



The Binocular Sky

October
2017

Newsletter

Introduction



Welcome to October'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.

Even though we are still on BST until the 29th, after which we revert to "proper" time (UTC), the longer nights of October at least mean that evening 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.

In addition, if the skies are kind to us, we have a potentially eventful month ahead. The highlights are a grazing lunar occultation for southern England, a brightening asteroid Iris, and maybe – just maybe – a comet for small binoculars. Then, on the first morning of November, there is an asteroid occultation. Read on.

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, the Milky Way, always a pleasure to scan with binoculars of any size, arches overhead. In the north are [NGC 457](#) (the Owl Cluster) and [NGC 663](#) in Cassiopeia and the Perseus Double Cluster, from which you can easily find [Stock 2](#) (the Muscleman Cluster). [Kemble's Cascade](#) and its "splash pool", [NGC 1502](#) are also conveniently placed. To the East of them lie [M34](#) in Perseus and the often-overlooked [NGC 752](#) in Andromeda. More open Clusters are visible in the southern sky in the region of Ophiuchus. These include [Melotte 186](#), [NGC 6633](#) and [M11](#), The Wild Duck Cluster, all of which are easily visible in 50mm binoculars. Rising in the north-east are the Auriga clusters, [M36](#), [M37](#) and [M38](#). To the south of them, the [Pleiades](#) and [Hyades](#) make a welcome return to evening skies. Also look out for the nearby [NGC1647](#).

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.

In October, 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 in the early evening, try [M51](#) (The Whirlpool) and [M101](#) which, although it is a large object, is very difficult owing to its low surface brightness. The same can be said of [M33](#) (The Pinwheel), which is now very well placed for observation. Because they are of such low surface-brightness, they benefit from low magnification. This generally makes them easier to see in, say, a 10x50 binocular than in many "starter" telescopes. The [Great Andromeda Galaxy, M31](#), is easily visible this month. It is large and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers) although, obviously, it benefits from a dark transparent sky.

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!

