



The Binocular Sky

November
2017

Newsletter

Introduction



Welcome to November's **Binocular Sky** Newsletter.

The intention of this monthly offering is to highlight some of the binocular (and small telescope) targets for the coming month. It is primarily targeted at binocular observers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and possibly even further south.

Now that we have reverted to "proper" time (UTC), the sky is fully dark by early evening so that a significant amount of observing is a realistic option for those who need to work the next day! Uranus and Neptune are now relatively easy, and the darker skies mean that some otherwise tricky deep sky objects are more easily visible.

The highlights this month are an asteroid occultation on the first morning of the month, two difficult (owing to the nearly full Moon) grazing lunar occultations for northern England (one of which extends into Eire) plus a third, of Aldebaran, for central Europe. Asteroid Iris is an easy object in Aries.

All the charts are "clicky" and will take you to a higher resolution chart than is possible in the newsletter.

If you would like to receive this newsletter automatically each month, please complete and submit the [subscription form](#). You can get "between the newsletters" alerts, etc. via  and .

The Deep Sky

(Hyperlinks will take you to finder charts and more information about the object.)

As the sky darkens at twilight, in the North are [NGC 457 \(the Owl Cluster\)](#) and [NGC 663](#) in Cassiopeia and the [Perseus Double Cluster](#). To the East of them lie [M34](#) in Perseus and the often-overlooked [NGC 752](#) in Andromeda. Rising in the north-east is the trio of Auriga clusters, [M36](#), [M37](#) and [M38](#) and, later, [M35](#) in Gemini. While you are looking at [M35](#), also see if you can identify two smaller open clusters, [NGC 2158](#), which is half a degree to the SE, and the slightly more difficult [IC 2157](#), which is a degree to the ESE. To the south of them, the Pleiades and Hyades are getting higher in the evening skies. Also look out for the nearby [NGC1647](#).

In November, the Milky Way is overhead in the mid-to-late evening. This means that those objects (globular clusters and galaxies) that are outside our galaxy are not as well placed for observation as they are when the Milky Way is low in the sky. Although the bright [M81 \(Bode's Nebula\)](#) and [M82 \(The Cigar Galaxy\)](#), are still relatively easy to observe, even in a 50mm binocular, their altitude is such that you are unlikely to get neck-strain when you do so with straight-through binoculars. [M81](#) and [M82](#) can be used as a good demonstration of averted vision: if you have them both in the same field of view, you may see that the core of [M81](#) becomes more apparent if you look at [M82](#). [M51 \(The Whirlpool\)](#) and [M101](#) are becoming much more difficult owing to their lower altitudes; if you wish to see them this month, you should look as soon as the sky is dark.

Open (also called 'Galactic') Clusters are loosely packed groups of stars that are gravitationally bound together; they may contain from a few dozen to a few thousand stars which recently formed in the galactic disk.

Two notable exceptions to the generalisation of galaxies being poorly placed on November evenings are [The Great Andromeda Galaxy](#), [M31](#) and [M33 \(The Pinwheel\)](#), both of which are close to the plane of the Milky Way. [M31](#) in particular is very easily visible this month and is a naked eye object in moderately dark skies. It is large and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers). [M33](#) has a low surface-brightness and benefits from lower magnification. This generally makes it easier to see in, say, a 10x50

binocular than in many "starter" telescopes. It is in November evenings that the Sculptor Galaxy, NGC 253, becomes observable before midnight.

Galaxies are gravitationally bound "island universes" of hundreds of billions of stars at enormous distances. The light that we see from M31, for example, left that galaxy around the time our ancestors of the genus Homo were just evolving!

