28s | 69s | 22+ |     |
| Boo  | CS    | 90 |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 76  |     |
| Cam  | SS    | ES |   | 43s |     | 84  |     | 26s |     | 67  |     |     | 8s  |     | 49  |     | 90s |     |     |     | 31  |     | 72s |     | 14  |     | 55s |     | 96  |     |     | 37s |     |     |     |
| Cam  | SV    | S1 |   | 47  | 36+ | 54s | 43+ | 32+ | 51s | 40+ | 29+ | 47s | 36+ | 25+ | 44+ | 33+ | 51  | 40+ | 29+ | 48  | 37+ | 26+ | 44+ | 33+ | 52s | 41+ | 30+ | 48s | 37+ | 26+ | 45+ | 34+ | 23+ | 42+ |     |
| Cam  | AK    | ES | 3 | 46s | 57  | 68s |     |     |     |     |     |     | 48  | 59s | 70  |     |     |     |     |     |     |     | 50s | 61  | 73s |     |     |     |     | 29  | 41s |     | 52  |     |     |
| Cam  | AN    |    |   |     |     |     |     |     |     | 41s |     |     |     | 6   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41s |     |     |     |     |     |
| Cam  | AT    | ES |   | 37  |     | 46s |     | 56  | 25s | 65s | 35  |     | 44s | 54  |     | 63s | 33  | 72  | 42s |     |     | 52  |     | 61s | 31  | 70  | 40s | 50  |     | 59s | 29  | 68  |     | 38s |     |
| Cnc  | S     | L1 | 3 |     |     |     |     |     |     |     | 2   |     |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     | 99  |     |     |     |     |     |     |
| Cnc  | RU    | L1 | 2 |     |     |     |     | 42  |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     | 76  |     |     |     |     |     |     |     |
| Cnc  | RW    | 90 |   |     |     | 61  | 70  |     |     |     |     | 63  | 72  |     |     |     | 55  | 65  | 74  |     |     |     |     | 57  | 67  |     |     |     | 59  | 68  |     |     |     |     |     |
| Cnc  | RZ    | L1 | 2 | 25\ | 88  | /   | 50/ |     |     |     |     |     |     |     | 8\  | 70s | /   | 32/ |     |     |     |     |     | 90\ | \   | 52  | /   | 14/ |     |     |     |     |     |     |     |
| Cnc  | TT    | 90 |   | 64  |     |     |     | 59  | 72  |     |     |     | 66  |     |     | 60  |     | 73  |     |     |     | 55  | 67  |     |     |     |     |     | 56  | 69  |     |     |     |     |     |
| Cnc  | TU    | ES | 3 |     | 77  |     |     |     |     |     | 34  |     |     |     |     | 90  |     |     |     |     |     |     |     |     |     |     |     | 2   |     |     |     |     |     | 58  |     |
| Cnc  | UU    | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cnc  | ZZ    | L1 | 2 |     |     |     |     |     |     |     |     |     |     | 23\ | 25  | 27/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cnc  | AQ    | 90 |   |     |     |     | 69  |     |     |     |     | 62  | 72  |     |     |     |     | 66  |     |     |     |     |     | 60  | 69  |     |     |     | 63  | 73  |     |     |     |     |     |
| CVn  | W     | 90 |   | 30  |     |     |     | 27  |     |     |     |     | 24  |     |     |     |     |     |     |     |     |     | 72  |     |     |     |     | 68  | 24  |     |     |     |     |     |     |
| CVn  | Z     | 90 |   |     |     |     |     |     |     |     |     | 73  | 69  |     | 66  |     |     |     |     |     | 23  |     |     |     |     |     |     | 73  | 70  |     | 66  |     |     |     |     |
| CVn  | RZ    | 90 |   |     |     |     |     |     |     |     |     | 72  |     |     |     |     |     |     |     |     |     | 24  |     |     |     |     |     | 75  |     |     |     |     |     | 72  |     |
| CMa  | R     | S1 | 3 |     |     | 73  |     |     |     | 71s |     |     |     |     | 69  |     |     | 66s |     |     |     | 64  |     |     |     | 75s |     |     |     | 73  |     |     |     |     |     |
| Cas  | RX    | L1 | 2 |     |     |     |     |     | \   | \   | \   | \   | 92  | /   | /   | /   | /   |     |     |     |     |     |     |     | \   | \   | \   | \   | 9s  | /   | /   | /   |     |     |     |
| Cas  | RZ    | S1 |   | 36  | 56  |     |     |     |     | 34  | 53  | 73  |     |     |     | 31  | 51  | 70  |     |     |     | 29  |     | 49  | 68  |     |     | 27  | 46  | 66  |     |     |     |     |     |
| Cas  | SX    | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 90\ |
| Cas  | TV    | S1 |   | 46  |     | 27  |     |     |     |     |     | 71  | 52  |     | 34  |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     | 65  |     |     |     | 46  |     |
| Cas  | TW    | S1 |   |     | 56  |     |     | 42  |     |     | 28  | 71  |     |     | 56  |     |     | 42  |     |     |     | 28  | 70  |     |     | 56  |     | 42  |     |     | 27  | 70  |     |     |     |
| Cas  | TX    | ES |   |     | 51  |     |     | 43  |     |     | 36  |     |     |     | 29  |     |     | 68s |     |     |     |     |     |     | 53s |     |     |     |     | 39s |     |     |     | 31s |     |
| Cas  | AQ    | L1 | 3 | 61/ |     |     | 36\ | 41  | 47/ |     |     |     | 22\ | 27s | 33/ |     |     | 8\  | 13  | 19/ |     |     |     | 94\ | 00s | /   | 5/  |     | 80\ | 86  | 91/ |     |     |     |     |
| JD   | 583   | .. |   | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| JD   | 584   | .. |   |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  |     |     | 23  |

| 2018 | Okt  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Cas  | DN   | ES | 71s |     |     |     |     | 33s | 49  | 64s |     |     |     |     | 27s | 42  | 58s | 73  |     |     |     |     | 35  | 51s | 66  |     |     |     |     | 29  | 44s | 60  | 75s |     |    |
| Cas  | GG   | ES |     |     |     |     | 56  |     |     |     | 32  |     |     |     |     |     |     |     |     |     |     | 60  |     |     | 35  |     |     |     |     |     |     |     |     |     |    |
| Cas  | GU   | EU |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 31  |     |     | 41  |     |     | 50  |     |     | 59  |     |    |
| Cas  | IL   | ES |     |     |     |     | 29  |     |     |     |     |     |     |     |     |     | 65  |     |     |     |     |     |     | 55  |     |     |     |     |     | 46  |     |     |     |     |    |
| Cas  | IT   | EX |     | 69s |     | 44  |     | 59s |     | 33  |     | 48s |     |     |     |     | 38s |     |     |     | 28s |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cas  | OX   | EX |     |     |     |     | 39  | 57s |     |     | 37  | 55s |     |     |     | 34  | 53s |     |     |     |     | 32  | 51s |     |     | 30  | 49s |     |     | 28  | 46s |     |     |     |    |
| Cas  | PV   | EX |     | 66s | 49  | 41s |     |     |     |     | 66s | 50  | 41s | 25  |     |     |     | 67s | 50  | 42s | 25  |     |     | 75  | 67s | 50  | 42s | 25  |     | 75  | 67s | 50  |     |     |    |
| Cas  | V368 | ES |     |     |     |     | 28s | 51  |     | 73s |     |     |     |     |     |     | 41  |     |     |     |     |     | 63s |     | 31  |     |     | 54s |     | 76  |     |     |     |     |    |
| Cas  | V375 | ED | 47  |     | 68s | 42  |     | 63s | 36  |     | 57s | 31  |     | 52s | 26  | 73  | 47s |     |     |     |     |     | 36s |     | 57  | 31s |     | 52  | 25s | 73s | 46  |     | 67s |     |    |
| Cas  | V381 | EX | 39  |     |     |     | 69s | 63  | 44s | 37  |     |     |     | 68s | 61  | 42s | 36  |     |     |     |     | 66s | 59  | 41s | 34  |     | 64s | 58  | 39s | 32  |     |     |     |     |    |
| Cas  | V459 | L1 | 41  |     |     |     | 58s |     |     |     | 87  |     |     |     |     | 4s  |     |     |     |     |     | 33  |     | 50s |     |     | 79  |     |     |     | 95s |     |     |     |    |
| Cep  | RZ   | 90 | 26+ | 50  | 42  | 35+ | 27+ | 51  | 43  | 36+ | 29+ | 52  | 45  | 37+ | 30+ | 53  | 46  | 38+ | 31+ | 24+ | 47  | 40+ | 32+ | 25+ | 48  | 41+ | 33+ | 26+ | 49  | 42+ | 35+ | 27+ | 51  |     |    |
| Cep  | VW   | S1 | 37+ | 34+ | 31+ | 29+ | 26+ | 38+ | 35+ | 32+ | 30+ | 27+ | 25+ | 36+ | 33+ | 31+ | 28+ | 26+ | 23+ | 34+ | 32+ | 29+ |     | 27+ | 24+ | 35+ | 33+ | 30+ | 28+ | 25+ | 22+ | 34+ | 31+ | 28+ |    |
| Cep  | XX   | S1 |     |     |     |     | 32  | 66  |     |     |     |     | 33  |     | 67  |     |     |     |     |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     |     |    |
| Cep  | XY   | ES | 59  |     |     |     | 36  |     |     |     |     |     | 69  |     |     | 46  |     |     |     |     |     | 24  |     |     |     |     |     | 56  |     |     | 34  |     |     |     |    |
| Cep  | ZZ   | S1 | 40  |     | 54  |     | 68  |     |     |     |     |     |     |     | 25  |     |     | 39  |     |     |     | 53  |     |     |     |     |     |     |     | 24  |     |     |     | 38  |    |
| Cep  | AI   | ES |     | 42s |     |     | 53  | 65s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 32s | 43  |     | 55s |     | 66  |     |     |     |     |     |     |    |
| Cep  | CW   | EX |     |     |     |     | 51  |     |     | 52s |     |     | 25s | 70  |     |     | 43  | 71s |     |     |     |     | 43s |     | 62  |     |     | 35  | 62s |     |     | 35s |     |     |    |
| Cep  | EI   | L1 |     |     | 66s |     |     | 88  |     |     |     |     |     | 10s |     |     |     | 32  |     |     |     |     |     |     |     | 76  |     |     | 98s |     |     |     |     |     |    |
| Cep  | EX   | L1 | 2   | 97  |     |     |     |     |     |     |     |     |     |     |     |     |     | 40  |     |     |     |     |     |     |     |     |     |     | 84  |     |     |     |     |     |    |
| Cep  | NN   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 25  | 28s | 31  | 34s | 37  | 40s | 43  | 46s | 49  | 51s | 54  | 57s | 60  |     |    |
| Cet  | RR   | RR | 2   | 42  | 52  | 63  |     | 39  | 50  | 61  |     |     | 37  | 48  | 58  |     |     | 35  | 45  | 56  |     |     | 33  | 43  | 54  |     | 30  | 41  | 52  |     |     |     | 28  |     |    |
| Cet  | RV   | 90 | 2   | 59  |     | 46  |     | 58  |     | 45  |     |     | 56  |     | 43  |     |     | 55  |     | 42  |     |     | 54  |     | 41  |     | 53  |     | 40  |     |     |     | 51  |     |    |
| Cet  | TU   | ES | 2   |     | 12  |     |     | 51  |     |     |     | 90  |     |     |     |     | 29  |     |     |     |     |     |     |     |     | 8   |     |     |     | 47  |     |     |     |     |    |
| Cet  | TV   | L1 |     | 64s |     |     |     |     | 25  |     |     |     | 74s |     |     |     |     | 36  |     |     |     |     |     |     |     | 46  |     |     |     | 95s |     |     |     |     |    |
| Cet  | XY   | ES | 2   |     | 47s |     |     |     | 64  |     |     | 42  |     |     |     | 59s |     |     | 37s |     |     |     |     | 55  |     |     |     |     | 50s |     |     |     |     |     |    |
| Com  | S    | 90 |     |     |     |     | 73  |     |     |     |     |     |     |     |     | 70  |     |     |     |     |     |     |     | 74  |     |     | 67  |     |     |     |     |     |     |     |    |
| CrB  | U    | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cyg  | Y    | S1 |     |     | 30  |     |     | 29  |     |     | 29  |     | 29  |     |     |     | 28  |     |     |     |     |     |     | 27  |     | 27  |     |     | 27  |     |     | 26  |     |     |    |
| Cyg  | UY   | RR | 47  |     |     | 28  | 40  | 52  |     |     | 32  | 44  |     |     | 25  | 37  | 49  |     |     |     |     | 29  | 41  |     |     |     |     | 26  | 39  |     |     |     |     |     |    |
| Cyg  | XZ   | RR | 43  | 36  | 30  |     | 63  | 56  | 50  | 43  | 36  | 29  |     | 63  | 56  | 49  | 43  | 36  | 29  | 23  |     |     | 56  | 49  | 43  | 36  | 29  | 23  | 56  | 49  | 43  | 36  | 29  | 23  | 29 |
| Cyg  | BO   | ES | 56s | 44  | 32s |     |     |     |     | 58s | 46  | 34s |     |     |     |     | 61s | 49  | 37s | 24  |     |     |     |     |     | 51  | 39s | 27  |     |     | 54  | 42s |     |     |    |
| Cyg  | BR   | ES |     | 40s |     | 40  |     | 40s |     | 40  |     | 40s |     | 40  |     | 40s |     | 39  |     |     |     |     | 39  |     | 39s | 39  |     | 39s |     | 39  |     | 39s |     |     |    |
| Cyg  | DM   | RR | 60  | 44  | 28  | 54  | 38  |     | 48  | 31  | 57  | 41  | 25  | 51  | 35  |     | 45  | 29  | 55  | 39  | 23  | 49  | 33  |     | 43  | 27  | 53  | 37  | 47  | 31  |     |     | 41  |     |    |
| Cyg  | EM   | K1 | 3   | 41  | 28  | 44  | 32  | 35  |     | 39  | 26  | 43  | 30  | 46  | 34  |     | 37  | 24  | 41  | 28  | 44  | 32  |     |     | 35  | 23  | 39  | 26  | 43  | 30  | 34  |     |     | 37  |    |
| Cyg  | V367 | L1 | 2   |     | \   | \   | 97s | /   | /   |     |     |     | \   | \   | \   | 27  | /   | /   |     |     |     |     | \   | \   | 57s | /   | /   |     |     |     |     |     |     |     |    |
| Cyg  | V463 | ES |     |     |     |     | 28  | 40  | 46s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 28s | 34  | 40s | 46  |     |     |     |     |     |     |     |    |
| Cyg  | V477 |    |     |     |     |     | 26s |     |     | 25  |     |     | 30s |     |     |     | 29  |     |     |     |     |     |     | 33  |     |     |     |     |     |     | 38  |     |     |     |    |
| Cyg  | V541 | L1 |     | 89  |     |     |     |     |     |     |     | 92s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| JD   | 583  | .. | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| JD   | 584  | .. |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  |     | 23  |    |

