



The Binocular Sky

August
2017

Newsletter

Introduction


Welcome, especially to new readers, to August'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.

The longer nights of August, coupled with the fact that it now actually gets properly dark (nearly 5 hours of astronomical darkness by mid-month at the latitude of southern England) means that many more objects are visible. Uranus and Neptune are now relatively easy, and the dark skies mean that some otherwise tricky deep sky objects are more easily visible.

The Perseid meteors peak on the 12th, with the Moon rising just as it gets dark. However, you'll probably get enough bright ones to be able to study their trains with binoculars.

The Moon transits the Hyades on the 15th/16th, so there will be lots of occultation events, with those of us in southern England being treated to a graze.

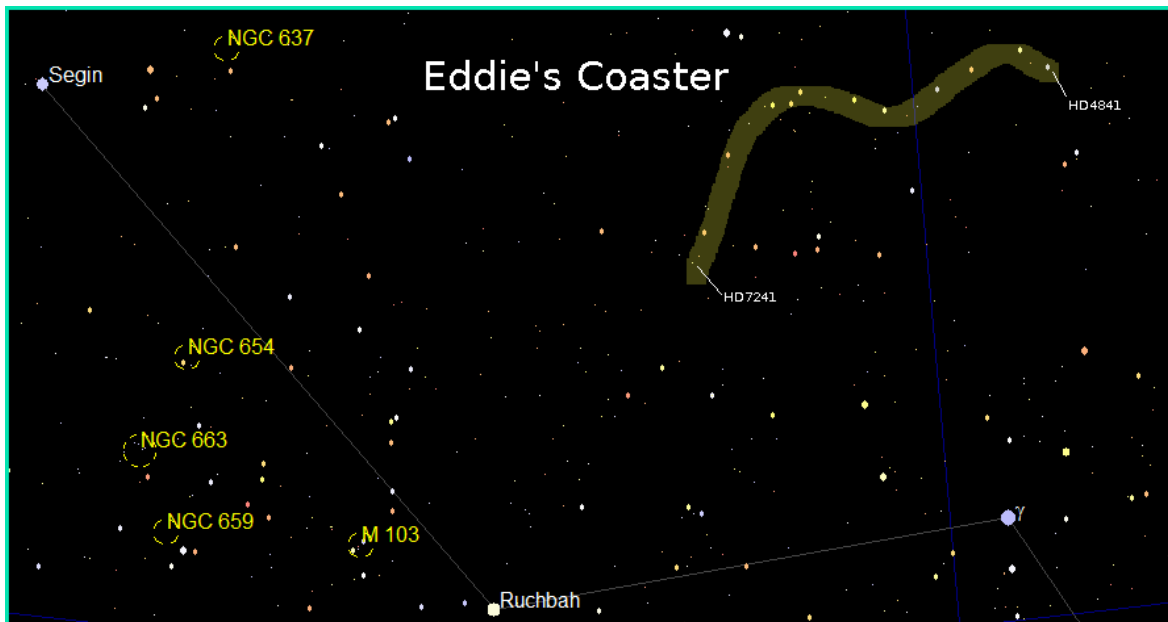
All the charts are "clicky" and will take you to a higher resolution chart than is possible in the newsletter.

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 633](#) in Cassiopeia, the [Perseus Double Cluster](#), and [Stock 2](#) (the Muscleman Cluster). At this time of year, I like to remind people about "Eddie's Coaster", a lovely curve of stars that is not particularly apparent on star charts or images, but which is obvious in 10x50 binoculars. This asterism is named for Eddie Carpenter, the West Country amateur who has delighted people with it for many years. You won't find it on any star charts, so:

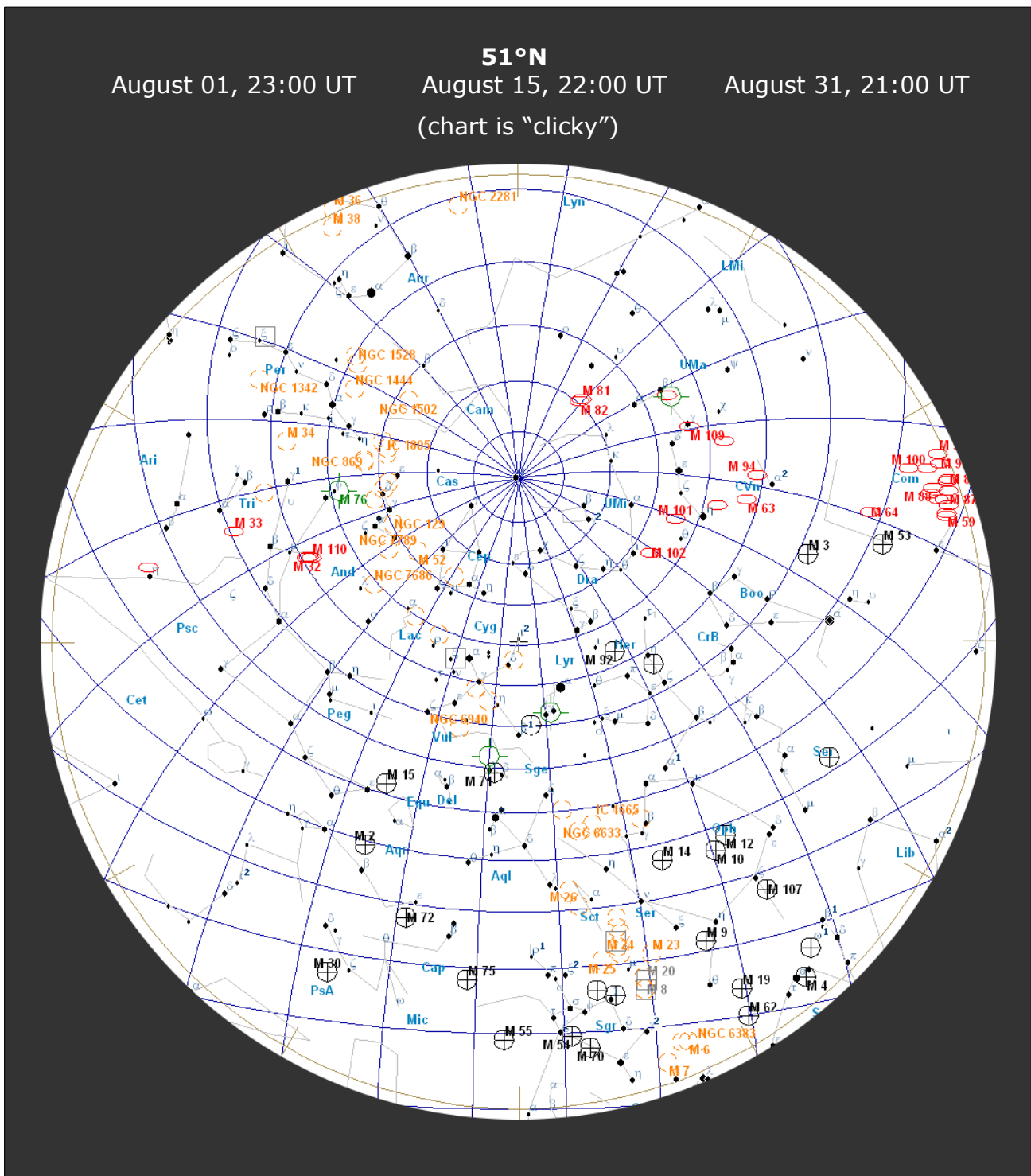


More open Clusters are visible in the southern sky in the region of Ophiuchus. These include [Melotte 186](#), [NGC 6633](#), [IC 4665](#) and [M11](#), The [Wild Duck Cluster](#), all of which are easily visible in 50mm binoculars. [M11](#), which is a cluster of over a thousand stars, benefits enormously from larger apertures and the higher magnification that permits more stars, including the "V"-shaped grouping that gives it its common name, to be revealed.

[IC 4665](#) benefits enormously from larger apertures and the higher magnification that permits more stars to be revealed. You should seek out a particularly attractive curved chain of bright white stars that forms part of the greeting "Hi!" written in the sky.

Even further to the south, culminating at around local midnight, is a

group of open clusters in Serpens and Sagittarius that includes M16 (the Eagle Nebula), M17 (the Swan or Omega Nebula), M23, M24 (the Sagittarius Star Cloud), and M25.