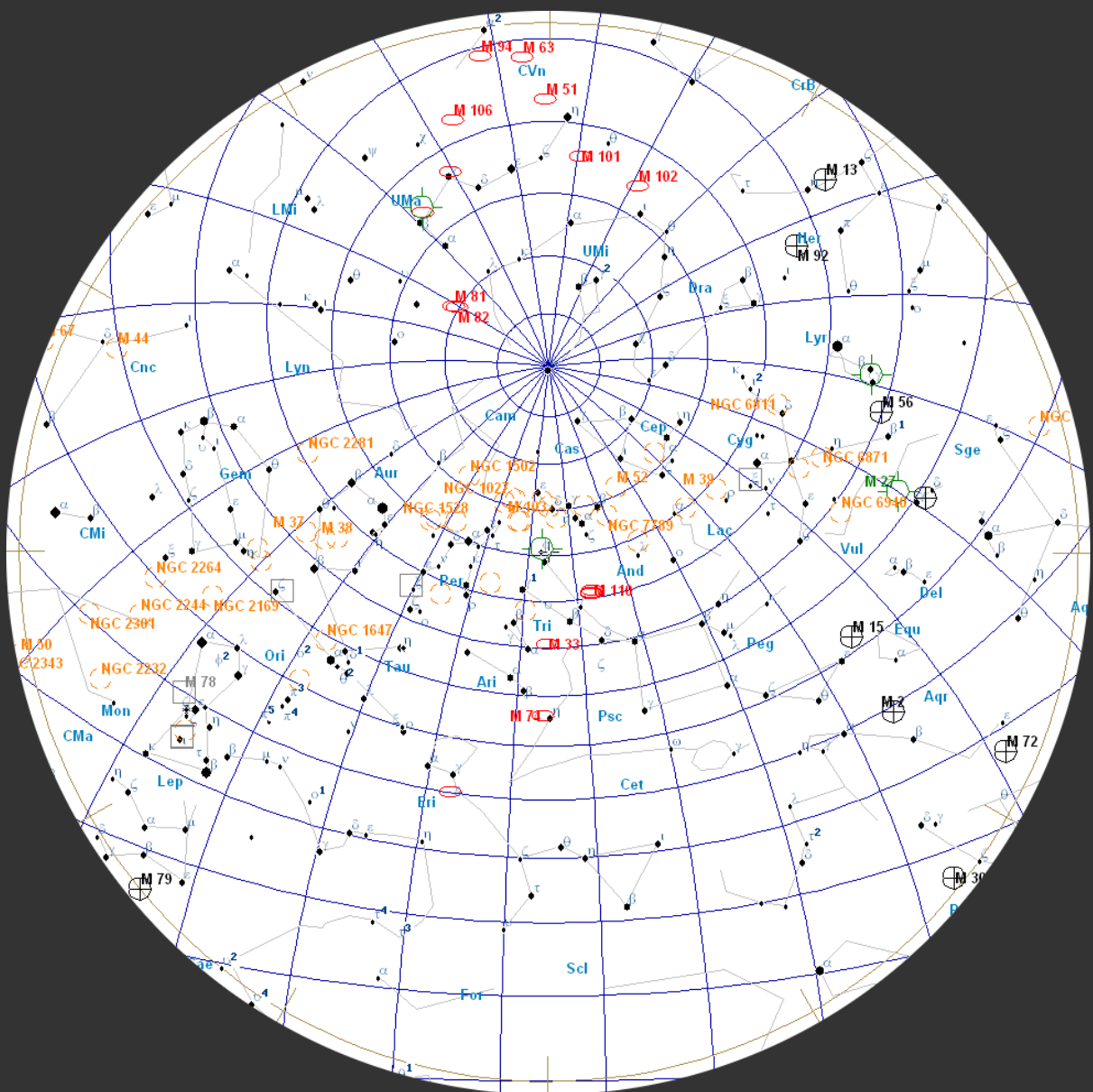
51°N

November 01, 23:00 UT

November 15, 22:00 UT
UT

November 31, 21:00

(chart is "clicky")



Although the two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are still observable, but their altitude becomes less favourable as the month progresses. M15 and M2 are both better placed. This is also the best time of year to observe NGC 288 in the evening.