| 2018 | Okt   | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |    |  |
|------|-------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|
| Cyg  | V548  | ES |    |     | 63s | 53  | 43s | 33  |     |     |     |     |     |     | 55  | 46s | 36  | 26s |     |     |     |     |     | 58  | 48s | 39  | 29s |     |     |     |     |     |     |     |    |  |
| Cyg  | V788  | L1 | 3/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 4\  | 96/ |     |     |     |     |     |     |     |     |     |    |  |
| Cyg  | V891  | ES |    | 31  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 46  |     |     | 36  |     | 27  |     |     |     |     |     |     |     |     |     |    |  |
| Cyg  | V909  | ES | 27 |     |     |     | 48s |     |     | 28s |     |     |     |     |     | 30  |     |     |     |     |     |     |     | 31s |     |     |     |     |     | 32  |     |     |     |     |    |  |
| Cyg  | V1061 | ES |    |     |     | 50  |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     | 62  |     |     |     | 31  |     |     |     |     |    |  |
| Cyg  | V1918 | ED | 3  | 41+ | 44s | 27+ | 30+ | 33+ | 37+ | 40s | 43  | 26+ | 29+ | 32+ | 36+ | 39  | 42s | 25+ | 28+ | 31+ | 35+ | 38s | 41  | 24+ | 27+ | 31+ | 34+ | 37  | 40s | 23+ | 26+ | 30+ | 33+ | 36s |    |  |
| Del  | DX    | 90 |    | 49  | 43  | 38  | 32  | 27  |     |     |     |     |     | 47  | 41  | 36  | 30  | 25  |     |     |     |     | 45  | 39  | 34  | 28  | 23  |     |     |     | 43  | 37  | 32  |     |    |  |
| Dra  | RW    | RR |    | 36  |     |     | 46  | 35  |     |     | 45  | 33  |     |     | 43  | 32  |     |     | 42  | 31+ |     | 41  | 29+ |     | 39  | 28+ |     |     | 38  | 27+ |     |     |     |     |    |  |
| Dra  | SU    | RR |    | 72  | 38  | 70  | 36  | 68  | 34  | 67  | 33  | 65  | 31  | 63  | 29  | 61  | 27  | 59  |     |     |     |     |     | 53  |     | 52  | 50  |     | 48  |     | 46  |     |     | 44  |    |  |
| Dra  | SW    | RR |    | 35  | 49  | 63  |     | 34  | 48  | 62  |     | 33  | 47  | 61  | 74  | 31  | 45  | 59  | 73  | 30  | 44  | 58  | 72  | 29  | 43  | 57  | 71  | 28  | 42  | 56  | 70  | 27  | 40  | 54  |    |  |
| Dra  | TZ    | ED |    | 54s | 40s | 27s |     | 43  | 30  |     | 47s | 33s |     | 50  | 36  |     | 39s |     | 26s |     | 43  | 29  |     | 46s | 32s |     | 35  | 22  |     | 38s | 25s |     | 42  |     |    |  |
| Dra  | VZ    | 90 |    | 27  | 55  | 51  | 48  | 44  | 40+ | 36+ | 33  | 29  | 25  |     | 50  | 46  | 43  | 39+ | 35+ | 32  | 28  | 24  |     | 49  | 45  | 42+ | 38+ | 34+ | 30+ | 27  | 23  |     | 48  | 44+ |    |  |
| Dra  | WW    | S1 | 3  |     |     |     |     |     |     |     | 66  |     |     |     |     | 29  |     |     |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |    |  |
| Dra  | XZ    | RR |    | 44  | 39  | 34  | 30  | 25+ | 68  | 63  | 59  | 54  | 49  | 44  | 40  | 35  | 30  | 26+ | 69  | 64  | 59  | 54  | 50  | 45  | 40  | 36  | 31  | 26+ | 69  | 64  | 60  | 55  | 50  | 46  |    |  |
| Dra  | AI    | S1 |    |     | 32  |     |     |     |     |     | 32  |     |     |     |     | 31  |     |     |     |     |     | 31  |     |     |     |     |     | 30  |     |     |     |     |     |     |    |  |
| Dra  | BF    |    |    |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     | 92  |     |     |     |     |     | 34s |     |     |     |     | 14  |     |     |     |     |     |    |  |
| Dra  | BK    | 90 |    |     | 32  | 51  | 69  | 28  | 47  | 65  |     | 43  | 61  |     | 39  | 57  |     | 35  | 53  | 72  | 31  | 49  | 68  | 27  | 45  | 64  | 23  | 41  | 60  | 37  | 56  | 74  | 33  |     |    |  |
| Dra  | BU    | ES |    | 34s |     | 26  |     |     |     |     |     |     |     |     |     | 74  |     |     | 65s |     |     |     |     |     | 40  | 31s |     | 23  |     |     |     |     |     |     |    |  |
| Dra  | DD    | 90 |    | 26+ | 57  | 55  | 53  | 51  | 49  | 47  | 45  | 43  | 41  | 39+ | 37+ | 35+ | 33+ | 31+ | 29+ | 28+ | 26+ | 24+ | 54  | 52  | 50  | 48  | 46  | 44  | 43+ | 41+ | 39+ | 37+ | 35+ | 33+ |    |  |
| Dra  | EX    | K1 |    | 36+ | 41+ | 46+ | 30+ | 35+ | 40+ | 45+ | 29+ | 34+ | 39+ | 44+ | 28+ | 33+ | 38+ | 43+ | 27+ | 32+ | 37+ | 42+ | 26+ | 31+ | 36+ | 41+ | 25+ | 30+ | 35+ | 39+ | 23+ | 28+ | 33+ | 38+ |    |  |
| Dra  | GV    | L1 | 3  | 75  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  |     |     |     |     |     |     |     |    |  |
| Equ  | S     | S1 |    |     |     |     |     |     | 41  |     |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |
| Eri  | SV    | 90 | 2  |     |     |     | 58  |     |     |     |     | 58  |     |     | 44  |     | 58  |     |     |     | 43  |     | 58  |     | 43  |     | 57  |     | 43  |     | 57  |     |     |     |    |  |
| Gem  | U     | K1 | 3  | 64  | 70  | 59  | 65  | 53+ | 60  | 66  | 54+ | 60  | 66  | 55+ | 61  | 67  | 56+ | 62  | 50+ | 56+ | 62  | 51+ | 57+ | 63  | 52+ | 58  | 64  | 52+ | 59+ | 47+ | 53+ | 59  | 48+ | 54+ |    |  |
| Gem  | RR    | 90 | 3  | 68  |     | 67  | 65  |     | 64  |     | 63  |     |     | 61  |     | 60  | 59  |     | 57  |     | 56  | 75  |     | 55  | 74  | 53  | 72  | 52  | 71  | 51  | 70  | 49  | 68  | 48  |    |  |
| Gem  | RY    | L1 | 3  |     | 0s  |     |     | 65  |     |     |     |     |     | 30s |     |     | 95  |     |     |     |     |     | 60s |     |     | 25  |     |     |     | 90s |     |     |     |     |    |  |
| Gem  | SZ    | 90 | 3  | 71  | 71  | 71  | 71  | 71  | 72  | 72  | 72  | 73  | 73  | 73  | 73  | 73  | 74  |     | 74  | 74  | 74  | 75  | 75  | 75  | 75  | 75  | 76  | 76  | 76  | 76  | 76  | 76  | 76  | 76  | 76 |  |
| Gem  | WW    | ES |    |     | 55s |     | 65  |     |     | 50s |     | 60  |     |     | 45s | 69s | 55  |     |     |     |     | 64s | 50  | 74  |     | 59s | 45  | 69  |     | 55s |     | 40  | 64  |     |    |  |
| Gem  | YY    | S1 |    |     | 64s |     | 68  | 49  | 72s | 53s |     | 57  |     | 60s |     | 64  | 67s |     | 49s | 71  | 52  | 74s | 56s | 59  |     | 63s | 44s | 67  | 48  | 70s | 52s | 74  | 55  |     |    |  |
| Gem  | V339  | EU | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 72  |     | 60  |     | 48  |     |     |     |     |     |     |     |     |    |  |
| Her  | TW    | RR |    |     | 34  |     | 34  |     | 34  |     | 34  | 34  |     |     | 33  |     | 33  |     | 33  |     |     | 33  |     | 32  |     | 32  |     | 32  |     | 32  |     | 32  |     |     |    |  |
| Her  | TX    | S1 |    |     |     | 28  | 31s |     | 34  | 37s | 40  | 43s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |
| Her  | UX    | ED |    |     |     |     | 31s |     |     |     |     |     |     |     | 28  |     |     |     |     |     |     | 25s |     | 34s |     |     | 22  |     |     | 31  |     |     |     |     |    |  |
| Her  | VX    | RR |    | 35  | 26  |     |     |     |     | 27  |     |     |     |     | 28  |     |     |     |     |     | 28  |     |     |     | 29  |     |     |     |     |     |     |     |     |     |    |  |
| Her  | VZ    | 90 |    |     | 43  | 31  |     |     | 39  | 27  |     |     |     | 36  | 24  |     | 32  |     |     |     |     | 28  |     | 36  | 24  |     | 33  |     |     |     |     | 29  |     |     |    |  |
| Her  | AK    | S1 |    | 37s |     | 26  | 32s |     | 27s | 32  |     |     |     | 27  | 33s |     | 28s |     | 33  |     | 23s | 28  |     | 23  | 29s |     | 24s | 29  |     |     |     | 24  |     | 30s |    |  |
| Her  | AR    | 90 |    |     | 40  | 34  | 28  |     |     |     |     |     |     | 39  | 33  | 27  |     |     |     |     |     | 38  | 32  | 26+ |     |     |     |     |     |     |     |     |     |     |    |  |
| Her  | AW    | L1 |    |     |     | 79  |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     | 40  |     |     |     |     |     |     |     |     |     |    |  |
| Her  | DI    | L1 |    | 78s |     | 20  |     |     |     |     |     |     |     |     | 33s |     | 75  |     |     |     |     |     |     |     | 88s |     | 30  |     |     |     |     |     |     |     |    |  |
| JD   | 583   | .. |    | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |
| JD   | 584   | .. |    |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  |     | 23 |  |





| 2018 | Okt   | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |     |    |
|------|-------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Mon  | V530  | EU | 3 | 58s | 63s | 68s | 73s | 57  | 62  | 67  | 73  |     | 56s | 62s | 67s | 72s |     | 56  | 61  | 66  | 71  |     | 55s | 60s | 65s | 70s | 75s | 54  | 59  | 64  | 70  | 75  | 53s |     |     |     |    |
| Mon  | V536  |    |   |     |     |     | 58s |     |     |     |     |     | 72s |     |     |     |     | 68  |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |    |
| Mon  | V634  | EU |   |     |     |     |     |     |     |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Oph  | U     | ST |   |     |     |     |     |     |     |     | 25s |     |     |     | 28s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Oph  | ST    | 90 | 2 |     |     |     | 26  |     |     |     |     |     |     | 27  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 23  |     |     |     |     |     |     |     |    |
| Ori  | Z     | ES | 2 |     |     |     |     | 9   |     |     |     |     | 29  |     |     |     |     | 49  |     |     |     |     | 70  |     |     |     |     | 90  |     |     |     |     |     |     |     |     |    |
| Ori  | BM    | ES |   |     | 79  |     |     |     |     |     |     | 26  |     |     |     |     |     | 73  |     |     |     |     |     |     | 20  |     |     |     |     | 67  |     |     |     |     |     |     |    |
| Ori  | CP    | ES | 2 |     |     | 62  |     |     |     |     | 94  |     |     |     |     |     | 26  |     |     |     |     |     |     |     |     | 90  |     |     |     |     |     |     |     |     | 22  |     |    |
| Ori  | DN    | L1 | 2 |     |     |     |     | 9   |     |     |     |     |     |     |     |     |     |     |     |     | 5   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | FO    | L1 | 2 |     |     |     |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |    |
| Ori  | FT    | EX |   | 56s | 60  |     | 71s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 46s | 50  |     | 61s | 65  |     | 76s |     |     |     |     |     |     |     |    |
| Ori  | GG    | EX |   |     |     |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     | 55s |     |     |     |     |     |     |     |     |     |     |    |
| Ori  | V536  | ES | 2 |     |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 57  |     |     | 73  |     |     |     |     |    |
| Ori  | V1031 | ES | 2 | 61s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 56  |     |     |     |     |    |
| Peg  | U     | S1 |   | 30+ | 42+ | 36+ | 29+ | 42+ | 36+ | 29+ | 42+ | 35+ | 29+ | 41+ | 35+ | 29+ | 41+ | 29+ | 41+ | 35+ | 29+ | 41+ | 35+ | 28+ | 41+ | 34+ | 28+ | 22+ | 34+ | 28+ | 22+ | 34+ | 28+ |     |     |     |    |
| Peg  | VV    | RR |   | 59  | 57  | 54  | 52  | 50  | 47  | 45  | 43  | 40  | 38  | 36  | 33  | 31  | 29  | 27  | 24  |     |     |     |     |     |     |     | 52  | 50  | 48  | 45  | 43  | 41  |     |     | 38  |     |    |
| Peg  | VW    |    |   |     |     |     |     |     |     | 76  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 83  |     |     |     |     |     |     |    |
| Peg  | AV    | RR |   | 41  | 58  | 36  | 54  | 32  | 49  | 27  | 44  |     |     | 39  | 34  | 51  | 30  | 47  | 25  | 42  |     |     |     | 32  | 49  | 27  | 45  | 23  | 40  |     |     | 35  |     |     | 30  |     |    |
| Peg  | AW    | L1 |   |     | 28s |     |     |     |     |     | 59  |     |     |     |     |     |     |     |     |     |     | 21  |     |     |     | 52s |     |     |     |     |     | 84  |     |     |     |     |    |
| Peg  | BH    | 90 |   | 30  | 58  |     | 50  |     | 43  |     | 35  |     |     | 27  | 56  |     | 48  | 40  |     | 32  |     | 25  | 53  |     | 45  |     | 38  | 30  |     |     | 22  | 50  |     |     |     |     |    |
| Peg  | BK    | ES |   |     |     |     |     |     |     | 58s |     |     |     | 33  |     |     |     |     |     |     |     |     |     | 31  |     |     |     |     |     |     |     |     | 54s |     |     |     |    |
| Peg  | CG    | 90 |   | 27  |     |     | 54  | 47  | 40  | 34  | 27  |     |     | 54  | 48  | 41  | 35  | 28  |     |     |     |     | 48  | 42  |     |     | 35  | 29  |     |     | 49  | 43  | 36  | 29  | 23  |     |    |
| Peg  | DF    | L1 |   |     |     |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 4   |     |     |     |     |     |     |    |
| Peg  | DH    | RR | 3 | 26+ | 29+ | 31  | 33  | 35  | 37  | 40  | 42  | 44  | 46  | 48  | 25+ | 27  | 30  | 32  | 34  | 36  | 38  | 41  | 43  | 45  | 47  | 24+ | 26  | 28  | 30  | 33  | 35  | 37  | 39  |     | 41  |     |    |
| Peg  | GH    | ES |   | 28s | 56  |     |     |     | 40s |     |     |     |     | 51s |     |     | 34  |     |     |     |     |     | 46  |     |     | 29s |     |     |     |     |     | 40s |     |     |     |     |    |
| Peg  | IP    | K1 |   | 40+ | 35+ | 30+ | 25+ | 35+ | 30+ | 25+ | 36+ | 31+ | 26+ | 37+ | 32+ | 26+ | 37+ | 32+ | 27+ | 38+ | 33+ | 28+ | 23+ | 33+ | 28+ | 23+ | 34+ | 29+ | 24+ | 34+ | 29+ | 24+ | 35+ | 30+ |     |     |    |
| Per  | RW    | L1 | 2 |     |     |     |     |     |     |     | 11  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Per  | RY    | ES |   |     |     |     |     |     |     | 46s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 48  |    |
| Per  | AG    | EX |   |     |     |     |     |     |     |     |     | 33  |     |     | 36  | 32s | 39  | 35s | 41  | 38s | 44  | 41s | 47  | 44s | 50  | 47s | 53  | 49s | 56  | 52s | 59  | 55s | 62  |     | 58s |     |    |
| Per  | AR    | 90 |   | 56  | 41  | 68  | 53  | 39  | 66  | 51  | 36  | 64  | 49  | 34  | 62  | 47  | 32  | 60  | 45  | 30+ | 58  | 43  | 28+ | 56  | 41  | 26+ | 54  | 39  | 24+ | 51  | 37  | 22+ | 49  |     | 34  |     |    |
| Per  | AY    | L1 |   |     | 54  |     |     |     |     |     |     |     |     |     |     |     | 32  |     |     |     |     |     |     |     |     |     |     |     | 10  |     |     |     |     |     |     |     |    |
| Per  | IQ    |    |   |     |     | 61s | 57  | 35s | 31  |     |     |     |     | 58s | 54  | 33s | 29  |     |     |     |     |     |     | 56s | 52  | 30s | 26  |     |     | 75  | 53s | 49  | 27s | 24  |     | 76s | 72 |
| Per  | KN    | EU |   | 59s | 46s | 33s | 63  | 49  | 36  | 66s | 53s | 39s | 26+ | 56  | 43  | 29+ | 59s | 46s | 32s | 62  | 49  | 36  | 66s | 52s | 39s | 26+ | 56  | 42  | 29+ | 59s | 46s | 32+ | 62  |     | 49  |     |    |
| Per  | LX    | L1 |   |     | 12s |     |     |     | 14  |     |     |     |     |     |     | 17  |     |     |     |     |     |     |     |     |     |     |     |     | 23s |     |     |     |     |     | 25  |     |    |
| Per  | beta  | S1 |   |     |     | 42  |     |     | 29  | 72s |     | 59s |     |     |     |     | 46s |     |     |     |     |     | 33s |     |     | 63  |     |     | 36  |     |     | 23  | 66s |     |     |     |    |
| Psc  | RU    | 90 |   | 51  | 29+ | 46  | 63  | 41  | 59  | 37  | 54  | 32+ | 49  | 27+ | 44  | 61  | 39  | 56  | 35  | 52  | 30+ | 47  | 25+ | 42  | 59  | 37  | 54  | 32  | 50  | 28  | 45  | 23+ | 40  |     | 57  |     |    |
| Psc  | RY    | 90 | 2 |     |     |     | 31  | 37  | 43  | 49  | 55  |     |     | 26  | 32  | 38  | 44  |     | 50  | 56  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 33  |    |
| Psc  | SS    | 90 |   | 41+ | 27+ | 43+ | 29+ | 44  | 30+ | 45  | 32+ | 47  | 33+ | 48  | 35+ | 50  | 36+ | 51  | 38+ | 24+ | 39+ | 25+ | 40  | 27+ | 42  | 28+ | 43  | 30+ | 45  | 31+ | 46  | 33+ | 48  |     | 34+ |     |    |
| Sge  | SY    | ES |   |     |     |     | 45s |     |     |     |     |     |     |     |     |     | 30  |     |     |     |     |     |     | 38  |     |     |     |     |     |     |     |     |     |     | 23s |     |    |
| JD   | 583   | .. |   | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| JD   | 584   | .. |   |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  |     |     | 23  |    |

| 2018 | Okt   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser  | AN    | 90 | 29  |     |     |     |     |     |     |     |     |     |     | 26  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser  | BH    | 90 |     |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |
| Ser  | EG    | L1 | 37s |     |     |     |     | 35  |     |     |     |     | 32s |     |     |     |     | 29  |     |     |     |     | 27s |     |     |     | 24  |     |     |     |     |     |     | 22s |
| Ser  | LX    | K1 |     | 31  | 26  |     |     | 27  |     |     | 28  |     |     | 29  | 24  |     |     | 25  |     |     | 26  |     |     |     |     |     | 23  |     |     | 24  |     |     |     |     |
| Sex  | T     | 90 |     |     |     |     |     |     |     |     | 71  |     | 69  | 66  |     |     |     |     |     |     |     |     | 75  | 73  | 70  | 67  | 65  | 62  |     |     |     |     |     |     |
| Tau  | RW    | S1 | 3   |     | 63  |     |     | 40  |     |     |     |     |     |     | 71  |     |     | 48  |     |     |     |     |     |     |     |     |     |     |     | 55  |     |     |     | 32  |
| Tau  | CD    | S1 | 3   |     |     | 63  |     |     |     |     |     |     | 50  |     |     |     |     | 66s |     |     |     |     |     |     | 53s |     |     |     | 68  |     | 40s |     |     |     |
| Tau  | EN    | ES | 2   |     |     | 60s |     |     |     |     | 56s |     |     |     | 52s |     |     |     |     |     | 47s | 71  |     |     | 43s | 67  |     |     |     | 38s | 62  |     |     |     |
| Tau  | V1094 | L1 |     | 63  |     |     |     |     | 49s |     |     | 61  |     |     |     |     |     | 48s |     |     |     | 60  |     |     |     |     | 47s |     |     | 59  |     |     |     |     |
| Tri  | X     | S1 |     |     |     |     |     |     |     |     |     |     | 74  | 71  | 68  | 65  | 63  | 60  | 57  | 54  | 51  | 48  | 46  | 43  | 40  | 37  | 34  | 31  | 28  | 26  | 23  |     |     |     |
| Tri  | RU    | ES | 2   | 47s |     |     |     | 37  |     |     | 64  |     | 27s |     | 54s |     |     |     |     |     | 45  |     |     | 72  | 35s |     |     | 62s |     | 25  |     |     |     |     |
| Tri  | UX    | 90 |     | 28  | 68  | 61  | 55  | 48  | 41  | 35  | 28  | 68  | 62  | 55  | 48  | 42  | 35  | 29  | 69  | 62  | 55  | 49  | 42  | 36  | 29  | 69  | 62  | 56  | 49  | 43  | 36  | 29  | 23+ | 63  |
| UMa  | W     | S1 |     | 48+ | 49+ | 49+ | 49+ | 49+ | 49+ | 49+ | 49+ | 49+ | 49+ | 49+ | 50+ | 50+ | 50+ | 50+ | 50+ | 50+ | 50+ | 50+ | 50+ | 50+ | 50+ | 51+ | 51+ | 51+ | 51+ | 51+ | 51+ | 51+ | 51+ | 51+ |
| UMa  | RV    | RR |     | 39  | 32  | 26  | 66  |     |     |     | 34  | 28  |     | 68  | 62  |     |     |     |     |     | 30  | 24+ | 64  | 58  |     |     | 32  | 26+ | 66  | 60  |     |     |     |     |
| UMa  | RW    | ES |     |     |     |     |     | 55  |     |     |     |     |     |     |     |     |     |     |     |     | 54s |     |     |     |     |     |     |     | 54  |     |     |     |     |     |
| UMa  | TU    | RR |     |     | 69  |     |     |     |     | 71  |     |     |     |     | 73  |     |     |     | 64  | 75  |     |     |     | 65  |     |     |     | 67  |     |     |     |     |     |     |
| UMi  | W     | S1 | 3   |     |     | 54  |     |     |     |     | 64  |     | 34  |     |     |     |     | 45  |     |     |     |     | 55  |     | 25  |     | 65  |     | 35  |     |     |     | 76  |     |
| Vir  | AG    | ED |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 73  | 70s |     |     |     |     |     |     | 73  | 70s |     |     |     |     |     |
| Vir  | AH    | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 73  | 74s |     |     |     |     |     | 69  | 71s | 73  | 75s |     |     |     |     |     |     |
| Vul  | Z     | S1 |     |     |     | 37  |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 37  |
| Vul  | BN    | 90 | 38  |     |     | 36  |     |     | 33  |     |     | 30  |     |     | 27  | 46  |     | 24  | 43  |     |     | 40  |     |     | 37  |     | 34  |     |     | 31  |     |     |     |     |
| Vul  | DR    | EX |     | 46s | 36  |     |     |     |     |     |     |     | 46s | 36  |     |     |     |     |     |     |     | 46s | 36  |     |     |     |     |     | 22s |     | 37  |     |     |     |
| Vul  | EV    | ES |     |     |     |     |     |     | 47  |     |     | 30  |     |     |     |     |     |     |     |     |     |     |     |     | 41  |     |     | 23  |     |     |     |     |     |     |
| JD   | 583   | .. | 93  | 94  | 95  | 96  | 97  | 98  | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| JD   | 584   | .. |     |     |     |     |     |     |     | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  |     | 23  |