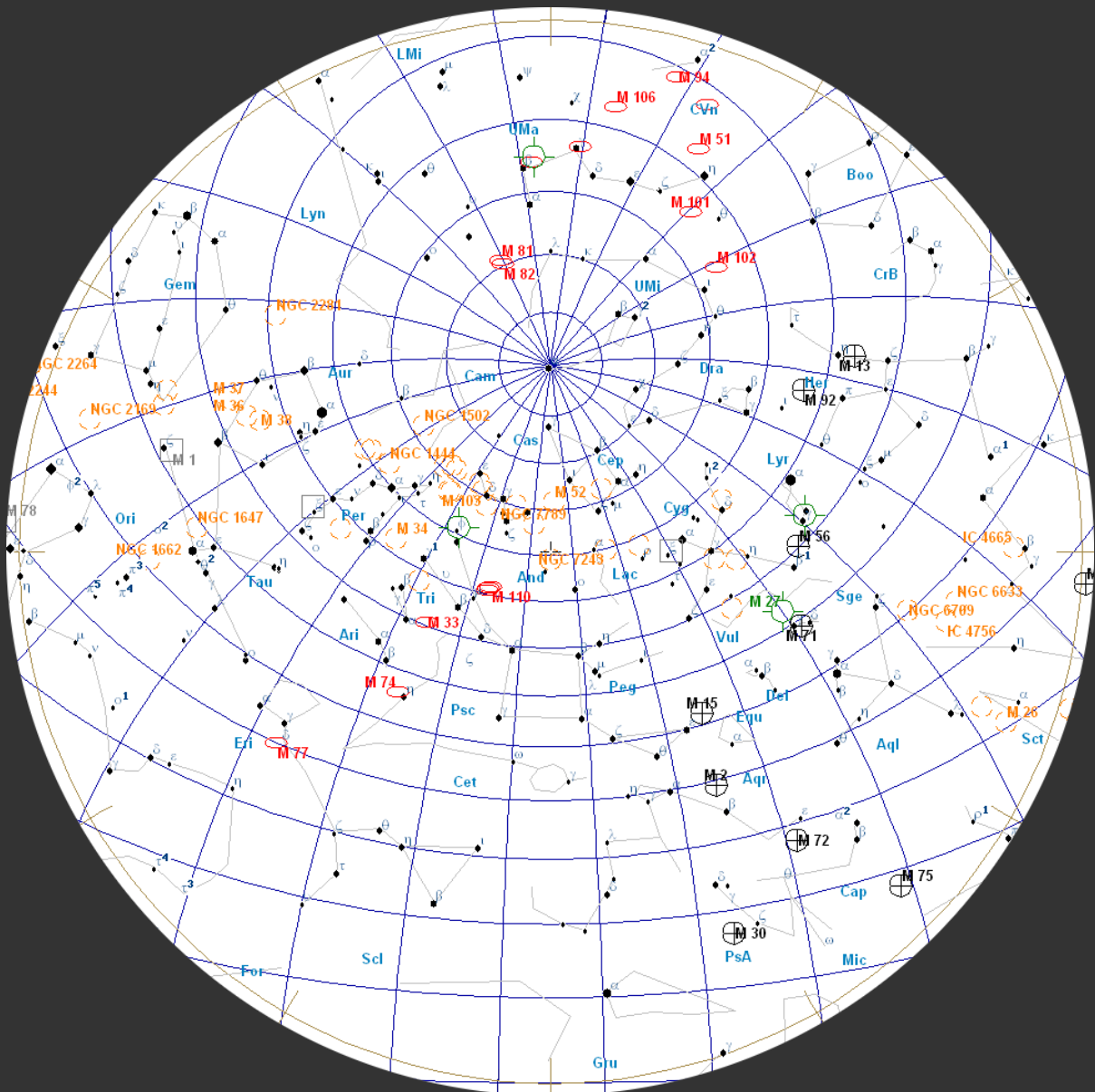
51°N

October 01, 23:00 UT

October 15, 22:00 UT

October 31, 21:00 UT

(chart is "clicky")



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. M2 is easy to find and easy to see, even in small binoculars.

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 now about as well-placed as it gets for observation from Britain before midnight; you'll need a decent southern horizon.

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

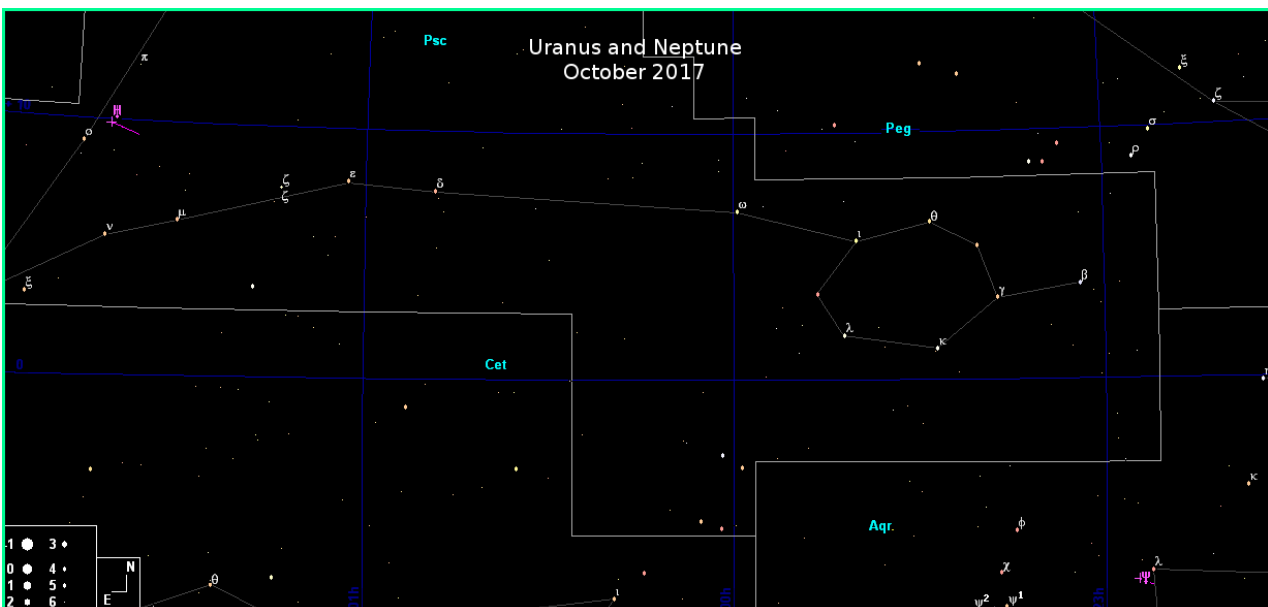
Selection of Binocular Variables (mag < +7.5)			
Star	Mag Range	Period	Type
XY Lyr	5.8-6.4	Irreg	Irregular
U Sge	6.5-9.3	3.38d	Eclipsing binary
U Vul	6.7-7.5	7.99d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
U Del	7.0-8.0	ca. 110d	Irregular
TW Peg	7.0-9.2	ca. 90d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	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
R Sct	4.5-9.0	146d	RV Tau