Globular clusters are tightly-bound, and hence approximately spherical, clusters of tens, or even hundreds, of thousands of stars that orbit in a halo around almost all large galaxies that have been observed. They are important for two reasons: Firstly, they contain some of the oldest stars in the galaxy, so studying them helps us understand the evolution of stars. Secondly, they are useful as "standard candles" in establishing a distance scale of the Universe, based on the assumption that the brightest stars in any globular cluster will be approximately the same brightness and that the brightest globulars in a galaxy will be approximately the same brightness.

The easiest planetary nebula, M27 (the Dumbbell Nebula – although I insist that it looks more like an apple core than a dumbbell!) – is visible in the evening skies in even 30mm binoculars. The Helix Nebula, NGC 7293 is becoming less easy to observe, and is another object that you need to attempt as early as possible in the evening.

Planetary Nebulae are short-lived (a few tens of thousands of years) masses of gas and plasma that result from the death of some stars. They have nothing to do with planets, but get their name from the fact that, in early telescopes, they had the appearance of giant planets.

For interactive maps of Deep Sky Objects visible from 51°N, please visit:

http://binocularsky.com/map_select.php

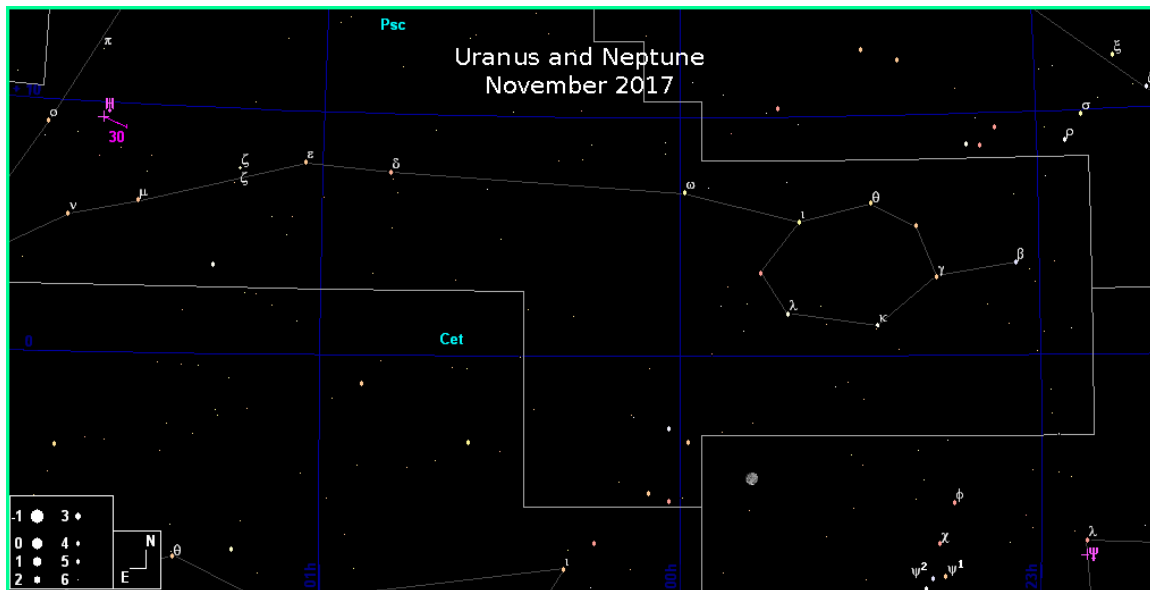
Variable Stars

Selection of binocular variables (mag < +7.5)			
Star	Mag Range	Period	Type
XY Lyr	5.8-6.4	Irreg	Irregular
U Sge	6.5-9.3	3.38d	Eclipsing binary
U Vul	6.7-7.5	7.99d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
U Del	7.0-8.0	ca. 110d	Irregular
TW Peg	7.0-9.2	ca. 90d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
T Cep	6.0-10.3	388d	Mira
SS Cep	6.7-7.8	ca. 190d	Semi-regular
RZ Cas	6.2-7.7	1.195d	Eclipsing binary