| 2018 | Nov | P  | 1  | 2  | 3  | 4  | 5   | 6  | 7  | 8  | 9   | 10 | 11 | 12 | 13  | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21  | 22 | 23 | 24 | 25  | 26 | 27 | 28 | 29 | 30 |  |  |
|------|-----|----|----|----|----|----|-----|----|----|----|-----|----|----|----|-----|----|----|----|----|----|----|----|-----|----|----|----|-----|----|----|----|----|----|--|--|
| And  | SW  | RR | 39 | 28 | 61 | 49 | 37  | 26 | 59 | 47 | 36  | 24 | 57 | 45 | 34  | 22 | 55 | 43 | 32 | 20 | 53 | 41 | 30  |    | 51 | 39 | 28  |    | 49 | 37 | 26 |    |  |  |
| And  | SY  | L1 | 1  |    |    |    | 96\ | \  | 0  | 5/ |     |    |    |    |     |    |    |    |    |    |    |    |     |    |    |    |     |    |    |    |    |    |  |  |
| And  | TW  | S1 |    |    | 25 |    | 31s |    |    |    | 43s |    | 49 |    | 55s |    |    |    |    |    |    |    |     |    |    |    |     |    |    |    |    |    |  |  |
| And  | XX  | 90 |    | 55 | 27 |    | 44  |    | 61 | 33 |     | 50 | 22 | 67 | 39  |    | 56 | 28 |    | 45 |    | 62 | 34  |    | 51 | 23 | 40  |    | 57 | 29 |    |    |  |  |
| And  | CD  | L1 | 2  |    |    |    |     |    |    |    |     |    |    |    |     |    |    |    |    |    |    |    | 84\ | \  | 91 | /  | 97/ |    |    |    |    |    |  |  |
| And  | OV  | 90 | 26 |    | 61 | 56 | 50  | 44 | 38 | 32 | 26  |    | 61 | 56 | 50  | 44 | 38 | 32 | 26 | 20 | 61 | 56 | 50  | 44 | 38 | 32 | 26  | 20 |    | 55 | 50 | 44 |  |  |
| Aqr  | SW  | RR | 3  |    | 33 | 25 |     |    | 39 |    |     |    |    |    |     |    |    |    |    |    |    |    |     |    |    |    | 30  | 22 |    |    |    |    |  |  |
| Aqr  | SX  | 90 |    |    |    | 25 | 32  |    |    |    |     |    | 21 | 28 | 35  |    |    |    |    |    |    |    |     |    |    |    | 25  | 32 | 21 | 28 | 35 |    |  |  |
| Aqr  | CD  | ES |    |    |    | 82 |     |    |    |    | 66  |    |    |    |     | 50 |    |    |    |    |    |    |     |    |    | 17 |     |    |    |    |    | 1  |  |  |
| Aqr  | HH  | 90 | 2  | 41 |    | 28 |     |    |    | 31 |     |    |    | 33 |     |    | 20 | 35 |    |    | 22 | 37 |     |    |    |    |     | 24 |    | 26 |    |    |  |  |
| Aqr  | LL  | L1 | 3  |    |    | 97 |     |    |    |    |     |    |    |    |     |    | 6s |    |    |    |    |    |     |    |    |    | 15  |    |    |    |    |    |  |  |
| JD   | 584 | .. | 24 | 25 | 26 | 27 | 28  | 29 | 30 | 31 | 32  | 33 | 34 | 35 | 36  | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44  | 45 | 46 | 47 | 48  | 49 | 50 | 51 | 52 | 53 |  |  |

| 2018 | Nov   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |     |    |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Aql  | AA    | RR |     | 23  | 32  |     |     | 21  | 30  |     |     |     | 28  |     |     |     | 26  |     |     |     | 24  |     |     | 22  | 30  |     |     | 20  | 28  |     |     |     |     |     |    |
| Aql  | V341  | 90 | 3   | 35  |     |     | 24  |     |     |     | 29  |     |     |     | 34  |     |     | 23  |     |     |     |     |     |     |     | 73  |     | 21  |     |     |     |     |     |     |    |
| Aql  | V889  | L1 |     |     | 49  |     |     |     |     | 43s |     |     |     |     |     | 61  |     |     |     |     |     |     |     |     |     |     |     |     |     | 68s |     |     |     |     |    |
| Aql  | V1353 | ES |     |     |     |     | 28  |     |     |     |     | 23s |     |     |     |     |     |     |     |     |     |     |     | 26  |     |     |     | 21s |     |     |     |     |     |     |    |
| Aql  | V1426 | ES | 49s | 8+  | 25+ | 43  | 2+  | 19+ | 37+ | 54s | 13+ | 30+ | 48  | 7+  | 24+ | 42s | 1+  | 18+ | 36+ | 53  | 12+ | 29+ | 47s | 6+  | 23+ | 41+ | 58  | 17+ | 34+ | 52s | 11+ | 28+ |     |     |    |
| Aql  | V1430 | ES | 24  |     |     | 29s |     |     |     | 23  |     |     | 28s |     |     |     | 21  |     |     |     |     |     | 20  |     |     | 26s |     |     |     |     |     | 19  |     |     |    |
| Ari  | X     | RR | 3   | 53  |     | 49  | 44  |     | 40  |     | 35  | 65  | 30  | 60  |     | 56  |     | 51  |     |     |     | 47  |     | 37  |     | 33  | 28  | 58  | 23  | 53  |     |     |     |     |    |
| Ari  | RS    | L1 | 2   |     |     |     |     |     |     | 94  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     |    |
| Ari  | AL    | ES |     |     |     |     |     |     |     | 62  |     |     |     |     | 36  |     |     |     |     |     |     |     |     |     |     | 61  |     |     | 35  |     |     |     |     |     |    |
| Aur  | TZ    | 90 | 3   | 43  | 60  | 39  | 56  | 35+ | 52  | 70  | 48  | 65  | 44  | 61  | 40  | 57  | 35+ | 53  | 70  | 49  | 66  | 45  | 62  | 40  | 58  | 36+ | 54  | 32+ | 50  | 67  | 45  | 63  | 41  |     |    |
| Aur  | CQ    | L1 | 3   |     | 30s |     |     |     | 61  |     |     |     |     | 92s |     |     |     |     |     |     | 23  |     |     |     | 54s |     |     |     | 86  |     |     |     |     |     |    |
| Aur  | IY    | ES |     |     |     |     |     | 64  |     |     | 44  |     |     |     |     |     |     |     |     |     |     |     |     |     | 40  |     |     |     |     |     |     |     |     |     |    |
| Aur  | V432  | ES |     |     | 76s |     | 30  |     |     |     | 38  |     | 46  |     |     | 55  |     |     | 63  |     |     |     |     | 25s | 79  |     | 33s |     |     | 41s |     |     |     |     |    |
| Boo  | RS    | RR |     | 73  |     |     | 74  |     |     | 76  |     |     |     | 67  |     | 69  |     |     |     |     |     |     |     |     |     | 74  |     | 63  | 76  |     | 65  | 78  |     |     |    |
| Boo  | TW    | 90 |     | 72  | 25  |     |     |     |     |     |     | 71  | 24+ |     |     |     |     |     |     |     |     |     |     |     |     |     | 61  | 67  | 21+ |     |     |     |     |     |    |
| Boo  | UU    | 90 |     |     |     | 25  |     |     |     |     |     | 73  |     |     |     | 76  | 21  |     |     |     |     |     |     |     |     | 72  |     |     |     |     |     |     | 75  |     |    |
| Boo  | UY    | 90 |     |     |     |     |     |     |     |     |     |     |     | 73  |     |     |     |     |     |     |     |     |     |     |     | 75  |     | 71  |     | 66  |     |     |     |     |    |
| Boo  | AC    | ED |     | 27  | 68  | 21+ | 27s | 68s | 21+ | 27  | 68  | 73  | 26s | 67s | 20+ | 26  | 67  | 20+ | 25+ | 66s | 72s | 25+ | 66  | 72  | 24+ | 65s | 71s | 24+ |     | 65  | 71  | 59+ | 65s | 70s |    |
| Boo  | CM    | 90 |     |     | 75  |     |     |     |     |     |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     | 68  |     | 72  |     |     |     |     | 77  |     |    |
| Boo  | CQ    | 90 |     |     |     |     |     |     |     |     |     |     | 76  |     | 73  |     |     |     |     |     |     |     |     |     |     | 78  |     | 75  |     | 73  |     |     | 70  |     |    |
| Boo  | CS    | 90 |     |     |     |     | 74  |     |     |     |     | 72  |     |     |     |     | 70  |     |     |     |     |     |     |     |     | 68  |     | 77  |     |     |     |     | 64  |     |    |
| Cam  | SS    | ES |     | 78  |     |     | 19s |     | 60  |     |     | 2s  |     | 43  |     | 84s |     | 25  |     | 66s |     |     | 7   |     | 48s | 90  |     |     | 31s |     | 72  |     |     |     |    |
| Cam  | SV    | S1 |     | 31+ | 49  | 38+ | 27+ | 46+ | 35+ | 24+ | 42+ | 31+ | 50s | 39+ | 28+ | 46+ | 35+ | 24+ | 43+ | 32+ | 21+ | 39+ | 28+ | 47+ | 36+ | 25+ | 43+ | 32+ | 21+ | 40+ | 29+ | 48+ | 37+ |     |    |
| Cam  | AK    | ES | 3   | 63s | 75  |     |     |     |     |     | 31s | 43  | 54s | 65  | 77s |     |     |     |     |     |     |     | 22s | 33  | 45s | 56  | 67s |     |     | 24  | 35s | 47  | 58s |     |    |
| Cam  | AN    |    |     |     | 6   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41s |     |     |     |     |     |     |     |    |
| Cam  | AT    | ES |     | 47  |     | 57s | 27  | 66  | 36s | 76s | 45  |     | 55s | 25  | 64  | 34s | 74s | 43  |     |     | 53s | 23  | 62  | 32s | 72s | 41  |     | 51s | 21  | 60  | 30s | 69s | 39  |     |    |
| Cnc  | S     | L1 | 3   |     |     |     |     | 47  |     |     |     |     |     |     |     |     | 96  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cnc  | RU    | L1 | 2   |     |     |     | 94  |     |     |     |     |     |     |     |     |     |     | 11  |     |     |     |     |     |     |     |     |     |     | 28  |     |     |     |     |     |    |
| Cnc  | RW    | 90 |     | 51  | 61  | 70  |     |     |     | 53  | 63  | 72  |     |     | 46  | 55  | 65  | 74  |     |     |     |     | 48  | 57  | 67  | 76  |     | 50  | 59  |     | 69  | 78  |     | 42  | 52 |
| Cnc  | RZ    | L1 | 2   |     |     | 72  | \   | 34s | 97  |     |     |     |     |     |     | 54  | \   | 16  | 79  |     |     |     |     |     |     | 36  | 99s | /   | 61  |     |     |     |     |     |    |
| Cnc  | TT    | 90 |     | 51  | 63  | 76  |     |     | 58  | 71  |     | 52  | 65  | 78  |     |     | 59  | 72  |     |     |     |     |     |     | 48  | 61  | 74  |     |     | 55  | 68  |     |     |     |    |
| Cnc  | TU    | ES | 3   |     |     |     |     | 14  |     |     |     |     | 70  |     |     |     |     |     |     |     |     |     |     | 83  |     |     |     |     | 39  |     |     |     |     |     |    |
| Cnc  | UU    | L1 | 2   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cnc  | AQ    | 90 |     | 57  | 66  | 76  |     |     |     | 60  | 70  |     |     |     | 54  | 63  | 73  |     |     |     |     |     |     |     |     | 51  | 60  | 70  |     |     |     | 54  | 64  |     |    |
| CVn  | W     | 90 |     | 75  |     |     |     | 72  |     |     |     |     | 69  |     |     |     |     | 65  | 75  |     |     |     |     | 62  | 72  |     |     |     | 69  | 79  |     |     |     |     |    |
| CVn  | Z     | 90 |     | 62  |     | 58  |     |     |     |     |     |     |     | 74  |     | 70  |     | 66  |     | 62  |     | 58  |     | 55  |     |     |     | 78  |     | 74  |     |     |     |     |    |
| CVn  | RS    | S1 |     |     |     |     |     |     |     |     | 77s |     |     |     |     |     |     |     |     |     |     |     |     | 76  |     |     |     | 56  |     |     |     |     |     |     |    |
| CVn  | RZ    | 90 |     |     |     | 69  |     |     |     | 66  |     |     |     | 63  | 77  |     |     |     |     | 74  |     |     |     | 71  |     |     | 69  |     |     | 66  | 79  |     |     |     |    |
| CMa  | R     | S1 | 3   |     | 70s |     |     | 68  |     |     |     | 65s |     |     |     | 63  |     |     |     |     |     |     |     | 58  |     |     | 56s |     |     |     |     |     |     | 53  |    |
| JD   | 584   | .. |     | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  |     |    |

| 2018 | Nov  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |    |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| CMi  | AM   | ES |     |     | 53  | 55  | 57  | 58  | 60  | 62  | 64  | 66  | 68  | 70  | 72  | 74  | 76  | 78  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cas  | RX   | L1 | 2   | /   |     |     |     |     |     |     | \   | \   |     |     | 25  |     |     | /   | /   |     |     |     |     |     |     |     |     |     |     |     |     | 42s |    |
| Cas  | RZ   | S1 |     | 24  | 44  | 63  |     |     |     | 22  | 41  | 61  |     |     | 20  | 39  | 59  | 78  |     |     |     |     | 37  | 56  | 76  |     |     |     | 34  | 54  | 73  |     |    |
| Cas  | SX   | L1 | 2   |     | 73  | /   | 56/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Cas  | TV   | S1 |     |     | 27  |     |     |     |     | 71  |     | 53  | 34  |     |     |     |     | 78  |     | 59  |     | 40  |     |     |     |     |     |     |     | 65  |     | 46  |    |
| Cas  | TW   | S1 |     |     | 56  |     |     |     |     |     | 27  | 70  |     | 56  |     | 41  |     |     | 27  | 70  |     |     |     | 56  |     | 41  |     |     |     | 27  | 70  |     |    |
| Cas  | TX   | ES |     |     |     | 24s | 70  |     |     | 63  |     |     | 56  |     |     | 48  |     | 41  |     |     | 34  |     |     | 26  | 73s | 19  | 65s |     |     |     | 58s |     |    |
| Cas  | AQ   | L1 | 3   |     | 66\ | 72s | 77/ |     |     |     | 52\ | 58  | 63/ |     |     |     | 38\ | 44s | 49/ |     |     |     | 24\ | 30  | 35/ |     |     | 10\ | 16s | 21/ |     |     |    |
| Cas  | DN   | ES |     |     |     | 22  | 37s | 53  | 69s |     |     |     |     |     | 31s | 46  | 62s | 77  |     |     |     | 24s | 40  | 55s | 71  |     |     | 33  | 48s | 64  |     |     |    |
| Cas  | GG   | ES |     |     |     | 63  |     |     |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     | 42  |     |     |     |     |     |     |     |    |
| Cas  | GU   | EU |     |     |     | 69  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 25  |     | 34  |     |     |     | 43  |     |     |    |
| Cas  | IL   | ES |     |     |     |     | 36  |     |     |     |     |     |     | 26  |     | 71  |     |     |     |     |     |     |     | 62  |     |     |     |     |     |     | 52  |     |    |
| Cas  | IT   | EX |     |     |     | 61  |     |     |     |     | 51  | 66s |     | 40  |     | 55s |     | 30  |     | 45s | 20  |     |     | 35s |     |     | 24s |     |     |     |     |     |    |
| Cas  | OX   | EX |     |     | 26  | 44s | 75  |     |     |     | 24  | 42s | 73  |     |     | 40s | 71  |     |     | 20  | 38s | 69  |     |     |     | 36s | 66  |     |     | 34s | 64  |     |    |
| Cas  | PV   | EX | 42s | 25  |     |     | 75  | 67s | 50  | 42s | 25  |     |     |     | 67s | 51  | 42s | 26  |     |     |     |     | 51  | 43s | 26  |     |     | 68s | 51  | 43s | 26  |     |    |
| Cas  | V368 | ES |     |     | 22  |     | 44s | 67  |     |     |     |     |     |     |     | 34s | 57  |     |     |     |     |     |     | 25s |     | 47  |     | 70s |     |     |     |     |    |
| Cas  | V375 | ED | 41  |     | 62s | 36  |     | 57s | 30  |     | 51s | 25  | 72  | 46s | 20  | 67  | 41s |     | 62  | 36s |     | 57  | 30s | 78s | 51  | 25s | 72s | 46  | 20s | 67s | 41  |     |    |
| Cas  | V381 | EX |     |     | 63s | 56  | 37s | 31  |     |     | 41s |     | 36s | 29  |     |     |     | 59s | 53  | 34s | 27  |     |     |     | 58s | 51  | 32s | 26  |     |     | 56s |     |    |
| Cas  | V459 | L1 |     |     |     | 25  |     |     |     |     |     |     |     |     |     |     |     | 87s |     |     |     |     | 16  |     |     | 33s |     |     |     | 62  |     |     |    |
| Cep  | RZ   | 90 | 43+ | 36+ | 28+ | 21+ | 44+ | 37+ | 30+ | 22+ | 46+ | 38+ | 31+ | 23+ | 47+ | 40+ | 32+ | 25+ | 48  | 41+ | 33+ | 26+ | 49  | 42+ | 35+ | 27+ | 20+ | 43+ | 36+ | 28+ | 21+ | 44+ |    |
| Cep  | VW   | S1 | 26+ | 23+ | 21+ | 32+ | 29+ | 27+ | 24+ | 22+ | 33+ | 30+ | 28+ | 25+ | 23+ | 20+ | 31+ | 29+ | 26+ | 24+ | 21+ | 32+ | 30+ | 27+ | 25+ | 22+ | 19+ | 31+ | 28+ | 25+ | 23+ | 20+ |    |
| Cep  | XX   | S1 | 37  |     | 70  |     |     |     |     |     | 38  | 72  |     |     |     |     |     |     |     |     |     |     |     | 40  | 74  |     |     |     |     |     | 42  |     |    |
| Cep  | XY   | ES |     |     |     |     |     | 66  |     |     | 43  |     |     |     |     |     | 21  |     |     |     |     |     |     |     |     | 31  |     |     |     |     |     |     |    |
| Cep  | ZZ   | S1 |     | 53  |     | 67  |     |     |     |     |     |     |     |     | 23  | 38  |     |     |     |     |     |     |     |     |     |     |     |     |     | 23  |     | 37  |    |
| Cep  | AI   | ES |     |     |     |     | 22s |     | 34  |     | 45s |     | 56  |     |     |     |     |     |     |     |     |     |     |     |     | 24  |     | 35s | 46  |     | 57s |     |    |
| Cep  | CW   | EX |     |     | 53  |     |     | 26  | 54s |     |     | 27s | 72  |     | 45  | 73s |     |     |     | 46s |     |     |     | 64  |     | 37  | 64s |     |     | 37s |     |     |    |
| Cep  | EI   | L1 |     | 20  |     |     |     | 42s |     |     |     | 64  |     |     |     | 86s |     |     |     |     | 8   |     |     |     | 30s |     |     | 52  |     |     |     |     |    |
| Cep  | EX   | L1 | 2   |     |     |     |     |     |     |     |     |     |     | 27  |     |     |     |     |     |     |     |     |     |     |     | 70  |     |     |     |     |     |     |    |
| Cep  | NN   | ES |     | 63s | 66  | 69s | 72  | 75s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 21s | 24  | 27s | 30  | 33s | 36  | 39s | 42  | 45s |    |
| Cet  | RR   | RR | 2   | 39  | 49  |     | 26  | 36  | 47  |     |     | 24  | 34  | 45  | 55  |     |     | 32  | 42  | 53  |     |     | 30  | 40  | 51  |     | 27  | 38  | 49  |     |     |     |    |
| Cet  | RV   | 90 | 2   |     | 38  |     | 50  |     | 37  |     |     | 49  |     | 36  |     |     | 47  |     | 34  |     |     | 46  |     | 33  |     | 45  |     | 32  |     |     | 44  |     |    |
| Cet  | TU   | ES | 2   | 86  |     |     |     | 25  |     |     |     | 64  |     |     |     |     | 3   |     |     |     | 42  |     |     |     | 81  |     |     |     | 21  |     |     |     |    |
| Cet  | TV   | L1 |     |     | 56  |     |     |     |     |     | 5s  |     |     |     | 67  |     |     |     |     | 16s |     |     | 77  |     |     |     | 26s |     |     |     | 87  |     |    |
| Cet  | XY   | ES | 2   |     |     | 45  |     |     |     |     | 62s |     | 40s |     |     | 57  |     |     |     |     | 35  |     |     | 52s |     | 30s |     |     |     |     | 48  |     |    |
| Com  | S    | 90 |     | 71  |     | 65  |     |     |     |     | 75  |     | 68  |     |     | 62  |     |     |     |     | 72  |     | 66  |     | 59  | 76  |     |     | 70  |     |     |     |    |
| Com  | ST   | 90 |     |     |     | 67  |     |     | 67  |     |     | 66  |     |     | 66  |     |     | 65  |     |     | 65  |     |     | 64  |     | 64  |     |     |     | 63  |     |     |    |
| CrB  | U    | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 70  |     |     |     |     |    |
| CrB  | RV   | 90 |     |     |     |     |     |     |     |     |     |     |     |     | 26  | 26  | 25  | 25  | 24  | 24  | 23  | 23  | 22  | 22  | 21  | 21  | 20  | 20  | 19  | 19  |     |     |    |
| Crt  | W    | 90 | 2   |     |     |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     |     |     |     |     |     |     | 78  |     |     |     |     | 73  |     |    |
| JD   | 584  | .. |     | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53 |