Also worth enjoying in this region of sky is the denser part of the Milky Way that forms the *Scutum Star Cloud* as a backdrop to this cluster.

While you are in this region of sky, see if you can find Barnard's Star in Ophiuchus. This has the largest known proper motion of any star. (**Proper**

motion is motion with respect to the celestial sphere.) Although it is visible in 50mm binoculars from a dark site, it is considerably easier in larger glasses and I recommend a minimum of 70mm.

In August, we are able to look out of the plane of the Galaxy during the evening. This makes more globular clusters and galaxies available for observation. Very well placed this month are M81 (Bode's Nebula) and M82 (The Cigar Galaxy), both of which are easy in a 50mm binocular. These 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. If you have good skies, try M51 (The Whirlpool) and M101 which, although it is a large object, is very difficult owing to its low surface brightness. The Great Andromeda Galaxy, M31, is also rising into the sky to a reasonable altitude this month. It is large and bright enough to be able to withstand quite a lot of light pollution although, obviously, it benefits from a dark transparent sky.

The two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are at a very good altitude for observation. Although M13 is clearly larger than M92, it is easier to resolve the outer stars of the latter one. Also visible this month is M5 in Serpens, which is one of the largest globular clusters known, being 165 light years in diameter. Its apparent size is nearly as large as a Full Moon. At a reasonable altitude from the beginning of the month are the very bright M15, M2 (which looks almost stellar at 10x50) and NGC 6934. This last cluster is very easy to see and is excellent for demonstrating how globular clusters respond to transparency. In apertures of around 70mm and upwards, almost all of them look larger as the sky becomes more transparent. NGC 6934 displays to the greatest extent of any globular on which I have tested the phenomenon.

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 Dumbell Nebula – although I insist that it looks more like an apple core than a dumbell!) is now visible in

the evening skies in even 30mm binoculars. At the other extreme, if you have binoculars of at least 100mm aperture, see if you can find and identify [NGC 6572](#), a planetary nebula in Ophiuchus. Even in large glasses it looks stellar, but it has the distinction of being possibly the greenest object in the sky.

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.

There are two other objects which, owing to their southerly declination, are best observed this month. They are the two bright emission nebulae, [M20 \(the Trifid\)](#) and the larger, brighter and easier [M8 \(the Lagoon\)](#). They are only about a degree and a half apart, so they will fit into the same field of view of even quite large binoculars.

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

http://binocularsky.com/map_select.php

Variable Stars

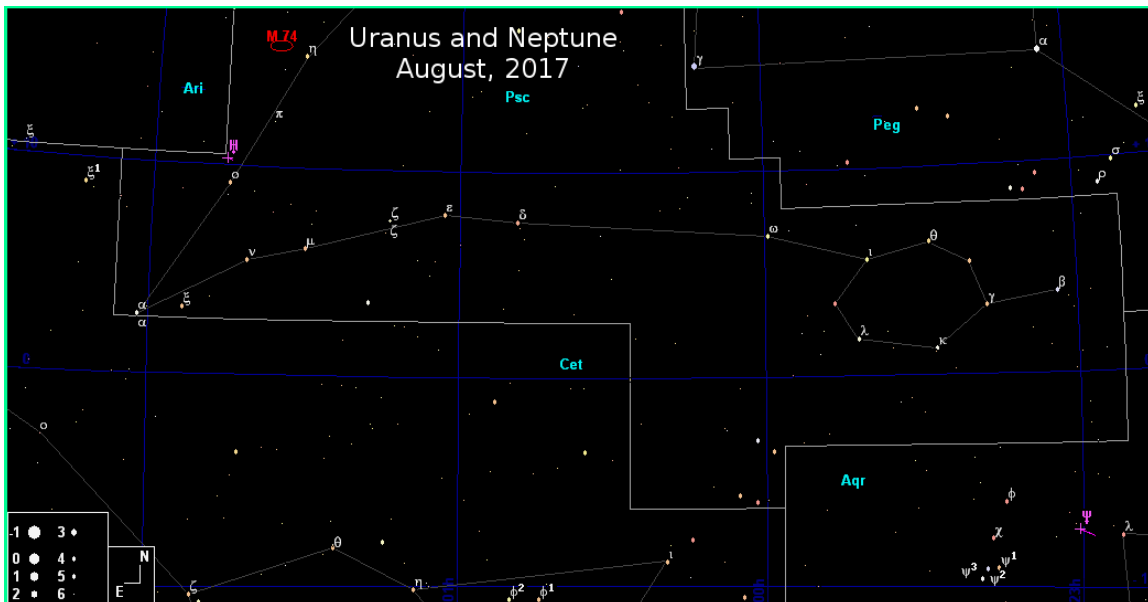
Selection of Binocular Variables (mag < +7.5)			
Star	Mag Range	Period	Type
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
EK Cep	8.2-9.5	4.3d	Eclipsing binary
V1010 Oph	6.1-7	0.66d	Eclipsing binary
RR Lyr	7.06-8.12	0.57d	RR Lyr
TX UMa	7.0-8.8	3.06d	Eclipsing binary
ZZ Boo	6.7-7.4	4.99d	Eclipsing binary
R Sge	8.0-10.4	71d, 1112 d	RV Tau
U Sge	6.5-9.3	3.38d	Eclipsing binary
DY Vul	8.4-9.7	–	Irregular
U Vul	6.7-7.5	7.99d	Cepheid
X Cyg	5.9-6.9	16.39d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
AF Cyg	6.4-8.4	92.5	Semi-regular