Double Stars

Binocular Double Stars for November			
Star	Magnitudes	Spectral Types	Separation (arcsec)
ζ Lyr	4.3, 5.6	A3, A3	44
β Lyr	3.6, 6.7	B8, B3	46
OΣ525 Lyr	6.0, 7.6	G0, A0	45
δ Cep	4.1, 6.1	F5, A0	41
γ Her	3.7, 9.4	F0, K	43
Σ2277 Her	6,2, 8.9	A0, K	27
8 Lac	5.7, 6.3	B3, B5	22
56 And	5.7, 5.9	K0, K2	128
ΣI 1 And	7.1, 7.3	G5, G5	47
ψ-1 Psc	5.3, 5.8	A2, A0	30
14 Ari	5.0, 7.9	F0, F2	106
62 Eri	5.4, 8.9	B9, B8	67
τ Tau	4.3, 7.0	B5, A0	63
ν Gem	4.1, 8.0	B5, A0	113
ζ Gem	4.0, 7.6	G0, G	101
π-1 UMi	6.6, 7.2	G5, G5	31

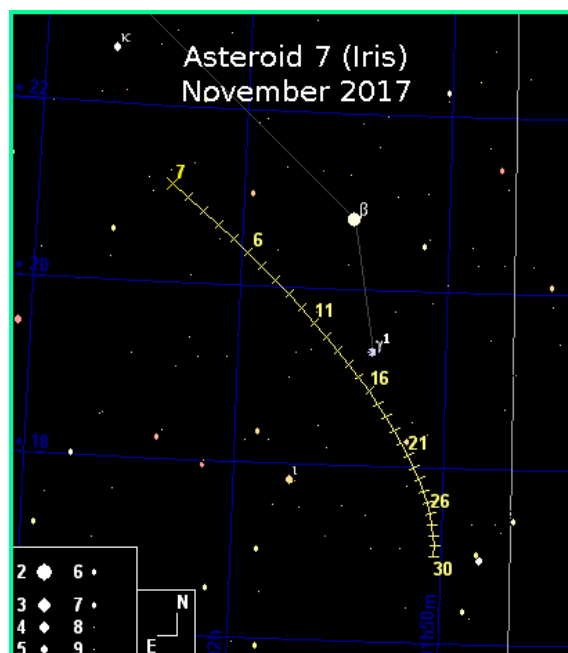
The Solar System (charts are 'clicky')



Neptune is now well placed at the onset of astronomical darkness but sets before midnight at the end of the month. It has dimmed slightly to mag. +7.9 and lies 38 arcmin to the south of λAqr ; during the month it moves only 8 arcminutes.

Uranus is available from the onset of twilight until the early hours of the morning. By the end of November it sets before 04:00. It is much brighter than Neptune, at mag. +5.7. It starts the month just over two degrees west of σPsc , its position changing by a degree west-southwest (retrograde) during November.

Asteroid 7 (Iris) is easy to find, starting the month two degrees east of *Sharatan* (αAri). It fades from mag. +6.9 to +7.7 during the month.



Meteor Showers

The Moon is very favourable for the **Leonids**, which is active for the last 3 weeks of the month and has its peak predicted for 04:00 UT on the 17th, with a ZHR of 15. The meteors are grains of dust that were left in the wake of Comet 55P (Temple-Tuttle). As these particles enter the atmosphere, they compress and heat the air in front of them. This heat causes the surface of the particle to ablate and ionise. Binoculars are useful for observing the persistence of these ionisation trains that form the streak in the sky which is what we observe as a "shooting star".