Double Stars

Binocular Double Stars for October			
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
d 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

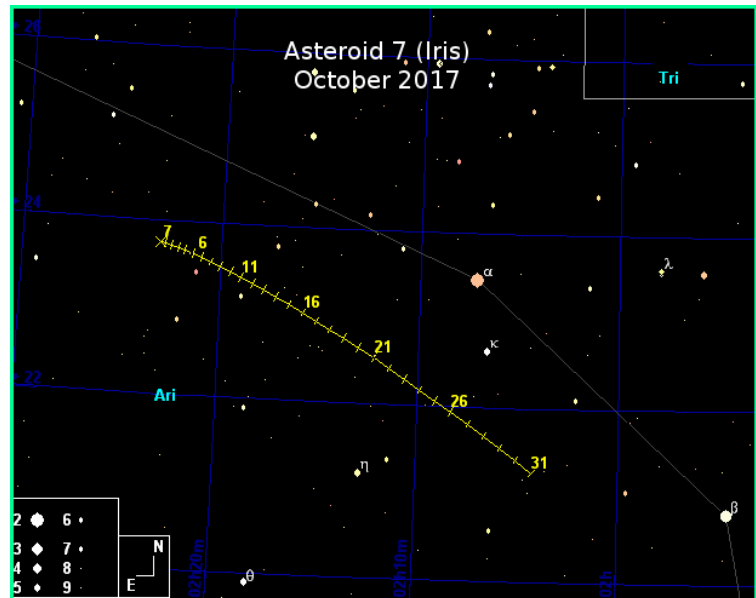
The Solar System (charts are 'clicky')

Neptune is now well placed at the onset of astronomical darkness and does not set until after midnight, shining at mag. +7.8 about 46 arcmin to the south-west (retrograde) of λ *Aqr*; during the month it moves half a degree until it is due south of λ.



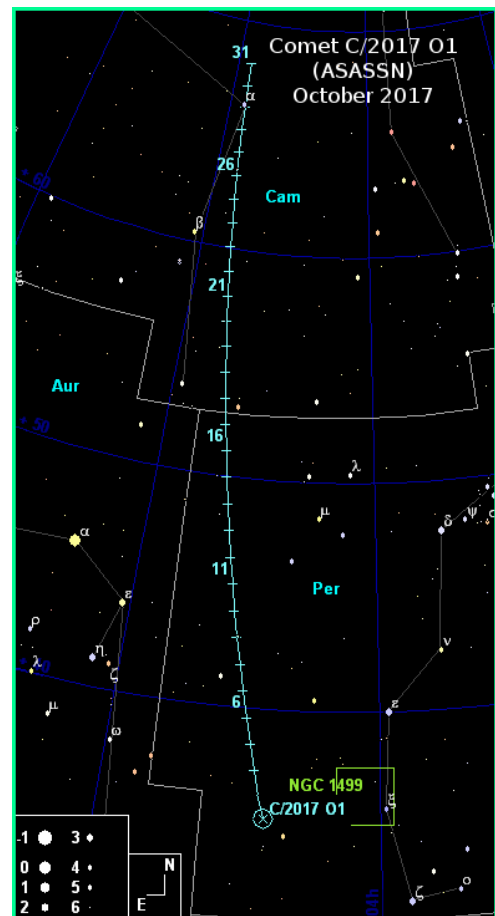
Uranus is available throughout astronomical darkness. It is much brighter than Neptune, at mag. +5.7. It starts the month a degree and a quarter northwest of *o Psc*, its position changing also by a degree and a quarter west-southwest (retrograde) during October.

Asteroid 7 (Iris) is easy to find, passing south of *Hamal (α Ari)* and brightening from mag. +7.7 to +6.9 during the month.



The predictions are very tentative at the time of writing (mid-September), but we may have a decent binocular comet for October.