| 2018 | Nov   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Cyg  | Y     | S1 |     | 26  |     |     | 26  |     |     | 25  |     |     | 25  |     |     | 24  |     | 24  |     |     |     | 24  |     | 23  |     |     | 23  |     |     | 22  |     |     |     |  |
| Cyg  | UY    | RR | 31  | 43  |     |     | 24  |     |     |     |     | 28  | 40  |     |     | 21  | 33  | 45  |     |     | 25  | 37  |     |     |     | 30  | 42  |     |     | 22  | 35  |     |     |  |
| Cyg  | XZ    | RR | 22  |     | 56  | 49  | 42  | 36  | 29+ | 22  |     |     | 49  | 42  | 36  | 29+ | 22  |     |     | 49  | 42  | 36  | 29+ | 22  |     |     | 49  | 42  | 35  | 29+ | 22  |     |     |  |
| Cyg  | BO    | ES | 29  |     |     |     |     |     |     | 44s | 32  |     |     |     |     | 47s | 34  | 22s |     |     |     |     | 49s | 37  | 25s |     |     |     |     | 39  | 27s |     |     |  |
| Cyg  | BR    | ES | 39  |     | 38s |     | 38  |     |     | 38s |     | 38  | 38s |     | 38  |     | 38s |     |     |     | 38s |     | 37  |     | 37s |     | 37  |     |     | 37s |     | 37  |     |  |
| Cyg  | DM    | RR | 25  | 51  | 35  |     | 45  | 29  |     | 38  | 22  | 48  | 32  |     | 42  | 26  |     | 36  | 20  | 46  | 30  |     | 40  | 24  |     | 34  |     | 44  | 28  | 38  | 22  |     |     |  |
| Cyg  | EM    | K1 | 3   | 24  | 41  | 28  |     | 32  |     | 35  | 23  | 39  | 26  |     |     | 30  | 34  | 37  | 24  |     |     | 28  |     | 32  |     | 35  | 23  | 26  |     | 30  |     | 34  |     |  |
| Cyg  | V367  | L1 | 2   | 86  | /   | /   |     |     |     | \   | \   |     | 16s | /   | /   |     |     |     |     |     | \   | \   | 46  | /   | /   |     |     |     | \   | \   | 76s |     |     |  |
| Cyg  | V463  | ES |     |     |     |     |     |     |     | 22s | 28  | 34s | 40  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 22  | 28s | 34  |     |     |     |  |
| Cyg  | V477  |    | 42s |     |     |     | 42  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 20s |     |     |     | 19  |     |     |     | 24s |     |     |     |  |
| Cyg  | V541  | L1 |     | 56  |     |     |     |     |     | 59s |     |     |     |     |     |     |     | 90  |     |     |     |     |     |     |     | 93s |     |     |     |     |     |     |     |  |
| Cyg  | V548  | ES | 51s | 41  | 31s | 22  |     |     |     |     |     | 54s | 44  | 34s | 24  |     |     |     | 76s |     |     | 46  | 37s | 27  |     |     | 78s |     |     | 49  | 39s |     |     |  |
| Cyg  | V788  | L1 |     |     |     |     |     |     |     |     |     |     |     |     |     | 97\ |     | 93  | 88/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V891  | ES |     |     |     |     |     |     |     |     |     |     | 33  |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V909  | ES |     |     |     |     | 34s |     |     |     |     |     |     | 35  |     |     |     |     |     |     | 36s |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cyg  | V1061 | ES |     |     |     |     |     | 35  |     |     |     |     |     |     |     | 39  |     |     |     |     |     |     | 43  |     |     |     |     |     | 47  |     |     |     |     |  |
| Cyg  | V1918 | ED | 3   | 40  | 22+ | 26+ | 29+ | 32s | 35  | 39s | 21+ | 25+ | 28+ | 31  | 35s | 38  | 20+ | 24+ | 27+ | 30s | 34  | 37+ | 20+ | 23+ | 26+ | 29  | 33+ | 36+ | 19+ | 22+ | 25+ | 29s | 32+ |  |
| Del  | DX    | 90 | 26  | 21  |     |     |     |     | 41  | 35  | 30  | 24  |     |     |     |     |     | 39  | 33  | 28  | 22  |     |     |     |     |     |     | 31  | 26  | 20  |     |     |     |  |
| Dra  | RW    | RR | 37  | 25+ |     |     | 47  | 35  | 24+ |     | 45  | 34  | 22+ |     |     | 44  | 32+ | 21+ |     |     |     |     | 41  | 30+ | 63  |     | 40  | 28+ | 61  |     | 38  | 27+ | 60  |  |
| Dra  | SU    | RR | 76  | 42  | 74  | 40  | 72  | 38  | 71  | 37  | 69  | 35  | 67  | 33  | 65  | 31  | 63  | 29  | 61  | 27  | 59  | 25  | 57  | 24  | 56  | 22  | 54  | 20  | 52  |     |     | 50  |     |  |
| Dra  | SW    | RR | 68  | 25  | 39  | 53  | 67  | 24  | 38  | 52  | 66  | 23  | 37  | 51  | 65  | 22  | 36  | 49  | 63  | 20+ | 34  | 48  |     | 62  | 76  | 33  | 47  | 61  | 75  | 32  | 46  | 60  | 74  |  |
| Dra  | TZ    | ED | 28  |     | 45s | 31s |     |     | 34  | 21  |     | 37s | 24s |     | 41  | 27  |     |     | 30s |     |     | 33+ |     | 20  |     | 37s | 23s |     | 26  |     |     | 29+ |     |  |
| Dra  | VZ    | 90 | 40+ | 37+ | 33+ | 29+ | 26  | 22  |     |     | 43+ | 39+ | 35+ | 32+ | 28+ | 24  | 21  |     |     | 77  | 42+ | 38+ | 34+ | 31+ | 27+ | 23+ | 19  | 76  | 41+ | 37+ | 33+ | 29+ |     |  |
| Dra  | WW    | S1 | 3   |     |     |     | 43  |     |     |     |     |     |     |     |     | 69  |     |     |     |     |     |     | 32  |     |     |     |     |     |     | 58  |     |     |     |  |
| Dra  | XZ    | RR | 41  | 36  | 31  | 27+ | 22+ | 65  | 60  | 56  | 51  | 46  | 41  | 37  | 32  | 27+ | 23+ | 66  | 61  | 56  | 51  | 47  | 42  | 37  | 33  | 28+ | 23+ | 19+ | 61  | 57  | 52  | 47  |     |  |
| Dra  | AI    | S1 | 30  |     | 69  |     |     |     | 29  |     | 69  |     |     |     |     | 28  | 68  |     |     |     |     |     | 28  |     |     |     | 68  |     |     | 27  |     |     |     |  |
| Dra  | BF    |    |     | 55s |     |     |     |     |     | 35  |     |     |     |     |     | 76s |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |     | 77  |  |
| Dra  | BK    | 90 | 52  | 70  | 29  | 48  | 66  | 25  | 44  | 62  | 22  | 40  | 58  | 77  | 36  | 54  | 73  | 32  | 50  | 69  | 28  | 46  |     | 65  | 24  | 43  | 61  | 20+ | 39  | 57  | 75  | 35  | 53  |  |
| Dra  | BU    | ES |     |     |     |     |     | 71  |     | 63s |     |     |     |     |     |     |     | 28s |     |     | 20  |     |     |     |     |     |     |     | 77s |     | 68  |     |     |  |
| Dra  | DD    |    | 31+ | 29+ | 27+ | 25+ | 23+ | 21+ | 26+ | 31+ | 36+ | 41+ | 25+ | 44+ | 42+ | 40+ | 38+ | 36+ | 34+ | 32+ | 30+ | 28+ | 26+ | 38+ | 39+ | 23+ | 28+ | 33+ | 38+ | 22+ | 27+ | 32+ | 37+ |  |
| Dra  | EX    | K1 | 22+ | 27+ | 32+ | 37+ | 21+ | 26+ | 31+ | 36+ | 41+ | 25+ | 30+ | 35+ | 40+ | 24+ | 29+ | 34+ | 39+ | 23+ | 28+ | 33+ | 46  | 38+ | 22+ | 27+ | 32+ | 37+ | 21+ | 26+ | 31+ | 35+ | 19+ |  |
| Dra  | GV    | L1 | 3   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 46  |     |     |     |     |     |     |     |     |     |     |  |
| Equ  | S     | S1 |     |     |     |     |     |     | 34  |     |     |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Eri  | SV    | 90 | 2   | 42  |     | 57  |     |     | 42  |     | 56  |     |     |     |     | 42  | 56  |     |     |     |     | 42  |     |     |     | 41  |     |     |     | 41  |     |     |     |  |
| Gem  | U     | K1 | 3   | 60  | 48+ | 55+ | 61  | 49+ | 55+ | 44+ | 50+ | 56+ | 45+ | 51+ | 57+ | 45+ | 51+ | 58+ | 46+ | 52+ | 41+ | 47+ | 53+ | 41+ | 48+ | 54+ | 42+ | 48+ | 54+ | 43+ | 49+ | 55+ | 44+ |  |
| Gem  | RR    | 90 | 3   | 67  | 46  | 66  | 45  | 64  | 44  | 63  | 42  | 62  | 41  | 60  | 40  | 59  | 38+ | 58  | 37+ | 56  | 36+ | 55  | 74  | 53  | 73  | 52  | 71  | 51  | 70  | 49  | 69  | 48  | 67  |  |
| Gem  | RY    | L1 | 3   |     | 55  |     |     |     |     | 20s |     |     |     |     |     | 85  |     |     |     |     |     |     |     |     |     |     |     |     | 80s |     |     |     |     |  |
| Gem  | WW    | ES |     | 50s | 74s |     | 59  |     | 45s | 69s |     | 54  | 78  | 40s | 64s |     | 49  | 73  | 35s | 59s |     | 45  | 68  |     | 54s | 78s | 40  | 64  |     | 49s | 73s | 35  |     |  |
| Gem  | YY    | S1 |     | 59s | 40s | 62  | 44  | 66s | 47s | 69  | 51  | 73s | 54s | 77  | 58  | 39  | 62s | 54s | 65  | 47  | 69s | 50s |     | 72  | 54  | 35+ | 57s | 39+ | 61  | 42  | 64s | 46s | 68  |  |
| JD   | 584   | .. | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  |     |  |

| 2018 | Nov  | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |
|------|------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gem  | V339 | EU | 2 |     |     |     |     |     |     |     |     | 76  |     |     | 64  |     |     | 52  |     |     | 40  |     |     |     |     |     |     |     |     |     |     |     |     |
| Her  | TW   | RR |   | 31  |     | 31  |     | 31  |     | 31  |     | 31  |     | 30  |     | 30  |     | 30  |     |     | 30  |     | 29  |     | 29  |     | 29  |     | 29  |     | 29  |     |     |
| Her  | TX   | S1 |   |     |     |     | 21s | 24  | 27s | 30  | 33s | 36  |     |     |     |     |     |     |     |     |     |     | 72  | 75s | 78  |     |     |     |     |     |     |     |     |
| Her  | UX   | ED |   |     |     |     | 28s |     |     |     |     |     |     | 25  |     |     |     |     |     |     | 22s |     |     |     |     |     |     | 19  |     |     |     |     |     |
| Her  | VX   | RR |   | 22  |     |     |     |     | 23  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Her  | VZ   | 90 |   |     | 25  |     |     | 34  | 22  |     |     | 30  |     |     | 26  |     |     | 78  | 22  |     |     | 75  |     |     | 27  |     |     | 79  | 23  |     |     |     |     |
| Her  | AK   | S1 |   |     | 25s |     |     |     | 25  |     |     |     | 26s |     | 21s |     |     |     |     | 21  |     |     | 22s |     |     |     | 22  |     |     |     |     |     |     |
| Her  | AR   | 90 |   |     |     |     | 30+ | 24+ |     |     |     |     |     |     | 29+ | 23+ |     |     |     |     |     | 28+ | 22+ |     |     |     |     |     | 27+ | 21+ |     |     |     |
| Her  | AW   | L1 |   |     |     |     |     |     |     | 00  |     |     |     |     |     |     |     | 80  |     |     |     |     |     |     |     |     | 60  |     |     |     |     |     |     |
| Her  | DI   | L1 |   | 43s |     | 85  |     |     |     |     |     |     |     | 98s |     | 40  |     |     |     |     |     |     |     | 53s |     | 95  |     |     |     |     |     |     |     |
| Her  | GU   | EU |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 23  |     |     |     |     |     | 74s |     |     |     |     |     |
| Her  | LV   |    |   |     |     | 10  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 54  |     |     |     |     |     |     |     |     |     |     |     |
| Her  | MM   | ES |   |     |     | 23s |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Hya  | SZ   | 90 | 2 | 70  | 77  |     |     |     | 61  | 68  | 76  |     |     |     |     | 59  | 67  | 74  |     |     |     | 58  | 65  | 73  |     |     |     | 56  | 63  | 71  |     |     |     |
| Hya  | WZ   | 90 | 2 |     |     |     |     |     | 71  |     |     |     |     |     |     | 70  | 78  |     |     |     |     | 69  | 77  |     |     |     |     | 68  | 76  |     |     |     |     |
| Hya  | AI   | L1 |   | 44s |     |     |     |     | 3   |     |     | 73s |     |     |     |     | 32  |     |     |     | 2s  |     |     | 61  |     |     |     | 31s |     |     |     |     |     |
| Hya  | ET   | 90 | 2 |     |     |     |     |     |     |     | 63  |     | 69  |     | 75  |     |     |     |     |     |     | 60  |     | 66  |     | 72  |     |     |     |     |     |     |     |
| Lac  | RW   | L1 |   |     |     |     | 51s |     |     |     |     | 76  |     |     |     |     | 88s |     |     |     |     | 13  |     |     |     |     | 25s |     |     |     |     |     |     |
| Lac  | SW   | S1 |   | 34+ | 31+ | 27+ | 23+ | 35+ | 31+ | 28+ | 24+ | 36+ | 32+ | 29+ | 25+ | 21+ | 33+ | 29+ | 26+ | 22+ | 34+ | 30+ | 27+ | 23+ | 35+ | 31+ | 27+ | 24+ | 20+ | 32+ | 28+ | 25+ | 21+ |
| Lac  | UW   | ES |   |     |     |     | 18  |     |     |     |     | 47  |     |     |     |     | 76  |     |     |     |     | 5   |     |     |     |     | 34  |     |     |     |     |     |     |
| Lac  | CO   | EX |   | 50  | 24s |     | 59  | 33s | 67  | 41s | 21  |     | 50s | 30  |     | 58s | 38  |     | 67s | 47  | 21s | 55  | 29s |     | 63  | 38s |     | 46s | 26  |     |     |     |     |
| Lac  | CZ   | 90 |   | 22  | 51  | 38  | 24  | 54  | 40  | 27  | 56  | 43  | 29  | 59  | 45  | 31  | 61  | 48  | 34  | 20  | 50  | 36  | 23  | 52  | 39  | 25  | 55  | 41  | 28  | 57  | 44  | 30  |     |
| Lac  | V345 | EX |   |     |     |     | 57  |     |     | 22s |     |     |     |     | 6   | 71s |     |     |     |     |     | 55  |     | 20s |     |     |     | 5   |     | 70s |     |     |     |
| Lac  | V364 | EX |   |     |     |     | 48s |     |     |     |     |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     |     | 53s |     |     |     |     |     |     |
| Leo  | RR   | RR |   |     | 77  | 68  | 58  |     |     | 75  | 65  | 56  |     |     | 72  | 63  | 53  |     |     |     | 70  | 61  | 51  |     | 77  | 68  | 58  | 49  |     | 75  | 65  | 56  | 46  |
| Leo  | SS   | RR | 3 |     | 75  |     |     |     | 76  |     |     |     |     | 77  |     | 65  |     |     | 78  |     | 66  |     |     |     |     | 67  |     |     | 68  |     |     |     |     |
| Leo  | ST   | RR | 2 | 71  | 67  |     |     |     |     |     |     |     | 75  | 71  | 66  | 62  |     |     |     |     |     |     | 75  | 70  | 66  | 61  |     |     |     |     |     |     |     |
| Leo  | WY   | ES |   |     |     | 70  |     |     |     |     | 69  |     |     |     |     | 68  |     |     |     |     | 66  |     |     |     |     | 65  |     |     |     | 63  |     |     |     |
| Leo  | AG   | ES |   |     |     |     | 66s |     |     |     | 75  |     |     |     |     |     |     | 53  |     |     |     | 62s |     |     |     |     | 71  |     |     |     |     |     |     |
| Leo  | AM   | S1 |   |     | 71  | 63s | 73s | 64  | 74  | 65s | 75s | 67  | 76  | 68s | 59+ | 69  | 60s | 70s | 62  | 71  | 63s | 72s | 64  | 74  | 65s | 57+ | 66  | 58+ | 67s | 59+ | 69  | 60+ | 70s |
| Leo  | FM   | EU | 3 |     |     |     |     |     | 49  |     |     |     |     |     |     |     |     |     |     |     | 49  |     |     |     |     |     |     | 64  |     |     |     |     |     |
| Lyn  | TY   | ES |   |     |     |     |     |     |     | 69  |     |     |     |     |     | 51s |     |     |     |     |     |     | 34  |     | 61s |     |     |     |     |     |     | 44  |     |
| Lyn  | CD   | ES |   |     |     |     | 41s |     |     | 29  | 43  |     |     | 26  | 40  |     | 23  | 36  |     |     |     | 20  | 33  |     |     | 30  |     |     |     | 27  | 40  |     |     |
| Lyr  | RR   | RR |   |     | 33  | 46  |     |     |     |     |     |     |     | 21  | 23  | 25  | 28  | 30  | 32  | 34  |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Lyr  | RZ   | 90 |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Lyr  | UZ   | S1 |   |     |     |     |     |     |     | 43s | 38  | 32s | 27  | 21s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 34s | 29  | 23s |     |     |
| Lyr  | CN   | 90 |   |     | 22  |     | 28  | 34  |     |     | 22  |     |     | 27  | 33  |     |     | 21  |     | 27  |     | 33  |     |     | 20  |     | 26  |     | 32  |     |     | 20  |     |
| Lyr  | EZ   | RR |   | 25  | 30  | 35  | 40  |     |     |     |     |     |     | 23  | 28  | 33  | 38  |     |     |     |     |     | 21  | 26  | 31  | 36  |     |     |     |     |     |     |     |
| Lyr  | IO   | 90 | 3 |     |     |     | 32  |     | 21  | 36  |     |     |     | 25  |     |     | 29  |     |     |     |     | 33  |     |     |     |     | 25  |     |     |     |     | 29  |     |
| JD   | 584  | .. |   | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  |