Asteroid Occultations

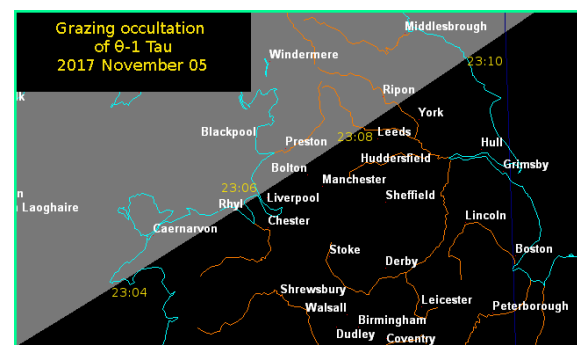
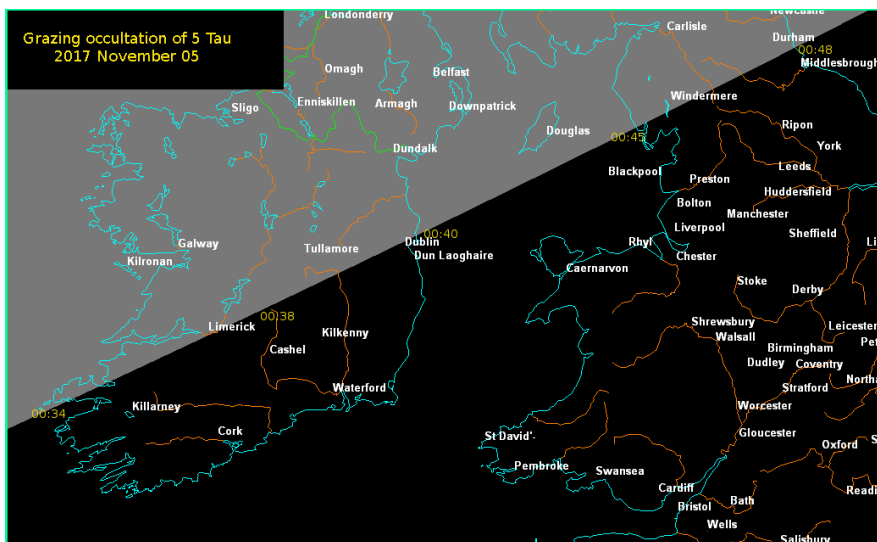
November 01: Asteroid 9719 (Yakage) occults *64 Gem* (mag +5.1)

[Detailed information](#) [Map](#)

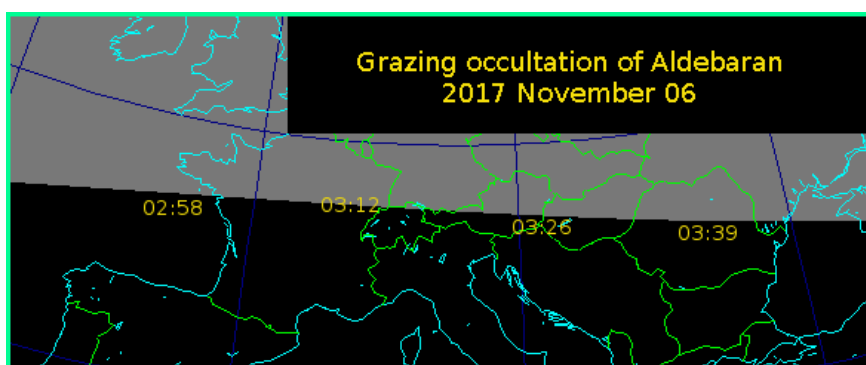
Lunar Occultations

The nights are getting longer, so we are getting more observable occultations. Data are for my location and may vary by several minutes for other UK locations. The types are **(D)**isappearance, **(R)**eappearance and **(Gr)**aze; they are all dark-limb events unless there is a **(B)**.

On the 5th, there is a graze of 5 Tau, potentially visible across Eire and northern England. This will be a difficult observation owing to the brightness of the nearly full Moon. There are two further bright star grazes the next night as the Moon passes through the Hyades. The first of these, of θ -1 Tau, crosses North Wales, Lancashire and Yorkshire. The second, of Aldebaran, crosses central Europe. (charts are 'clicky')