Comet C/2017 O1 (ASASSN) has brightened to magnitude +9 and may brighten as much as another 2 magnitudes by mid-October. (By the way, ASASSN is the acronym for the *All Sky Automated Survey for SuperNovae*)



Meteor Showers

There are no major meteor showers in October.

Asteroid Occultations

Not strictly October, but just in case you don't receive/read the November newsletter in time:

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

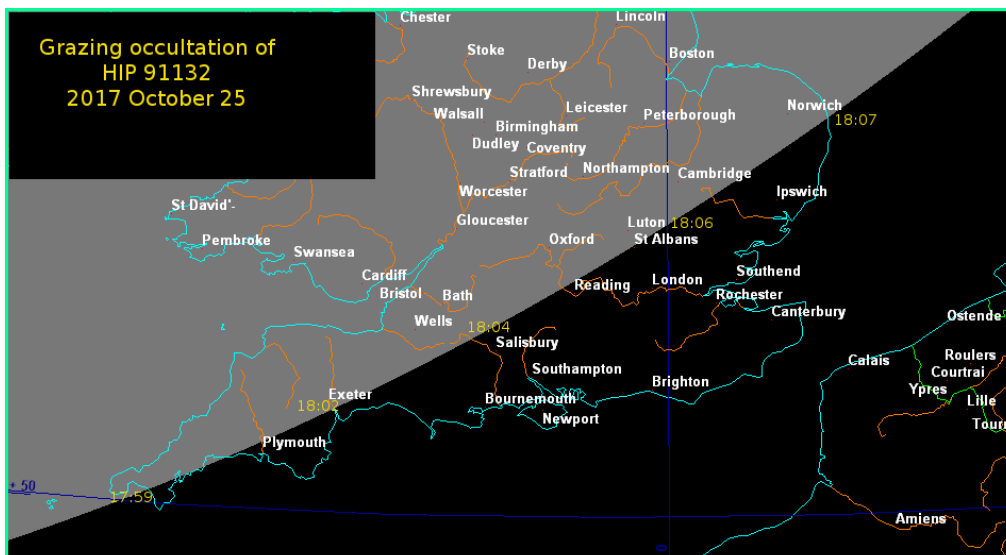
[Detailed information](#) [Map](#)

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)**.

Lunar Occultations, Oct 2017, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Oct 03	22:08:40	D	χ Aqr	M3	4.9	88S	63
Oct 07	04:55:56	R	HIP 9785	F0	6.8	56S	232
Oct 10	03:13:00	R	HIP 23043	K1	5.5	39S	216
Oct 10	23:57:59	R	HIP 27642	K0	6.8	83S	264
Oct 11	00:03:45	R	HIP 28307	G5	7.0	57S	238
Oct 14	03:50:11	R	o-2 Cnc	F0	5.7	50S	246
Oct 15	05:29:41	D(B)	v Leo	B9	5.3	-59N	79
Oct 25	18:04:08	Gr(B)	HIP 91132	F0	6.5	-1.45	
Oct 28	18:56:28	D	HIP 104444	K4	6.7	82N	65
Oct 30	20:38:11	D	HIP 112974	F8	6.7	32S	124

The highlight is a grazing occultation of HIP 91132 for southern England on the 25th. You will need a good low southern horizon for this.



The Moon

October 05	Full Moon
October 12	Last Quarter
October 19	New Moon
October 27	First Quarter

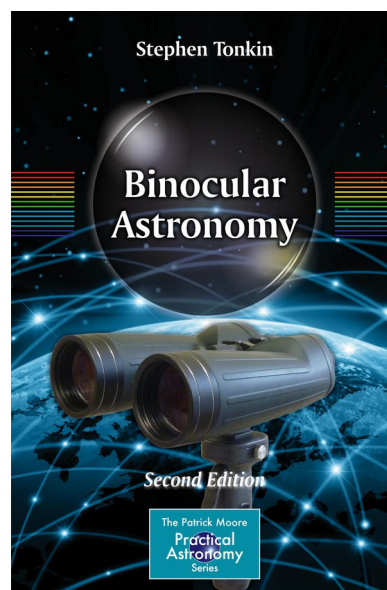
Public Outreach & Talks

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

13 th :	Weymouth Astronomy Club	Binocular Astronomy <i>(Talk)</i>
20 th :	Swindon Stargazers	Binocular Astronomy <i>(Talk)</i>

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:

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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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