| 2018 | Nov   | P    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |     |    |     |  |
|------|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|--|
| Lyr  | beta  | S1   | 32  |     |     |     |     | 79s |     |     |     |     |     |     |     | 26  |     |     |     |     |     | 73s |     |     |     |     |     | 20  |     |     |     |     |     |     |    |     |  |
| Mon  | UX    | ES 2 |     | 94s |     |     | 89  |     |     | 84s |     |     | 80  |     |     | 75s |     |     | 70  |     |     | 65s |     | 60  |     |     | 56s |     |     | 51  |     |     |     |     |    |     |  |
| Mon  | VV    | ES 2 |     |     | 9   |     |     | 11s |     |     | 14  |     |     | 16s |     |     | 19  |     |     | 21s |     |     | 24  |     | 26s |     |     | 29  |     |     | 31s |     |     |     |    |     |  |
| Mon  | AQ    | ES 2 |     |     |     |     | 75s |     |     |     | 57  |     |     |     |     | 66  |     |     |     |     |     |     |     |     | 57s |     |     |     | 66s |     |     |     |     |     |    |     |  |
| Mon  | AR    | L1 1 |     |     |     |     | 4\  | 74/ |     |     |     |     |     |     |     |     | 65\ | 50  | 34/ |     |     |     |     |     |     |     | 25\ | 95/ |     |     |     |     |     |     |    |     |  |
| Mon  | AT    | ES 2 | 57  |     | 60  |     | 63  |     | 66  |     | 69  |     | 72  |     | 75  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Mon  | AV    | ES 2 |     |     |     | 15s |     |     | 62  |     |     |     | 9s  |     |     | 57  |     |     |     | 4s  |     |     | 51  |     | 99s |     |     |     | 46  |     |     |     |     |     |    |     |  |
| Mon  | EZ    | EU 3 | 58  | 71s |     | 59  | 72s |     | 60  | 73s |     | 61  | 74s | 49s | 62  | 75s | 50s | 63  |     | 51s | 64  |     | 52s | 64  | 53s | 65  |     | 53s | 66  |     | 54s |     |     |     |    |     |  |
| Mon  | IL    | ES 2 |     |     |     | 92  |     |     |     | 95  |     |     |     | 97  |     |     |     |     |     |     |     |     |     |     |     | 5   |     |     |     | 8   |     |     |     |     |    |     |  |
| Mon  | V448  | ES   |     |     | 56  | 68  |     |     | 47s | 59s | 71s |     |     | 51  | 62  | 74  |     |     | 54s | 66s |     |     | 45  | 57  | 69  |     |     | 49s | 61s | 72s |     | 40  |     |     |    |     |  |
| Mon  | V530  | EU 3 | 59s | 64s | 69s | 48+ | 53  | 58  | 63  | 68  | 47+ | 52s | 57s | 62s | 67s | 46+ | 51+ | 56  | 61  | 67  | 45+ | 50+ | 56s | 61s | 66s | 45+ | 50  | 55  | 60  | 65  | 44+ | 49s |     |     |    |     |  |
| Mon  | V536  |      |     | 72  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 65s |     |     |     |     |     |     |     |     |     |    |     |  |
| Mon  | V634  | EU   |     |     | 59  |     | 71  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 50  |     | 62  |     | 73  |     |     |     |     |     |     |     |     |    |     |  |
| Oph  | RZ    | L1 2 |     |     |     |     |     |     |     |     |     |     |     |     | 39\ |     |     |     |     |     |     | 63  |     |     |     |     | /   | 87/ |     |     |     |     |     |     |    |     |  |
| Ori  | Z     | ES 2 | 10  |     |     |     |     | 30  |     |     |     |     | 51  |     |     |     |     | 71  |     |     |     |     | 91  |     |     |     |     |     | 12  |     |     |     |     |     |    |     |  |
| Ori  | BM    | ES   |     |     |     |     | 14  |     |     |     |     |     | 61  |     |     |     |     |     |     | 8   |     |     |     |     | 55  |     |     |     |     |     |     |     |     |     |    |     |  |
| Ori  | CP    | ES 2 |     |     |     |     | 54  |     |     |     |     | 86  |     |     |     |     |     | 18  |     |     |     |     | 50  |     |     |     |     | 82  |     |     |     |     |     |     |    |     |  |
| Ori  | DN    | L1 2 | 2   |     |     |     |     |     |     |     |     |     |     |     | 99  |     |     |     |     |     |     |     |     |     |     |     |     | 95  |     |     |     |     |     |     |    |     |  |
| Ori  | EW    | EX   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 67s |     |     |     |     |     |    |     |  |
| Ori  | FO    | L1 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 19  |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Ori  | FT    | EX   |     |     |     |     |     |     |     |     |     | 40  |     |     |     | 51s | 55  |     | 66s |     |     | 70  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Ori  | GG    | EX   |     |     |     | 61  |     |     |     | 45s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     |     |     |    |     |  |
| Ori  | V536  | ES 2 |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     |     | 55  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Ori  | V1031 | ES 2 |     |     |     |     | 67s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 51s |     |     |     |    |     |  |
| Peg  | U     | S1   | 40s | 34+ | 28+ | 21+ | 34+ | 27+ | 21+ | 34+ | 27+ | 21+ | 48s | 33+ | 27+ | 21+ | 33+ | 27+ | 21+ | 33+ | 27+ | 20+ | 33+ | 27+ | 20+ | 33+ | 27+ | 20+ | 33+ | 27+ | 20+ | 32  | 26+ | 20+ | 32 | 26+ |  |
| Peg  | VV    | RR   | 36  | 34  | 31  | 29  | 27  | 24  | 22  |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  | 43  | 41  |     | 38  | 36  | 34  | 31  | 29  |     |     |     |    |     |  |
| Peg  | VW    |      |     |     | 54s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 90  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Peg  | AV    | RR   | 47  | 25  | 42  |     | 38  |     | 33  |     | 28  | 45  | 23  | 40  |     | 35  |     |     |     | 31  |     | 26  | 43  | 21  |     | 38  |     | 33  |     | 29  |     |     |     |     |    |     |  |
| Peg  | AW    | L1   |     |     |     | 15s |     |     |     |     | 46  |     |     |     |     | 77s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39s |     |     |     |    |     |  |
| Peg  | BH    | 90   | 43  |     | 35  |     | 27  |     |     |     | 48  |     |     |     |     |     | 40  |     |     |     | 45  |     | 37  |     |     |     |     | 42  |     | 35  |     |     |     |     |    |     |  |
| Peg  | BK    | ES   |     | 29  |     |     |     |     |     |     |     | 52s |     |     |     |     | 27  |     |     |     |     |     |     | 50s |     | 24  |     |     |     |     |     |     |     |     |    |     |  |
| Peg  | CG    | 90   |     | 50  | 43  | 37  | 30  | 24  |     |     |     | 44  | 37  | 31  | 24  |     |     |     |     | 45  | 38  | 32  | 25  |     |     |     |     | 32  | 26  | 19  |     |     |     |     |    |     |  |
| Peg  | DF    | L1   |     |     |     |     |     |     |     |     |     |     | 74  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 44  |     |     |     |     |     |     |    |     |  |
| Peg  | DH    | RR 3 | 44  | 46  | 22  | 25  | 27  | 29  | 31  | 34  | 36  | 38  | 40  | 42  |     | 21  | 23  | 26  | 28  | 30  | 32  | 34  |     |     |     |     | 37  | 39  | 41  |     | 20  |     |     |     |    |     |  |
| Peg  | GH    | ES   |     | 24  |     |     |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     |     | 30s |     |     |     |     | 41s |     |     | 24  |     |     |     |     |    |     |  |
| Peg  | IP    | K1   | 25+ | 36+ | 31+ | 26+ | 36+ | 31+ | 26+ | 21+ | 32+ | 27+ | 22+ | 32+ | 27+ | 22+ | 33+ | 28+ | 23+ | 34+ | 28+ | 23+ |     |     |     |     | 34+ | 29+ | 24+ | 19+ | 30+ |     |     |     |    |     |  |
| Per  | RW    | L1 2 |     |     | 51  |     |     |     |     | 35  |     |     |     |     |     |     | 21  |     |     |     |     | 71  |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Per  | RY    | ES   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| Per  | AG    | EX   | 64  | 61s | 67  | 64s | 70  | 67s | 73  | 70s | 76  | 72s |     |     |     |     |     | 75s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |  |
| JD   | 584   | ..   | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  |     |     |    |     |  |



| 2018 | Nov   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  |     |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Per  | AR    | 90 | 62  | 47  | 32+ | 60  | 45  | 30+ | 58  | 43  | 28+ | 56  | 41  | 26+ | 54  | 39  | 24+ | 51  | 37  | 22+ | 49  | 34+ | 20+ | 47  | 32+ | 60  | 45  | 30+ | 58  | 43  | 28+ | 56  |     |  |
| Per  | AY    | L1 |     |     |     |     |     |     | 87  |     |     |     |     |     |     |     |     |     |     |     | 65  |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Per  | IQ    |    | 50s | 47  | 25s | 21  |     | 74s | 70  | 48s | 44  | 22s |     |     | 71s | 67  | 45s | 41  | 20s |     | 68s |     | 65  | 43s | 39  |     |     | 66s | 62  | 40s | 36  |     |     |  |
| Per  | KN    | EU | 35  | 22+ | 52s | 39s | 25+ | 55  | 42  | 29+ | 59s | 45s | 32+ | 62  | 49  | 35  | 22+ | 52s | 38s | 25+ | 55  | 42  | 28+ | 58s | 45s | 32s | 62  | 48  | 35  | 22+ | 51s | 38s |     |  |
| Per  | LX    | L1 |     |     | 27s |     |     |     | 29  |     |     |     | 31s |     |     |     | 33  |     |     |     | 35s |     |     | 36  |     |     |     | 38s |     |     |     |     |     |  |
| Per  | beta  | S1 |     | 53s |     | 40s |     |     | 27s | 70  |     |     | 57  |     |     | 43  |     |     | 30  | 74s |     |     | 60s |     | 47s |     |     | 34s |     |     |     |     |     |  |
| Psc  | RU    | 90 | 35  | 52  | 30  | 47  | 26  | 43  | 21+ | 38  | 55  | 33  | 50  | 28  | 45  | 23  | 41  | 58  | 36  | 53  | 31  | 48  | 26  | 43  | 21  | 38  | 56  | 34  | 51  | 29  | 46  | 24  |     |  |
| Psc  | RY    | 90 | 2   | 39  | 45  | 51  |     |     | 22  | 28  | 34  | 40  | 45  |     |     |     |     | 22  | 28  | 34  | 40  | 46  |     |     | 23  |     | 29  | 35  | 41  |     |     |     |     |  |
| Psc  | SS    | 90 |     | 49  | 36+ | 22+ | 37  | 23+ | 38  | 25+ | 40  | 26+ | 41  | 28+ | 43  | 29+ | 44  | 31+ | 46  | 32  | 47  | 33  | 20+ | 35  | 21+ | 36  | 23+ | 38  | 24+ | 39  | 26+ | 41  | 27+ |  |
| Sge  | SY    | ES |     |     |     |     |     | 31s |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 23  |     |     |     |     |     |     |     |     | 31  |     |  |
| Ser  | AN    | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 77  |     |     |     |     |  |
| Ser  | BH    | 90 |     |     |     |     |     |     |     |     |     |     | 78  |     |     |     |     |     |     | 73  |     |     | 78  |     |     |     |     |     |     | 73  |     |     |     |  |
| Ser  | EG    | L1 |     |     |     |     | 19  |     |     |     |     | 16s |     |     |     | 14  |     |     |     |     |     | 11s |     |     |     | 8   |     |     |     |     |     | 6s  |     |  |
| Ser  | LX    | K1 |     |     |     |     | 21  |     |     |     |     |     |     | 77  |     |     |     | 78  |     |     |     | 74  |     | 75  |     |     | 76  |     |     | 77  | 72  |     |     |  |
| Sex  | T     | 90 |     | 77  | 74  | 71  | 69  | 66  | 64  | 61  | 58  |     |     |     | 78  | 75  |     |     | 73  | 70  | 68  | 65  | 62  | 60  | 57  | 55  |     | 79  | 77  | 74  | 72  | 69  |     |  |
| Tau  | RW    | S1 | 3   |     |     |     |     |     | 63  |     |     |     | 40  |     |     |     |     |     |     |     | 70  |     |     | 47  |     |     | 24  |     |     |     |     |     |     |  |
| Tau  | CD    | S1 | 3   |     |     |     | 55  |     |     |     | 70s |     | 42  |     |     |     |     | 57s |     |     |     |     | 72  |     | 44s |     |     | 59  |     |     | 31s |     |     |  |
| Tau  | EN    | ES | 2   |     |     |     | 58  |     |     |     | 53  | 77s |     |     |     |     |     |     |     |     |     | 45  | 69s |     | 40  | 64s |     |     |     | 36  | 60s |     |     |  |
| Tau  | V1094 | L1 |     |     | 46s |     |     | 58  |     |     |     |     |     | 45s |     |     |     |     |     |     |     |     | 44s |     | 56  |     |     |     |     |     | 42s |     |     |  |
| Tri  | X     | S1 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 63  | 60  | 57  | 54  | 52  | 49  | 46  | 43  | 40  | 37  | 35  | 32  | 29  |     |  |
| Tri  | RU    | ES | 2   | 52  |     |     |     | 43s |     |     | 69s |     | 33  |     |     | 60  |     | 23s |     |     | 50s |     |     | 40  |     |     |     |     |     |     | 31s |     |     |  |
| Tri  | UX    | 90 |     | 56  | 50  | 43  | 36  | 30  | 23  | 63  | 57  | 50  | 43  | 37  | 30  | 24  | 64  | 57  | 50  | 44  | 37  | 31  | 24  | 64  | 57  | 51  | 44  | 38  | 31  | 24  | 58  | 51  |     |  |
| UMa  | W     | S1 |     | 51+ | 51+ | 51+ | 52+ | 52+ | 35+ | 35+ | 35+ | 35+ | 35+ | 35+ | 36+ | 36+ | 36+ | 36+ | 36+ | 36+ | 36+ | 36+ | 36+ | 36+ | 36+ | 37+ | 37+ | 37+ | 37+ | 37+ | 37+ | 37+ |     |  |
| UMa  | RV    | RR |     | 28+ | 21+ | 62  | 56  |     |     | 77  | 24+ | 64  | 58  | 51  |     |     |     | 26+ | 66  | 60  | 53  |     |     | 75  | 21+ | 62  | 55  | 49  |     |     |     | 77  |     |  |
| UMa  | RW    | ES |     |     |     |     |     |     | 53s |     |     |     |     |     |     |     |     |     |     |     |     | 52  |     |     |     |     |     |     |     |     |     | 51s |     |  |
| UMa  | TU    | RR |     | 69  |     |     | 60  | 71  |     |     |     | 61  | 73  |     |     | 63  |     | 75  |     |     | 54  | 65  | 77  |     | 56  | 67  | 79  |     |     | 58  | 69  |     |     |  |
| UMa  | TX    | S1 | 3   | 54  |     |     | 60  |     | 67  |     |     | 73  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| UMi  | W     | S1 | 3   |     | 46  |     |     |     | 56  |     | 26  |     |     | 66  |     | 37  |     |     |     | 77  |     | 47  |     |     |     | 57  | 27  |     |     | 68  |     |     |     |  |
| Vir  | ST    | 90 | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     | 78  |     |     |     |     |     |     | 77  |     |     |     |     |     | 75  |     |     |     |  |
| Vir  | AG    | ED |     |     |     | 76s | 73  | 69s | 66  |     |     |     |     |     | 76s | 73  | 69s | 65  | 62s |     |     |     |     | 76s | 72  | 69s | 65  | 61s |     |     |     | 79  |     |  |
| Vir  | AH    | S1 |     |     |     | 68s | 69  | 71s | 73  | 75s | 77  |     |     |     | 64s | 66  | 68s | 70  | 72s | 74  | 75s | 77  |     |     | 63  | 64s | 66  | 68s | 70  | 72s | 74  | 76s |     |  |
| Vir  | AT    | 90 | 2   |     |     |     |     |     | 77  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 69  | 75  |     |     |     |     |  |
| Vir  | AV    | 90 |     |     |     | 76  |     | 73  |     | 70  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 78  |     |     | 75  |     |     | 72  |     |  |
| Vir  | CG    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 76s |     |  |
| Vul  | Z     | S1 |     |     |     |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Vul  | RR    | ES |     |     |     |     |     |     |     |     |     |     |     | 24  |     |     |     |     | 29  |     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     |  |
| Vul  | BN    | 90 |     | 28  |     |     | 25  |     | 22  |     |     |     | 38  |     |     | 35  |     |     | 32  |     |     | 29  |     | 26  |     |     |     | 23  |     |     | 20  |     |     |  |
| Vul  | DR    | EX |     |     |     |     | 22s |     |     | 37  |     |     |     |     |     | 22s |     |     | 37  |     |     |     |     | 23s |     |     | 38  |     |     |     |     |     |     |  |
| Vul  | EV    | ES |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 27  |     |     |     |     |  |
| JD   | 584   | .. | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  |     |  |