Double Stars

Binocular Double Stars for August			
Star	Magnitudes	Spectral Types	Separation (arcsec)
67 Oph	4.0, 8.1	B5, A	54
ρ Oph	5.0, 7.3, 7.5	B5, A, B3	151, 157
53 Oph	5.7, 7.4	A2, F	41
δ Cep	4.1, 6.1	F5, A0	41
γ Her	3.7, 9.4	F0, K	43
δ Boo	3.5, 7.8	K0, G0	105
μ Boo	4.3, 7	F0, K0	109
ι Boo	4.0, 8.1	A5, A2	38
ν Boo	5.0, 5.0	K5, A2	628
DN & 65 UMa	6.7, 7.0,	A3, B9	63
π -1 Umi	6.6, 7.2	G5, G5	31

The Solar System (charts are 'clicky')

Neptune is now available throughout the hours of astronomical darkness, shining at mag. +7.9 midway between two reddish stars, λ and φ Aqr. It moves (retrograde) about 45 arcmin in the direction of λ during the month.



Uranus now rises with the onset of astronomical darkness. It is much brighter than Neptune, at mag. +5.8. It is a degree north of α Psc, its position changing by only 17 arcminutes during August.

Meteor Showers

The Moon is unfavourable for the Perseids, which are predicted to peak on the evening of the 12th. The meteors are grains of dust that were left in the wake of Comet Swift-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

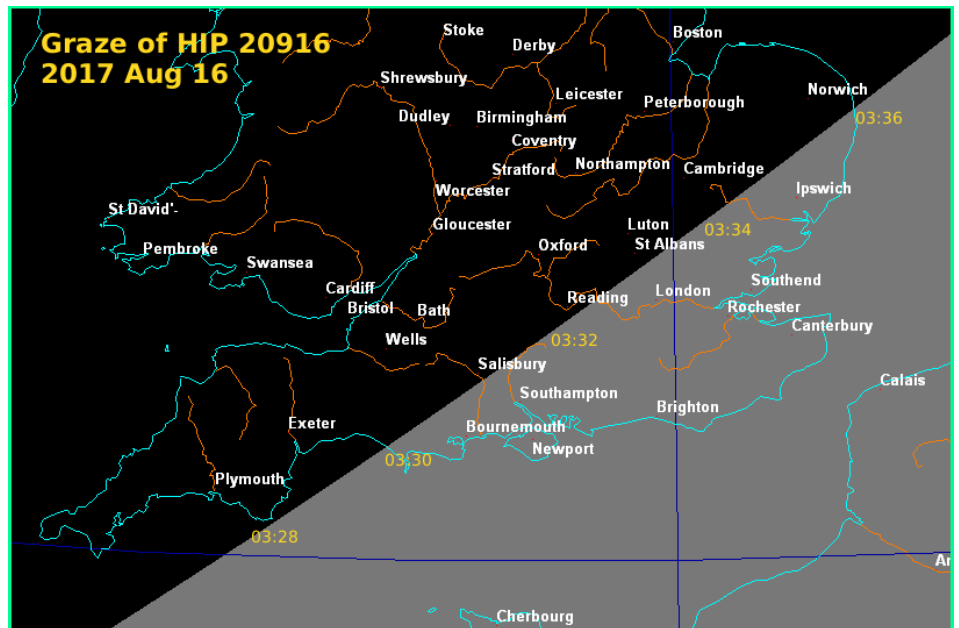
There are no predicted asteroid occultations of stars visible from the UK and suitable for binoculars (mag. < +7.5) this month.