Lunar Occultations, Nov 2017, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Nov 01	22:18:04	D	15 Cet	K2	6.6	53N	22
Nov 02	19:06:32	D	HIP 6751	B9	6.6	88S	56
Nov 04	21:54:41	R	HIP 15850	K0	6.0	45S	241
Nov 05	00:47:31	Gr(B)	5 Tau	K0	4.1	-31.5S	
Nov 05	05:46:53	R	HIP 17049	G5	6.7	80S	270
Nov 05	19:46:06	R	γ Tau	G8	3.7	62S	245
Nov 05	22:12:46	R	70 Tau	F7	6.6	43S	226
Nov 05	23:08:09	Gr(B)	θ-1 Tau	G7	3.8	-18.9S	
Nov 05	23:45:45	R	75 Tau	K2	5.0	88S	271
Nov 05	23:50:44	R	HIP 20816	F7	6.7	39S	221
Nov 06	00:29:15	R	HIP 21029	A6	4.8	20S	202
Nov 06	02:37:38	D(B)	Aldebaran	K5	0.9	-51S	131
Nov 06	03:00:04	Gr	Aldebaran	K5	0.9	-13.7S	
Nov 06	03:20:58	R	Aldebaran	K5	0.9	24S	206
Nov 06	22:58:46	R	HIP25702	A2	6.7	82S	265
Nov 06	23:20:39	D(B)	119 Tau	M2	4.3	-50N	53
Nov 06	23:50:00	R	HIP 25893	K5	6.8	31S	214
Nov 07	00:20:03	R	119 Tau	M2	4.3	78N	285
Nov 07	01:00:20	R	120 Tau	B2	5.7	79S	262
Nov 07	05:36:38	R	HIP 26925	B9	6.7	50N	314
Nov 09	00:10:26	R	HIP 37107	F0	6.9	26N	345
Nov 09	03:44:16	D(B)	81 Gem	K5	4.9	-88S	103
Nov 09	04:58:51	R	81 Gem	K5	4.9	80S	271
Nov 09	06:10:14	R	HIP 38092	K0	7.0	62S	253
Nov 09	06:13:00	R	HIP 38135	K0	6.9	24S	216
Nov 25	20:11:45	D	45 Cap	A7	6.0	67N	48
Nov 28	19:07:17	D	HIP 906	G5	6.7	73N	48
Nov 28	21:28:24	D	HIP 1192	M0	6.6	70S	85
Nov 29	19:43:02	D	26 Cet	F1	6.1	84S	70
Nov 29	22:30:26	D	29 Cet	K0	6.4	78N	51
Nov 30	00:22:03	D	33 Cet	K4	6.0	38N	12
Nov 30	01:03:38	D	HIP 5646	F8	6.6	81N	55



The Moon

November 04	Full Moon
November 10	Last Quarter
November 18	New Moon
November 26	First Quarter

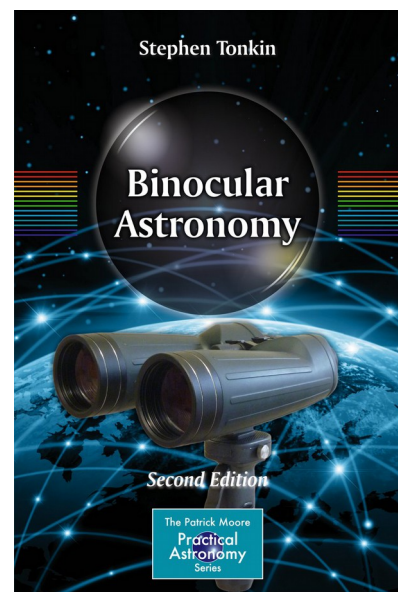
Public Outreach & Talks

During November I will be at the following events; please do come and say "Hello" if you attend any of them:

- | | | |
|--------------------|---|---|
| 13 th : | Semley (Cranborne Chase AONB) | Stargazing Event
(Assisting) |
| 20 th : | Bournemouth Natural Science Society | Pseudoastronomy: Planet X, Zetans and Lost Civilisations
(Talk) |

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- Purchase my book, [Binocular Astronomy](#):
Click on the image for more information
- Make a purchase via the affiliate links in the [Binocular Sky shopfront](#)
- Make a small [PayPal](#) donation to newsletter@binocularsky.com



Wishing you Clear Dark Skies,

Steve Tonkin

for

[The Binocular Sky](#)

Acknowledgements:

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Variable star data based on David Levy's *Observing Variable Stars*
Occultation data derived with Dave Herald's *Occult*

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