| 2018 | Dez   | P  | 1 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |    |
|------|-------|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| And  | SW    | RR |   |     |     |     | 45  | 33  | 22  |     | 43  | 31  | 20  | 41  | 29  |     |     | 50  | 39  | 27  |     | 49  | 37  | 25  | 47  | 35  | 23  |     | 45  | 33  | 21  |     |     |    |
| And  | SY    | L1 | 1 |     |     |     |     |     |     |     |     | 87\ | 91  | 96/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| And  | TW    | S1 |   |     |     |     |     | 23  |     | 29s |     | 35  |     | 41s | 47  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| And  | XX    | 90 |   |     |     | 35  |     | 52  | 24  |     | 41  |     | 58  | 30  | 47  | 19  |     |     | 36  |     | 53  | 25  |     | 42  |     | 31  |     | 48  | 20  |     | 37  |     |     |    |
| And  | CD    | L1 | 2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 28\ | \   | 35s | /   | 42\ |     |     |    |
| And  | OV    | 90 |   | 38  | 32  | 26  | 20  | 55  | 50  | 44  | 38  | 32  | 26  | 20  | 55  | 50  |     | 44  | 38  | 32  | 26  | 20  |     | 50  | 44  | 38  | 32  | 26  | 20  |     |     |     | 50  |    |
| Aqr  | SW    | RR | 3 | 27  | 19  |     |     |     | 24  |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |     | 24  |     |     |     |     |     | 21  |     |    |
| Aqr  | SX    | 90 |   |     |     | 25  | 32  |     |     |     |     |     | 21  | 28  |     |     |     |     |     |     | 25  |     |     |     |     |     | 21  |     |     |     |     |     |     |    |
| Aqr  | CD    | ES |   |     | 85  |     |     |     |     | 68  |     |     |     | 52  |     |     |     |     |     | 36  |     |     |     | 20  |     |     |     |     | 4   |     |     |     |     |    |
| Aqr  | HH    | 90 | 2 | 28  |     |     | 30  |     |     |     | 32  |     |     | 20  |     |     |     | 22  |     |     |     | 24  |     |     |     | 26  |     |     |     |     |     |     |     |    |
| Aqr  | LL    | L1 | 3 |     |     |     | 24s |     |     |     |     |     |     |     |     | 33  |     |     |     |     |     |     |     |     | 42s |     |     |     |     |     |     |     |     |    |
| Aql  | AA    | RR |   | 26  |     |     |     | 24  |     |     |     | 22  |     |     |     | 20  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Aql  | V341  | 90 | 3 | 25  |     |     |     |     |     | 19  |     |     |     | 24  |     |     |     |     |     |     |     |     |     |     | 22  |     |     |     |     |     |     |     |     |    |
| Aql  | V889  | L1 |   |     |     |     |     | 86  |     |     |     | 80s |     |     |     |     |     | 98  |     |     |     |     | 92s |     |     |     |     |     |     | 10  |     |     |     |    |
| Aql  | V1353 | ES |   |     |     | 29s |     |     |     | 24  |     |     |     | 19s |     |     |     |     |     |     |     |     |     |     |     |     |     | 22  |     |     |     |     |     |    |
| Aql  | V1426 | ES |   | 46  | 5+  | 22+ | 40+ | 16+ | 33+ | 51  | 10+ | 27+ | 45s | 3+  | 21+ | 38+ | 56  | 15+ | 32+ | 50s | 9+  | 26+ | 44  | 2+  | 20+ | 37+ |     |     |     |     |     |     |     |    |
| Aql  | V1430 | ES |   |     | 25s |     |     |     |     |     | 30  |     |     | 26  | 56  | 21  | 51  |     |     |     |     | 37  |     | 33  | 28  |     |     | 23  |     | 19  | 49  |     | 44  |    |
| Ari  | X     | RR | 3 | 49  |     | 44  | 40  |     | 35  |     |     |     |     | 26  | 56  | 21  | 51  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 44 |
| Ari  | RS    | L1 | 2 |     |     |     | 35  |     |     |     |     |     |     |     |     | 15  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 76 |
| Ari  | AL    | ES |   |     |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     |     |     |     | 33  |     |     |     |     |     |    |
| Aur  | TZ    | 90 | 3 | 59  | 37+ | 55  | 33+ | 29+ | 46  | 64  | 42  | 60  | 38+ | 55  | 34+ | 51  | 30+ | 47  | 25+ | 43  | 60  | 39+ | 56  | 35+ | 52  | 30+ | 48  | 26+ | 44  | 22+ | 40+ | 57  | 36+ |    |
| Aur  | CQ    | L1 | 3 |     |     |     | 17s |     |     |     | 48  |     |     |     |     | 79s |     |     |     |     |     | 10  |     |     |     | 41s |     |     |     |     |     |     |     | 72 |
| Aur  | IY    | ES |   | 78  |     | 58  |     |     | 37  |     |     |     |     |     |     | 75  |     |     |     |     | 54  |     | 34  |     |     |     |     |     |     |     |     |     |     | 72 |
| Aur  | V432  | ES |   | 50s |     | 58s |     |     | 66s |     |     | 74s |     | 28  |     | 36  |     |     |     |     | 45  |     | 53  |     | 61  |     |     |     | 69  |     | 23s |     |     |    |
| Boo  | RS    | RR |   | 67  |     |     | 69  |     | 70  |     | 59  |     | 72  | 61  | 74  |     |     | 63  | 76  |     | 65  | 78  |     | 67  | 55  | 69  |     | 57  | 70  |     | 59  |     | 72  |    |
| Boo  | TW    | 90 |   |     | 59  | 66  | 72  | 79  |     |     |     |     | 58  | 64  | 71  | 77  |     |     |     |     |     | 56  | 63  | 69  | 75  |     |     | 54  | 61  | 67  | 74  |     |     |    |
| Boo  | UU    | 90 |   | 66  |     |     | 78  | 69  |     |     |     |     | 72  | 63  |     |     |     | 74  | 66  |     |     |     |     | 77  | 68  | 60  |     | 79  | 71  | 62  |     |     |     |    |
| Boo  | UY    | 90 |   |     |     |     |     |     |     | 77  |     | 72  |     | 68  |     | 63  |     |     |     |     |     |     |     | 79  | 74  |     | 69  |     | 65  |     | 60  |     |     |    |
| Boo  | AC    | ED |   | 58+ | 64  | 70  | 58+ | 70s | 58+ | 63  | 69  | 57+ | 63s | 69s | 57+ | 63  | 68  | 56+ | 62s | 68s | 56+ | 62+ | 67  | 56+ | 61+ | 67s | 55+ | 61+ | 67  | 55+ | 60+ | 66s | 54+ |    |
| Boo  | CM    | 90 |   |     |     |     | 64  |     |     | 69  |     |     | 73  |     | 78  |     |     | 60  |     |     | 65  |     |     | 69  | 74  |     |     | 61+ | 67  | 55+ | 60+ | 66s |     |    |
| Boo  | CQ    | 90 |   | 77  |     | 75  | 72  |     | 69  |     | 67  | 79  |     | 77  |     | 74  |     | 71  |     | 69  |     | 66  |     | 79  | 63  | 76  |     | 73  | 71  |     | 68  |     | 65  |    |
| Boo  | CS    | 90 |   | 75  |     |     | 62  | 73  |     |     |     | 60  | 71  |     |     | 58  |     | 69  |     |     |     |     |     | 67  | 78  |     |     | 65  | 76  |     |     |     |     | 63 |
| Cam  | SS    | ES |   |     | 13s |     | 54  |     | 95s |     |     | 36  |     | 78s |     | 19  |     |     |     | 60s |     | 1   |     | 42s |     | 83  |     |     | 24s |     | 66  |     |     |    |
| Cam  | SV    | S1 |   | 26+ | 44+ | 33+ | 22+ | 30+ | 19+ | 37+ | 26+ | 45+ | 34+ | 23+ | 19+ |     |     | 38+ | 27+ | 45+ | 34+ | 23+ | 42+ | 31+ | 20+ | 39+ | 27+ | 46+ | 35+ | 24+ | 43+ | 32+ | 21+ |    |
| Cam  | AK    | ES | 3 | 69  |     |     |     |     | 26s | 38  | 49s | 60  |     | 72s |     |     |     |     | 28  | 40s | 51  | 62s |     | 74  |     |     |     | 19  | 30s | 42  | 53s | 64  | 76s |    |
| Cam  | AN    |    |   |     |     |     |     |     |     |     | 40s |     |     |     |     | 6   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 40s |    |
| Cam  | AT    | ES |   | 79  | 49s |     | 58  | 67s | 37  | 77  | 47s |     | 56  | 26s | 65s | 35  | 75  | 45s |     | 54  | 24s | 63s | 33  | 73  | 42s |     | 52  | 22s | 61s | 31  | 71  | 40s |     |    |
| Cnc  | S     | L1 | 3 |     |     |     | 92  |     |     |     |     |     |     |     | 41  |     |     |     |     |     |     |     |     |     |     | 89  |     |     |     |     |     |     |     |    |
| Cnc  | RU    | L1 | 2 |     |     |     |     | 45  |     |     |     |     |     |     |     |     |     | 63  |     |     |     |     |     |     |     |     |     | 80  |     |     |     |     |     |    |
| JD   | 584   | .. |   | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84 |

| 2018 | Dez  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Cnc  | RW   | 90 | 61  | 71  |     |     | 44  | 54  | 63  | 72  |     |     | 46  | 56  | 65  | 74  |     | 39  | 48  | 57  | 67  | 76  |     | 40  | 50  | 59  | 69  | 78  |     | 42  | 52  | 61  | 71  |     |  |
| Cnc  | RZ   | L1 | 2   |     |     |     |     | 18\ | 81  | /   | 43/ |     |     |     |     |     |     |     | 1\  | 63s | /   | 25/ |     |     |     |     |     |     | 83\ | \   | 45  | /   | 7/  |     |  |
| Cnc  | TT   | 90 |     | 50  | 62  | 75  |     | 44  | 57  | 70  |     |     | 51  | 64  | 77  |     | 46  | 58  | 71  |     |     | 40  | 53  |     |     | 47  | 60  | 73  |     | 42  | 54  | 67  |     |     |  |
| Cnc  | TU   | ES | 3   |     |     | 95  |     |     |     |     |     | 51  |     |     |     |     | 7   |     |     |     |     |     |     |     |     |     |     | 20  |     |     |     |     | 76  |     |  |
| Cnc  | TW   | L1 | 2   |     |     |     |     | 54\ | 60  | 66/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cnc  | UU   | L1 | 2   |     |     |     |     | \   | \   | \   | \   | \   | \   | \   | \   | \   | \   | \   | 15  | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   | /   |  |
| Cnc  | ZZ   | L1 | 2   |     | 41\ | 44  | 46/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cnc  | AQ   | 90 | 73  |     |     |     | 48  | 57  |     |     | 51  |     | 61  | 70  |     |     | 45  | 54  | 64  | 74  |     |     | 48  | 58  | 67  | 77  |     | 42  | 51  | 61  | 71  |     |     |     |  |
| CVn  | W    | 90 |     | 65  | 76  |     |     |     | 62  | 72  |     |     |     | 58  | 69  | 79  |     |     | 55  | 65  | 76  |     |     |     | 62  | 72  |     |     |     | 58  | 69  | 79  |     |     |  |
| CVn  | Z    | 90 | 70  |     |     | 66  | 63  |     |     |     | 55  |     | 51  |     | 47  | 78  |     | 74  |     | 70  |     | 67  |     |     | 63  | 59  |     | 55  | 51  |     | 48  |     | 78  |     |  |
| CVn  | RS   | S1 |     |     | 76s |     |     |     |     | 55s |     |     |     |     |     | 75  |     |     |     |     |     | 55  |     |     |     |     |     | 74s |     |     |     |     |     |     |  |
| CVn  | RZ   | 90 |     |     | 63  | 76  |     |     | 60  | 74  |     |     | 57  | 71  |     |     | 55  | 68  |     |     |     | 65  |     |     |     | 62  | 76  |     |     | 60  | 73  |     |     |     |  |
| CMa  | R    | S1 | 3   |     |     |     | 51s |     |     |     | 62  |     |     |     | 60s |     |     |     | 57  |     |     |     |     |     | 55s |     |     |     |     |     | 50s |     |     |     |  |
| CMi  | AM   | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  | 41  |     |     |     |     |     |     |     |     |     |     | 62  |  |
| Cas  | RX   | L1 | 2   | /   | /   | /   |     |     |     |     |     |     | \   | \   | \   | \   | 59  | /   | /   | /   | /   |     |     | 43  | 45  | 47  | 49  | 51  | 53  | 54  | 56  | 58  | 60  | 62  |  |
| Cas  | RZ   | S1 |     | 32  | 51  | 71  |     |     |     | 30  | 49  | 69  |     |     |     | 27  | 47  | 66  |     |     |     |     | 25  |     |     |     |     | 44  | 64  |     | 22  | 42  | 62  |     |  |
| Cas  | SX   | L1 | 2   |     |     |     |     |     | 46\ | \   | 29  | /   | 12/ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cas  | TV   | S1 | 28  |     |     |     |     | 71  |     | 53  | 34  |     |     |     |     |     |     |     |     |     | 40  |     |     | 21  |     |     |     |     |     | 47  |     | 28  |     |     |  |
| Cas  | TW   | S1 |     | 55  |     |     | 41  |     |     |     |     |     |     | 55  |     |     | 41  |     |     |     |     |     |     | 55  |     |     | 41  |     |     | 26  | 69  |     |     |     |  |
| Cas  | TX   | ES |     | 51s |     |     | 44s |     |     | 36s |     |     | 29s | 75  |     | 22s | 68  |     |     |     |     | 61  |     | 53  |     |     | 46  |     | 39  |     |     | 31  | 78s |     |  |
| Cas  | AQ   | L1 | 3   | 96\ | \   | 2   | 7/  |     |     | 83\ | 88s | 93/ |     |     |     | 69\ | 74  | 79/ |     |     |     | 55\ |     | 60s | 65/ |     |     | 41\ | 46  | 52/ |     |     |     |     |  |
| Cas  | DN   | ES |     |     |     | 26  | 42s | 57  | 73s |     |     |     | 19  | 35s | 51  | 66s |     |     |     |     |     |     | 28s | 44  | 59s | 75  |     |     | 22s | 37  | 53s | 68  |     |     |  |
| Cas  | GG   | ES |     |     |     | 70  |     |     |     | 46  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 49  |     |     |     | 25  |     |     |     |     |  |
| Cas  | GU   | EU | 53  |     |     | 62  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 27  |     |     | 37  |     |     |  |
| Cas  | IL   | ES |     |     |     |     |     | 42  |     |     |     |     |     |     | 33  |     |     | 78  |     |     |     |     |     |     |     | 68  |     |     |     |     |     |     | 59  |     |  |
| Cas  | IT   | EX |     |     |     |     |     |     |     |     |     |     |     |     | 58  |     |     |     | 47  |     |     |     |     | 37  |     | 52s | 27  |     | 42s |     |     |     | 31s |     |  |
| Cas  | OX   | EX |     |     |     | 32s | 62  |     |     |     | 29s | 60  | 78s |     |     | 27s | 58  | 76s |     |     | 25s | 56  |     | 74s |     | 23s | 54  | 72s |     | 21s | 52  |     | 70s |     |  |
| Cas  | PV   | EX |     |     |     | 68s | 51  | 43s | 26  |     | 76  |     |     | 51  | 43s | 26  |     |     | 76  |     |     | 51  | 43s |     | 27  |     | 77  | 52  | 43s | 27  | 19s |     | 77  |     |  |
| Cas  | V368 | ES |     |     | 38  |     | 60s |     |     |     |     |     |     |     | 28  |     | 51s | 73  |     |     |     |     |     |     |     | 41s |     | 64  |     |     |     |     |     |     |  |
| Cas  | V375 | ED | 62s | 35  |     | 56s | 30  | 77  | 51s | 25  | 72  | 46s | 19  | 67  | 40s | 61  |     | 35s |     | 56  | 30s | 77s | 51  | 24s | 72s | 45  | 19s | 66s | 40  |     | 61s | 35  |     |     |  |
| Cas  | V381 | EX | 50  | 31s | 24  |     |     |     | 54s | 48  | 29s | 23  |     |     |     | 53s | 46  | 27s | 21  |     |     |     | 51s | 45  | 26s | 19  |     |     | 50s | 43  | 24s |     |     |     |  |
| Cas  | V459 | L1 |     |     |     | 79s |     |     |     | 8   |     |     |     |     |     | 24s |     | 54  |     |     |     |     |     |     |     |     |     |     |     |     | 16s |     |     |     |  |
| Cep  | RZ   | 90 | 37+ | 30+ | 22+ | 46+ | 38+ | 31+ | 23+ | 47+ | 39+ | 32+ | 25+ | 48+ | 41+ | 33+ | 26+ | 49  | 42+ | 34+ | 27+ | 20+ |     | 43+ | 36+ | 28+ | 21+ | 44+ | 37+ | 29+ | 22+ | 45+ | 38+ | 31+ |  |
| Cep  | VW   | S1 | 32+ | 29+ | 26+ | 24+ | 21+ | 19+ | 30+ | 27+ | 25+ | 22+ | 20+ | 31+ | 28+ | 26+ | 23+ | 21+ | 32+ | 29+ | 27+ | 24+ |     | 22+ | 19+ | 30+ | 28+ | 25+ | 22+ | 20+ | 31+ | 29+ | 26+ | 23+ |  |
| Cep  | XX   | S1 | 75  |     |     |     |     | 43  |     | 76  |     |     |     |     | 44  |     | 78  |     |     |     |     |     |     |     |     | 79  |     |     | 46  |     |     |     |     |     |  |
| Cep  | XY   | ES | 63  |     |     | 40  |     |     |     |     |     |     |     | 73  |     | 50  |     |     |     |     |     | 28  |     |     |     |     |     |     | 60  |     |     | 37  |     |     |  |
| Cep  | ZZ   | S1 |     | 51  |     | 65  |     | 79  |     |     |     |     |     |     | 22  |     | 36  |     |     |     |     |     |     | 79  |     |     |     |     |     | 21  |     |     | 35  |     |  |
| Cep  | AI   | ES |     |     |     |     |     |     |     |     |     |     |     |     | 25s |     | 36  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Cep  | CW   | EX |     |     | 55  |     |     | 28  | 56s |     |     | 29s | 74  |     |     | 47  | 75s |     | 20  | 48s |     |     |     | 20s | 66  |     | 39  | 66s |     |     |     | 39s |     |     |  |
| JD   | 584  | .. | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  |     |  |