Lunar Occultations

Owing to the short nights, there are few occultations of stars brighter than mag +7.0 visible from the UK this month. 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)**.

Lunar Occultations, Aug 2017, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Aug 02	20:58:25	D	29 Oph	K1	6.3	47S	142
Aug 05	01:00:37	D	29 Sgr	K2	5.2	54S	125
Aug 06	21:12:56	D	π Cap	B4	5.1	84N	76
Aug 13	23:53:33	R	ξ-2 Cet	B9	4.3	71N	272
Aug 15	01:51:08	R	HIP 16905	A0	6.3	48N	298
Aug 15	02:43:51	D(B)	5 Tau	K0	4.1	-64N	50
Aug 15	03:47:04	R	5 Tau	K0	4.1	76N	270
Aug 15	23:52:59	R	58 Tau	F0	5.3	29S	198
Aug 16	01:37:34	D	71 Tau	F0	4.5	-79S	90
Aug 16	02:33:43	R	71 Tau	F0	4.5	69S	239
Aug 16	02:41:38	D(B)	θ-2 Tau	A7	3.4	-81N	70
Aug 16	02:44:49	D(B)	θ-1 Tau	G7	3.8	-61N	50
Aug 16	03:31:00	Gr	HIP 20916	F7	6.7	6N	
Aug 16	03:42:30	R	θ-1 Tau	G7	3.8	72N	278
Aug 16	03:44:34	R	θ-2 Tau	A7	3.4	88S	258
Aug 16	03:53:07	D(B)	HIP 21029	A6	4.8	-37N	27
Aug 17	03:04:13	R	115 Tau	B5	5.4	59N	295
Aug 18	02:12:03	R	OU Gem	K0	6.8	56N	303
Aug 24	20:03:23	D	Porrima (γ Vir)	F0	3.5	59S	141
Aug 28	21:27:20	D	HIP 78120	M1	6.5	69S	123

The Moon passes through the Hyades on the night of the 15th/16th so there will be a dozen occultation events, one of which is a graze of HIP 20916 for southern England.



The Moon

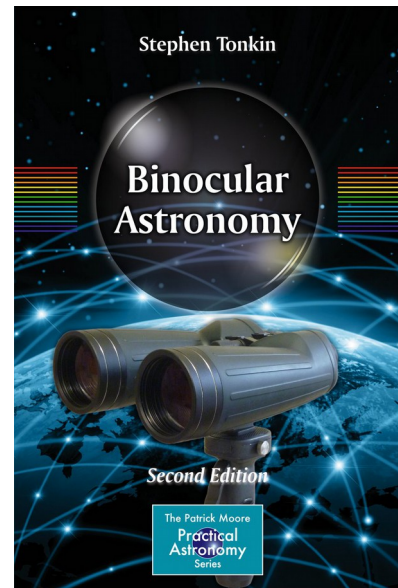
August 07	Full Moon
August 15	Last Quarter
August 21	New Moon
August 29	First Quarter

Public Outreach & Talks

On 13th August I will be at the [Solarsphere Festival](#), cheering up your weekend by telling you about *Ten Ways the Universe Tries to Kill You*. If you attend, please come and say hello!

The **Binocular Sky Newsletter** will always be free to anyone who wants it, but if you would like to support it, there are a number of options:

- 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:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com> or [Stellarium](#) under [GNU Public License](#), incorporating Milky Way panorama ©Axel Mellinger

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

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