| 2018 | Dez  | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |     |
|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dra  | BF   |    |     |     |     |     |     |     |     |     |     |     | 98  |     |     |     |     | 40s |     |     |     |     |     | 19  |     |     |     |     | 61s |     |     |     |     |     |     |
| Dra  | BK   | 90 | 71  | 31  | 49  | 67  | 27  | 45  | 64  | 23  | 41  | 60  | 19+ | 37  | 56  | 74  | 33  | 52  | 70  | 29  | 48  | 66  | 25  | 44  | 62  | 21  | 40  | 58  | 77  | 36  | 54  | 73  | 32  |     |     |
| Dra  | BU   | ES | 60s |     | 51  |     |     |     |     |     |     | 25s |     |     |     |     |     |     |     |     |     | 74s | 65  |     | 57s |     | 48  |     |     |     |     |     |     |     |     |
| Dra  | DD   | 90 | 37+ | 35+ | 33+ | 31+ | 29+ | 27+ | 25+ | 24+ | 22+ | 20+ | 50  | 48  | 46+ | 44+ | 42+ | 41+ | 39+ | 37+ | 35+ | 33+ | 31+ | 29+ | 27+ | 25+ | 23+ | 21+ | 19+ | 50  | 48  | 46+ | 44+ |     |     |
| Dra  | EX   | K1 | 24+ | 29+ | 34+ | 39+ | 23+ | 28+ | 33+ | 38+ | 22+ | 27+ | 32+ | 37+ | 21+ | 26+ | 31+ | 36+ | 20+ | 25+ | 30+ | 35+ | 19+ | 24+ | 29+ | 34+ | 39+ | 23+ | 28+ | 33+ | 38+ | 22+ | 27+ |     |     |
| Dra  | GV   | L1 | 3   |     |     |     |     |     |     |     |     |     | 31  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Equ  | S    | S1 |     |     |     |     |     | 26  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Eri  | SV   | 90 | 2   | 41  |     |     |     | 40  |     |     |     |     | 40  |     |     |     |     | 40  |     |     |     | 25  |     |     |     | 25  |     |     | 39  |     |     | 25  |     |     |     |
| Gem  | U    | K1 | 3   | 50+ | 38+ | 44+ | 51+ | 39+ | 45+ | 51+ | 40+ | 46+ | 52+ | 40+ | 47+ | 35+ | 41+ | 47+ | 36+ | 42+ | 48+ | 37+ | 43+ | 49+ | 37+ | 43+ | 32+ | 38+ | 44+ | 33+ | 45+ | 33+ | 39+ |     |     |
| Gem  | RR   | 90 | 3   | 47  | 66  | 45  | 65  | 44  | 63  | 43  | 62  | 41  | 60  | 40  | 59  | 39+ | 58  | 37+ | 56  | 36+ | 55  | 35+ | 54  | 33+ | 52  | 32+ | 51  | 30+ | 50  | 29+ | 48  | 28+ | 47  | 26+ |     |
| Gem  | RY   | L1 | 3   | 46  |     |     |     | 11s |     |     |     | 76  |     |     |     |     | 41s |     |     |     |     | 6   |     |     |     | 71s |     |     |     |     | 36  |     |     |     |     |
| Gem  | SV   | ES | 1   |     | 29  |     |     | 30  |     |     |     | 31  |     |     |     | 31  |     |     |     |     |     | 32  |     |     |     | 32  |     |     | 33  |     |     | 34  |     |     |     |
| Gem  | SZ   | 90 | 3   |     |     |     |     |     |     |     | 36  | 36  | 37  | 37  | 37  | 37  | 37  | 38  | 38  | 38  | 38  | 39  | 39  | 39  | 39  | 40  | 40  | 40  | 40  | 41  | 41  |     | 41  |     |     |
| Gem  | WW   | ES |     | 59  |     | 44s | 68s | 30  | 54  |     | 39s | 63s | 49  | 73  | 35s | 58s |     | 44  | 68  | 30s | 53s |     | 39  | 63  | 25s | 49s | 34  | 58  |     | 44s | 68s |     | 29  |     |     |
| Gem  | YY   | S1 |     | 49  | 72s | 53s | 34+ | 57  | 38+ | 60s | 42s | 64  | 45  | 67s | 49s | 30+ | 52  | 34+ | 56s | 37+ | 59  | 41  | 63s | 44s | 67  | 48  | 29+ | 52s | 33+ | 55  | 37+ | 59s | 40s | 62  |     |
| Gem  | V339 | EU | 2   |     |     |     |     | 68  |     |     | 56  |     |     |     | 44  |     | 32  |     |     |     |     |     |     |     |     |     |     |     |     |     | 72  |     |     |     |     |
| Her  | TW   | RR |     | 28  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Her  | TX   | S1 |     |     |     |     |     |     |     |     | 19  | 22s | 25  |     |     |     |     |     |     |     |     |     |     |     |     | 64s | 67  | 70s | 73  | 76s | 79  |     |     |     |     |
| Her  | UX   | ED |     |     |     |     |     |     |     |     |     |     |     |     |     | 78  |     |     |     |     |     |     | 75s |     |     |     |     |     |     |     |     |     |     |     |     |
| Her  | VX   | RR |     |     |     |     |     | 74  |     |     |     |     |     |     | 75  |     |     |     |     | 76  |     |     |     |     | 77  |     |     |     | 78  | 69  |     |     |     |     |     |
| Her  | VZ   | 90 |     | 76  | 20  |     |     | 72  |     |     |     | 24  |     |     | 76  | 20  |     |     | 73  |     |     |     | 69  |     |     | 77  | 65  |     |     | 73  |     |     |     |     |     |
| Her  | AK   | S1 |     |     |     |     |     |     |     |     |     | 76s |     |     | 77  |     |     |     |     |     |     |     | 72s | 78  |     | 73  | 78s |     |     | 73s | 78  |     |     |     |     |
| Her  | AR   | 90 | 62  |     |     |     |     | 79  | 26+ | 20+ | 61  |     |     |     | 78  | 72  |     | 19+ | 60  |     |     |     |     |     | 77  | 71  | 65  | 59  |     |     | 76  |     | 70  |     |     |
| Her  | AW   | L1 |     |     |     |     | 40  |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     |     |     | 0   |     |     |     |     |     |     | 80  |     |     |
| Her  | DI   | L1 |     |     |     | 8s  |     | 50  |     |     |     |     |     |     | 63s |     |     |     | 5   |     |     |     |     |     |     |     | 18s |     | 60  |     |     |     |     |     |     |
| Her  | GU   | EU |     |     |     |     |     |     |     |     |     |     | 77s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Her  | LV   |    |     |     |     |     |     |     |     |     |     | 98  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 41  |     |     |     |     |     |
| Hya  | SZ   | 90 | 2   |     |     |     | 54  | 62  | 69  |     |     |     |     | 53  | 60  | 68  |     |     |     |     |     | 51  | 59  | 66  |     |     | 50  | 57  | 64  |     |     |     |     |     |     |
| Hya  | WZ   | 90 | 2   |     |     | 60  | 67  | 75  |     |     |     |     | 59  | 66  | 74  |     |     |     |     |     |     | 58  | 66  | 73  |     |     | 65  | 72  |     |     |     |     |     |     |     |
| Hya  | AI   | L1 | 90  |     |     |     | 60s |     |     |     |     | 19  |     |     | 89s |     |     |     |     |     |     | 48  |     |     | 18s |     | 77  |     |     |     | 47s |     |     |     |     |
| Hya  | ET   | 90 | 2   | 57  |     | 63  | 68  |     |     |     |     |     | 54  |     | 60  |     |     | 65  |     |     |     |     |     |     | 51  |     | 62  |     |     |     |     |     |     |     |     |
| Lac  | RW   | L1 |     | 50  |     |     |     | 62s |     |     |     |     | 87  |     |     |     |     | 99s |     |     |     |     |     |     | 24  |     |     | 36s |     |     |     |     |     |     |     |
| Lac  | SW   | S1 |     | 33+ | 29+ | 25+ | 22+ | 34+ | 30+ | 26+ | 23+ | 19+ | 31+ | 27+ | 24+ | 20+ | 32+ | 28+ | 24+ | 21+ | 33  | 29+ | 25+ | 22+ | 22+ | 34s | 30s | 26+ | 22+ | 19+ | 31  | 27+ | 23+ | 20+ | 32s |
| Lac  | UW   | ES |     | 63  |     |     |     | 92  |     |     |     |     |     | 21  |     |     |     |     |     |     | 50  |     |     |     | 79  |     |     | 8   |     |     |     |     |     |     |     |
| Lac  | CO   | EX |     | 55s | 34  |     | 43  |     |     |     | 51  | 26s |     |     |     | 42s |     | 22  |     |     | 51s | 31  |     |     | 39  |     | 48  | 22s | 76s |     | 30s |     |     |     |     |
| Lac  | CZ   | 90 | 46  | 33  | 19  | 49  | 35  | 21  | 51  | 37  | 24  | 53  | 40  | 26  |     | 42  | 29  |     | 45  | 31  |     | 47  | 34  | 20  | 50  | 36+ | 22  | 39  | 25  |     | 41  |     | 27  |     |     |
| Lac  | V345 | EX |     |     |     | 54  |     |     |     | 19s |     |     |     | 3   |     | 68s |     |     |     |     |     | 52  |     |     | 17s |     |     | 1   |     | 66s |     |     |     |     |     |
| Lac  | V364 | EX |     |     |     |     |     |     |     |     |     |     | 23s |     |     |     |     |     |     |     |     |     |     |     | 21  |     |     |     |     |     |     |     |     |     |     |
| Leo  | RR   | RR |     | 72  | 63  | 53  |     | 70  | 61  | 51  |     |     | 77  | 68  | 58  | 49  |     | 75  | 65  | 56  | 46  |     | 73  | 63  | 54  | 44  | 70  | 61  | 51  | 42  | 77  |     | 68  |     |     |
| JD   | 584  | .. | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  |     |     |

| 2018 | Dez   | P  | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |
|------|-------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leo  | SS    | RR | 3  |     |     |     | 69  |     |     |     |     | 70  | 58  |     |     | 72  |     | 59  |     |     |     | 73  | 61  |     |     | 74  | 62  |     |     | 75  |     | 63  |     |     |
| Leo  | ST    | RR | 2  |     | 78  | 74  | 69  | 65  | 61  | 56  |     |     |     |     | 78  | 73  | 69  | 64  | 60  | 56  |     |     |     |     | 77  | 73  | 68  | 64  | 59  | 55  | 51  |     |     |     |
| Leo  | WY    | ES |    |     |     |     | 62  |     |     |     | 61  |     |     |     |     | 59  |     |     |     |     |     | 58  |     |     | 56  |     |     |     |     | 55  |     |     |     |     |
| Leo  | AG    | ES |    |     |     | 50  |     |     |     |     |     | 58s |     |     |     | 67  |     |     |     |     |     | 76s |     |     |     | 55s |     |     |     |     | 64  |     |     |     |
| Leo  | AM    | S1 | 61 | 71  | 62s | 54+ | 64  | 55+ | 65s | 56+ | 66  | 58+ | 67s | 59+ | 68  | 60+ | 51+ | 61+ | 53+ | 62s | 54+ | 63  | 55+ | 65s | 56+ | 66  | 57+ | 49+ | 58+ | 50+ | 60+ | 51+ | 61+ |     |
| Leo  | FM    | EU | 3  |     |     |     |     |     |     | 74s |     |     |     |     |     | 48  |     |     |     |     |     |     |     |     | 56  |     |     |     |     |     |     |     |     |     |
| Lyn  | TY    | ES |    |     | 48  |     |     |     |     |     |     |     |     |     |     |     | 48  |     |     |     |     |     |     |     |     |     |     |     |     | 47  |     |     |     |     |
| Lyn  | CD    | ES |    |     | 71s |     |     |     |     | 26s |     | 54  |     |     |     |     |     | 36s |     | 63  |     |     |     |     |     | 46s |     |     | 73  |     |     |     |     |     |
| Lyr  | RR    | RR |    |     | 24  | 37  |     |     |     | 20+ | 34  |     |     | 31  |     |     | 27  |     |     |     |     |     |     |     | 21+ |     |     | 74  | 31  |     |     |     | 71  |     |
| Lyr  | RZ    | 90 |    |     | 19  | 21  | 24  | 26+ | 28+ | 30  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 20  | 22+ | 24+ | 78  |     |     |     |     |
| Lyr  | UZ    | S1 |    |     |     |     |     |     |     |     |     |     |     |     |     | 31  |     | 26s | 20  |     |     |     |     |     |     | 77  |     |     |     |     |     |     |     |     |
| Lyr  | CN    | 90 |    |     | 26  |     |     |     | 19  |     | 25  |     |     |     |     | 77  | 19  | 24  |     |     |     |     |     |     |     |     |     | 76  |     |     | 23  |     |     |     |
| Lyr  | EZ    | RR | 19 | 24  | 29  |     |     |     |     |     |     |     |     |     | 22  | 27+ |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Lyr  | IO    | 90 | 3  |     |     |     |     |     |     | 22  |     |     | 26  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 73  |     |     |
| Lyr  | beta  | S1 |    |     |     | 67s |     |     |     |     |     | 14  |     |     |     |     |     | 61s |     |     |     |     |     |     |     | 8   |     |     |     |     | 55s |     |     |     |
| Mon  | UX    | ES | 2  |     | 46s |     | 41  |     |     |     | 37s |     | 32  |     |     | 27s |     |     | 22  |     |     | 17s |     |     |     | 13  | 8s  |     |     | 3   |     | 98s |     |     |
| Mon  | VV    | ES | 2  |     |     | 34  |     | 36s |     |     | 39  |     |     |     | 41s |     | 44  |     |     |     |     | 46s |     |     | 49  |     | 52s | 54  |     |     | 57s |     |     |     |
| Mon  | AQ    | ES | 2  |     | 48  |     |     |     |     | 57  |     |     |     |     | 66  |     |     | 48s |     |     |     |     |     |     |     | 39  |     |     |     | 48  |     |     |     |     |
| Mon  | AR    | L1 | 1  |     |     |     |     | 86\ | 70  | 55\ |     |     |     |     |     |     |     |     | 46\ | 31s | 16\ |     |     |     |     |     |     |     | 6\  | 76\ |     |     |     |     |
| Mon  | AT    | ES | 2  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 39  |     | 42  |     |     |     |
| Mon  | AV    | ES | 2  | 94s |     |     | 41  |     |     |     | 88s |     |     |     | 36  |     | 83s |     |     |     |     | 30  |     |     |     | 78s | 25  |     |     | 72s |     |     |     |     |
| Mon  | EZ    | EU | 3  | 67  |     | 55s | 68  | 43  | 56s | 69  | 44  | 57s | 45  | 58s |     | 46  | 59s |     | 47  | 60s |     | 48  | 61s |     | 49  | 62s | 37s | 50  | 63s | 38s | 51  |     | 39s |     |
| Mon  | IL    | ES | 2  |     |     | 10  |     |     |     | 13  |     |     | 16  |     |     | 18  |     |     |     |     |     | 21  |     |     |     |     |     | 26  |     |     |     |     | 29  |     |
| Mon  | V448  | ES |    | 52  | 64  |     |     | 43s | 55s | 67s |     | 47  | 59  |     |     | 38s | 50s | 62s |     |     |     | 42  | 53  | 65  |     | 45s | 57s | 36  | 48  | 60  |     |     |     |     |
| Mon  | V530  | EU | 3  | 54s | 59s | 64s | 43+ | 48  | 53  | 58  | 64  | 42+ | 48s | 53s | 58s | 37+ | 42+ | 47  | 52  | 57  | 36+ | 41+ | 46s | 51s | 56s | 35+ | 40+ | 45  | 50  | 55  | 34+ | 39+ | 45s | 50s |
| Mon  | V536  |    |    |     |     |     |     |     |     |     | 53  |     |     |     |     | 66  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 46s |     |
| Mon  | V634  | EU |    |     |     |     |     |     | 42  |     | 53  |     | 65  |     |     |     |     |     |     |     |     |     |     |     |     |     | 44  |     |     | 56  |     |     |     |     |
| Oph  | U     | ST |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 76s |     |     |     |     |
| Ori  | Z     | ES | 2  |     | 32  |     |     |     |     | 52  |     |     |     |     | 73  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |
| Ori  | BM    | ES | 2  |     |     |     |     |     |     | 49  |     |     |     |     |     | 96  |     |     |     |     |     |     | 43  |     |     |     |     | 90  |     |     |     |     |     |     |
| Ori  | CP    | ES | 2  |     | 14  |     |     |     | 46  |     |     |     |     |     | 78  |     |     |     |     |     |     | 10  |     |     |     |     |     |     |     | 74  |     |     |     |     |
| Ori  | DN    | L1 | 2  |     |     |     |     |     |     |     | 92  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 88  |     |     |     |     |     |     |     |     |
| Ori  | EW    | EX |    |     |     |     | 61s |     |     |     |     |     | 55s |     |     |     |     |     |     |     |     | 48s |     |     |     |     | 42s |     |     |     |     |     |     |     |
| Ori  | FO    | L1 | 2  |     |     |     |     |     |     | 99  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 79  |     |     |     |     |     |     |
| Ori  | FT    | EX |    | 41s | 46  |     | 56s | 61  |     | 71s |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 62s | 66  |     |     |     |     |     |
| Ori  | GG    | EX |    |     |     |     |     |     |     |     |     |     | 60s |     |     | 39  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 50s |
| Ori  | V536  | ES | 2  | 37  |     |     | 53  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 34  |     |     |     |     |     |     |     |     |     |     |     |
| Ori  | V1016 | L1 | 3  |     | 94  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ori  | V1031 | ES | 2  |     |     | 61  |     |     |     |     |     | 43  |     |     |     |     | 53s |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |     |     |     |
| JD   | 584   | .. |    | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  |

| 2018 | Dez   | P  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |     |  |
|------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Peg  | U     | S1 | 20+ | 32  | 26+ | 20+ | 32  | 26+ | 19+ | 32  | 25+ | 19+ | 32  | 25+ | 19+ | 31  | 25+ | 19+ | 31  | 25+ | 19+ | 31  | 25+ | 37s | 31  | 25s | 37s | 31  | 24s | 37s | 31  | 24s | 37s |     |  |
| Peg  | VV    | RR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 5   |  |
| Peg  | VW    |    |     |     |     |     |     |     |     |     | 97  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 20  |  |
| Peg  | AV    | RR |     | 31  |     | 26  |     | 22  | 39  |     | 34  |     | 29  |     | 24  |     | 19  | 37  |     | 32  |     | 27  |     | 22  |     | 34  |     | 30  |     | 25  |     |     |     |     |  |
| Peg  | AW    | L1 |     |     |     |     |     | 2s  |     |     |     |     | 33  |     |     |     |     | 64s |     |     |     |     | 95  |     |     |     |     | 26s |     |     |     |     |     |     |  |
| Peg  | BH    | 90 |     | 19  |     |     | 40  |     | 32  |     | 24  |     |     |     | 37  |     |     | 30  |     | 22  |     |     |     | 35  |     | 27  |     | 19  |     |     |     |     |     |     |  |
| Peg  | BK    | ES |     | 48s |     |     | 22  |     |     |     |     |     |     |     | 46s |     |     | 20  |     |     |     |     |     |     | 44s |     |     |     |     |     |     |     |     |     |  |
| Peg  | CG    | 90 |     | 40  | 33  | 26  | 20  |     |     |     |     | 34  | 27  | 21  |     |     |     |     | 34  | 28  | 21  |     |     |     | 35  | 28  | 22  |     |     |     |     |     |     |     |  |
| Peg  | DF    | L1 |     |     |     |     |     |     |     |     |     |     | 14  |     |     |     |     |     |     |     |     |     |     |     |     | 83  |     |     |     |     |     |     |     |     |  |
| Peg  | DH    | RR | 3   | 33  | 35  | 38  |     | 19  | 21  | 23  | 25  | 27  | 30  | 32  | 34  |     |     |     |     |     | 19  | 22  | 24  | 26  | 28  | 31  |     |     |     |     |     | 20  | 23  |     |  |
| Peg  | GH    | ES |     |     |     | 19s |     |     |     |     | 30s |     |     |     |     |     |     |     |     |     | 25  |     |     |     |     |     |     | 19s |     |     |     |     |     |     |  |
| Peg  | IP    | K1 | 31+ | 26+ | 21+ | 31  | 26+ | 21+ | 32  | 27+ | 22+ | 33  | 28+ | 22+ | 33  | 28  | 23+ | 34  | 29  | 24+ | 19+ | 29  | 24+ | 19+ | 30  | 25+ | 20+ | 30  | 25  | 20+ | 31  | 26  | 21+ |     |  |
| Per  | RW    | L1 | 2   |     |     |     |     |     |     |     |     |     |     |     | 11  |     |     |     |     |     |     |     |     |     |     |     |     | 31  |     |     |     |     |     |     |  |
| Per  | RY    | ES |     | 37s |     |     |     |     |     | 23s |     |     | 66  |     |     |     |     |     |     |     | 53  |     |     |     |     | 39  |     |     |     |     |     |     |     |     |  |
| Per  | AG    | EX |     |     |     |     |     |     |     |     |     | 19  |     | 22  |     | 25  | 21s | 28  | 24s | 31  | 27s | 33  | 30s | 36  | 33s | 39  | 36s | 42  | 38s | 45  | 41s | 48  | 44s |     |  |
| Per  | AR    | 90 | 41  | 26+ | 54  | 39  | 24+ | 52  | 37  | 22+ | 49  | 35  | 20+ | 47  | 32+ | 60  | 45  | 30+ | 58  | 43  | 28+ | 56  | 41  | 26+ | 54  | 39  | 24+ | 52  | 37  | 22+ | 50  | 35  | 20+ |     |  |
| Per  | AY    | L1 |     | 43  |     |     |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     |     |     | 98  |     |     |     |     |     |     |     |     |  |
| Per  | IQ    |    |     |     |     | 63s | 59  | 38s | 34  |     |     |     | 61s | 57  | 35s | 31  |     |     |     |     | 58s | 54  | 32s | 29  |     |     | 55s | 52  | 30s | 26  |     |     |     |     |  |
| Per  | KN    | EU | 25+ | 55  | 41  | 28  | 58s | 45s | 31s | 61  | 48  | 35  | 21+ | 51s | 38s | 25+ | 54  | 41  | 28  | 58s | 44s | 31s | 61  | 48  | 34  | 21+ | 51s | 38s | 24s | 54  | 41  | 28  | 57s |     |  |
| Per  | LX    | L1 | 40  |     |     |     | 42s |     |     |     | 44  |     |     |     | 46s |     |     |     | 48  |     |     |     | 50s |     |     | 52  |     |     |     |     |     | 54s |     |     |  |
| Per  | beta  | S1 | 20s | 64  |     |     | 51  |     |     | 37  |     |     | 24  | 67s |     | 54s |     |     |     | 41s |     |     | 28s |     |     | 58  |     |     | 44  |     |     |     | 31  |     |  |
| Psc  | RU    | 90 | 41  | 19  | 36  | 53  | 31  | 49  | 27  | 44  | 22  | 39  |     | 34  | 51  | 29  | 46  | 25  | 42  | 20  | 37  |     | 32  | 49  | 27  | 44  | 22  | 40  |     | 35  |     | 30  | 47  |     |  |
| Psc  | RY    | 90 | 2   |     |     | 23  | 29  | 35  | 41  |     |     |     |     |     | 24  | 30  | 36  |     |     |     |     |     | 19  | 24  | 30  | 36  |     |     |     |     |     | 19  | 25  |     |  |
| Psc  | SS    | 90 | 42  | 29  | 44  | 30  | 45  | 31  | 47  | 33  | 19+ | 34  | 21+ | 36  | 22+ | 37  | 24+ | 39  | 25  | 40  | 26  | 42  | 28  | 43  | 29  | 44  | 31  | 46  | 32  | 19+ | 34  | 20  | 35  |     |  |
| Sge  | SY    | ES |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ser  | VY    | RR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 79  |  |
| Ser  | AN    | 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 69  | 74  | 78  |     |     |     |     |     |     |     |     | 66  |  |
| Ser  | BH    | 90 |     | 77  |     |     |     | 68  |     |     |     |     |     | 77  |     |     |     | 68  |     |     | 72  |     |     |     | 76  | 63  |     | 67  |     |     | 71  |     |     |     |  |
| Ser  | LX    | K1 |     | 78  | 73  |     | 79  | 74  | 69  |     | 75  | 70  |     | 76  | 71  |     | 77  | 72  | 67  | 78  | 73  | 68  | 79  | 74  | 69  | 64  | 75  | 70  | 65  | 76  | 71  | 66  | 77  |     |  |
| Sex  | T     | 90 | 66  | 64  | 61  | 59  | 56  | 53  | 51  |     | 78  | 76  | 73  | 70  | 68  | 65  | 63  | 60  | 57  | 55  | 52  | 50  | 47  | 77  | 74  | 72  | 69  | 67  | 64  | 61  | 59  | 56  | 54  |     |  |
| Tau  | RW    | S1 | 3   |     | 55  |     |     | 32  |     |     |     |     |     |     |     | 62  |     |     | 39  |     |     |     |     |     |     | 36s |     |     | 47  |     |     |     |     | 24  |  |
| Tau  | CD    | S1 | 3   |     |     |     | 46  |     |     |     |     |     | 33  |     |     |     |     |     | 49s |     |     |     |     | 64  |     | 36s |     |     |     | 51  |     |     |     | 23s |  |
| Tau  | EN    | ES | 2   |     |     |     | 55s |     |     |     |     | 27  | 51s |     |     |     | 47s | 71  |     |     |     |     | 66  |     |     | 38s | 62  |     |     |     | 34s |     | 57  |     |  |
| Tau  | V1094 | L1 |     |     | 55  |     |     |     |     |     |     |     | 41s |     |     |     | 53  |     |     |     |     |     | 52  |     |     |     |     |     | 39s |     |     | 51  |     |     |  |
| Tri  | X     | S1 | 26  | 23  | 20  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 55  | 52  | 49  | 46  | 43  | 41  | 38  |     |  |
| Tri  | RU    | ES | 2   | 58s |     | 21  |     |     | 48  |     |     |     |     |     |     |     | 38s |     |     |     |     | 56  |     |     |     |     | 46s |     |     |     |     |     | 36  |     |  |
| Tri  | UX    | 90 | 45  | 38  | 31  | 25  |     | 58  | 52  | 45  | 38  | 32  | 25  | 19  |     | 52  | 45  | 39  | 32  | 26  | 19  |     | 52  | 46  | 39  | 33  | 26  | 19  |     | 53  | 46  | 40  | 33  |     |  |
| UMa  | W     | S1 | 37+ | 37+ | 37+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 38+ | 39+ |     | 39+ | 39+ | 39+ | 39+ | 39+ | 39+ | 39+ | 22+ | 23+ | 23+ | 23+ | 23+ | 23+ | 23+ | 23+ | 23+ |     |  |
| UMa  | RV    | RR | 70  | 64  | 58  | 51  |     |     | 79  | 72  | 19+ | 60  | 53  | 47  |     |     | 75  | 68  | 62  | 55  | 49  | 43  |     | 77  | 70  | 64  | 57  | 51  | 45  |     | 79  | 72  |     | 66  |  |
| JD   | 584   | .. | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  |     |  |

| 2018 | Dez | P  | 1  | 2   | 3  | 4   | 5  | 6   | 7  | 8   | 9  | 10  | 11  | 12  | 13  | 14  | 15  | 16 | 17  | 18 | 19  | 20  | 21  | 22  | 23  | 24  | 25 | 26  | 27 | 28  | 29  | 30  | 31  |     |
|------|-----|----|----|-----|----|-----|----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|-----|
| UMa  | RW  | ES |    |     |    |     |    |     |    |     |    |     | 50  |     |     |     |     |    |     |    |     |     | 50s |     |     |     |    |     |    |     |     |     |     |     |
| UMa  | TU  | RR |    |     |    | 59  | 71 |     |    | 50  | 61 | 73  |     | 52  | 63  | 75  |     |    | 54  | 65 | 77  |     | 44  | 55  | 67  | 79  |    | 46  | 57 | 69  |     |     |     |     |
| UMa  | TX  | S1 | 3  |     |    |     |    |     |    |     |    |     |     |     | 43  |     |     | 49 |     |    | 55  |     |     | 62  |     |     | 68 |     |    | 74  |     |     |     |     |
| UMi  | W   | S1 | 3  | 38  |    |     | 78 |     | 48 |     |    |     | 58  |     | 28  |     |     | 69 |     | 39 |     | 79  |     | 49  |     | 19  |    |     | 60 |     | 30  |     |     |     |
| Vir  | ST  | 90 | 2  |     |    |     |    |     | 73 |     | 79 |     |     |     | 72  |     | 77  |    |     |    | 70  |     | 75  |     |     |     | 68 |     | 74 |     |     | 79  |     |     |
| Vir  | AG  | ED |    | 76s | 72 | 68s | 65 | 61s | 58 |     |    | 79  | 75s | 72  | 68s | 65  | 61s | 57 | 54s |    | 79  | 75s | 71  | 68s | 64  | 61s | 57 | 53s |    | 78  | 75s | 71  | 68s | 64  |
| Vir  | AH  | S1 |    | 78  | 59 | 61s | 63 | 65s | 67 | 69s | 70 | 72s | 74  | 56+ | 58+ | 59  | 61s | 63 | 65s | 67 | 69s | 71  | 73s | 54+ | 56+ | 58+ | 60 | 62s | 64 | 65s | 67  | 69s | 51+ | 53+ |
| Vir  | AT  | 90 | 2  |     |    |     |    |     | 68 | 73  | 79 |     |     |     |     |     |     | 67 | 72  | 78 |     |     |     | 61  |     | 66  | 71 | 77  |    |     |     |     |     |     |
| Vir  | AV  | 90 |    | 69  |    | 67  |    | 64  |    |     |    |     |     |     |     |     |     |    |     | 77 |     | 75  |     | 72  |     | 69  |    | 66  |    | 63  |     | 60  |     |     |
| Vir  | CG  | ES |    |     |    |     |    |     | 77 | 71  |    |     |     |     | 79s | 72s |     |    |     |    |     | 74  | 67  |     |     |     |    |     |    | 75s | 69s |     |     |     |
| Vul  | Z   | S1 |    | 29  |    |     |    |     |    | 20  |    |     |     |     |     |     |     |    |     |    |     |     |     |     |     |     |    |     |    |     |     |     |     |     |
| Vul  | BN  | 90 |    |     |    |     |    |     |    |     | 30 |     |     |     | 27  |     | 25  |    |     |    | 22  |     | 19  |     |     |     |    |     |    |     |     |     |     |     |
| Vul  | DR  | EX |    | 23s |    |     |    |     |    |     |    |     | 23s |     |     |     |     |    |     |    |     | 24s |     |     |     |     |    |     |    | 24s |     |     |     |     |
| Vul  | EV  | ES |    |     |    |     |    |     |    |     |    |     |     |     |     | 20  |     |    |     |    |     |     |     |     |     |     |    |     |    |     |     |     |     |     |
| JD   | 584 | .. | 54 | 55  | 56 | 57  | 58 | 59  | 60 | 61  | 62 | 63  | 64  | 65  | 66  | 67  | 68  | 69 | 70  | 71 | 72  | 73  | 74  | 75  | 76  | 77  | 78 | 79  | 80 | 81  | 82  | 83  | 84  |     |









## BAV-Materialien für Beobachter veränderlicher Sterne

### BAV Einführung in die Beobachtung Veränderlicher Sterne

Die vierte, ergänzte und erweiterte Auflage des bewährten Buches liegt seit Oktober 2009 vor. W. Braune, B. Hassforther und W. Quester beschreiben die Beobachtungsvorbereitung, die Beobachtung und die Auswertung der Ergebnisse. CCD-Technik und visuelle Beobachtung sind ausführlich erläutert. Prof. Dr. E. Geyer gibt eine Übersicht der astrophysikalischen Die 4. Auflage enthält wesentliche Erweiterungen weiterer Autoren zum Thema Auswertung. 318 Seiten, 118 Abbildungen, 10 Tabellen, Format 16 x 22,5 cm, glanzfolienkaschi **22,00 €**

### BAV-Umgebungskarten

#### Gedruckt auf Karton DIN A5

|                         |                         |           |        |
|-------------------------|-------------------------|-----------|--------|
| Bedeckungsveränderliche | - Standardprogramm 2010 | 32 Karten | 4,00 € |
| RR-Lyrae-Sterne         | - Standardprogramm      | 30 Karten | 4,00 € |
| Delta-Scuti-Sterne      |                         | 27 Karten | 3,50 € |
| Cepheiden               | - Feldstechersterne     | 20 Karten | 3,00 € |
| Cepheiden               | - Teleskopische Sterne  | 35 Karten | 4,50 € |

#### Auf CD-ROM im Format JPEG

|   |                              |           |                |
|---|------------------------------|-----------|----------------|
| Sämtlichen links aufgeführten BAV-Umgebungskarten, zusätzlich |                              |           |                |
| Bedeckungsveränderliche                                       | - Beobachtung erwünscht 2010 | 87 Karten |                |
| Bedeckungsveränderliche                                       | - Langperiodisch 2010        | 62 Karten |                |
| RR-Lyrae-Sterne   | - Programm 90                | 57 Karten |                |
|   |                              | CD-ROM    | <b>10,00 €</b> |

**Hinweis:** Für Mirasterne, Halb- und Unregelmäßige, Eruptive und Kataklysmische werden von der BAV die bewährten AAVSO-Karten verwendet. Sie sind unter folgendem Link zu finden: [www.aavso.org/observing/charts/vsp/](http://www.aavso.org/observing/charts/vsp/). Bei Fragen hilft Kerstin Rätz (s.Vereinsseite) gern weiter.

### BAV Blätter Hilfsmittel zur Vorbereitung und Auswertung von Beobachtungen

|   |                                  |       |               |
|---|----------------------------------|-------|---------------|
| 1 Kleines Programm - Elf Umgebungskarten für Einsteiger                 | DIN A5 2. Aufl., 2009            | 16 S. | <b>2,00 €</b> |
| 2 Tabellen - JD und Tagesbruchteile                                     | DIN A5 4. Aufl., 2007            | 8 S.  | <b>1,00 €</b> |
| 3 Lichtkurvenblätter - Dokumentation von Maxima und Minima              | DIN A5 6. Aufl., 2013 <b>neu</b> | 16 S. | <b>2,00 €</b> |
| 5 Der Sternhimmel - Mit griechischen Buchstaben aller Sterne            | DIN A5 2. Aufl., 2008            | 4 S.  | <b>0,50 €</b> |
| 7 Feldstechersterne - Veränderliche bis zur Grenzgröße 8,5 <sup>m</sup> | DIN A5 3. Aufl., 2006            | 4 S.  | <b>0,50 €</b> |
| 8 Die Übung der Argelandermethode (mit CD-ROM)                          | DIN A5 3. Aufl., 2010            | 12 S. | <b>4,00 €</b> |
| <b>16 Beobachtungsmeldungen an die BAV</b>                              | <b>DIN A4 2. Aufl., 2012</b>     | 5 S.  | <b>1,00 €</b> |

### BAV Informationspaket Die sinnvolle Erstausstattung für Einsteiger

BAV Einführung, BAV Blätter komplett, BAV Circular mit aktuellen Jahresvorhersagen zu den BAV-Programmen und Drei gedruckte BAV-Kartensätze (Bedeckungsveränderliche Standardprogramm 2010, RR-Lyrae-Sterne Standardprogramm, Cepheiden Feldstechersterne), **37,50 €**

**BAV-Materialien auf der BAV-Website! BAV-Umgebungskarten und BAV Blätter können dort unentgeltlich herunter geladen werden.** **0,00 €**

**Bestellungen bitte an:** BAV, Munsterdamm 90, 12169 Berlin oder [zentrale@bav-astro.de](mailto:zentrale@bav-astro.de)  
Porto wird zusätzlich in Rechnung gestellt, wir bitten dafür um Verständnis

## BAV-Veröffentlichungen

|                         |  |  |
|-------------------------|--|--|
| <b>BAV Mitteilungen</b> | Die Beobachtungsergebnisse der BAV seit 1950, mehr als 210 Publikationen.      | Unsere Mitglieder erhalten die BAV Mitteilungen, den |
| <b>BAV Rundbrief</b>    | Das Mitteilungsblatt für unsere BAV-Mitglieder erscheint 4xjährlich seit 1952. | BAV Rundbrief und das BAV Circular regelmäßig.       |
| <b>BAV Circular</b>     | Daten und Jahresvorhersagen zu den Veränderlichen der BAV-Programme.           | Alle BAV-Veröffentlichungen sind auf der             |
| <b>BAV Dateien</b>      | Sämtliche Maxima und Minima der BAV seit 1950, über 47.000 Ergebnisse.         | BAV-Website verfügbar.                               |
| <b>BAV Journal</b>      | Das neue E-Journal der BAV   |  |

**Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne.V. (BAV)**