



The Binocular Sky

October
2016

Newsletter

Introduction

Welcome to the **Binocular Sky** Newsletter for October 2016.

The intention of this monthly offering is to highlight some of the binocular targets for the coming month. It is primarily targeted at 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, when 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 dark skies mean that some otherwise tricky deep sky objects are more easily visible. The asteroids Vesta and Ceres are getting brighter and easier, and should be visible with 10x50s under decent skies.

The low-resolution charts are “clicky” and will take you to a higher resolution chart than is possible in the newsletter.

There is no mini-review this month – my excuse is man-flu.

If you would like to automatically receive this newsletter 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 633](#) in Cassiopeia and the [Perseus Double Cluster](#). To the East of them lie [M34](#) in Perseus and the often-overlooked [NGC 752](#) in Andromeda. More open Clusters are still visible in the south-western 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!

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 (generally 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 disc-like appearance of planets.

For interactive maps of Deep Sky Objects visible from 51°N, please visit:
http://binocularsky.com/map_select.php

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

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

Comets

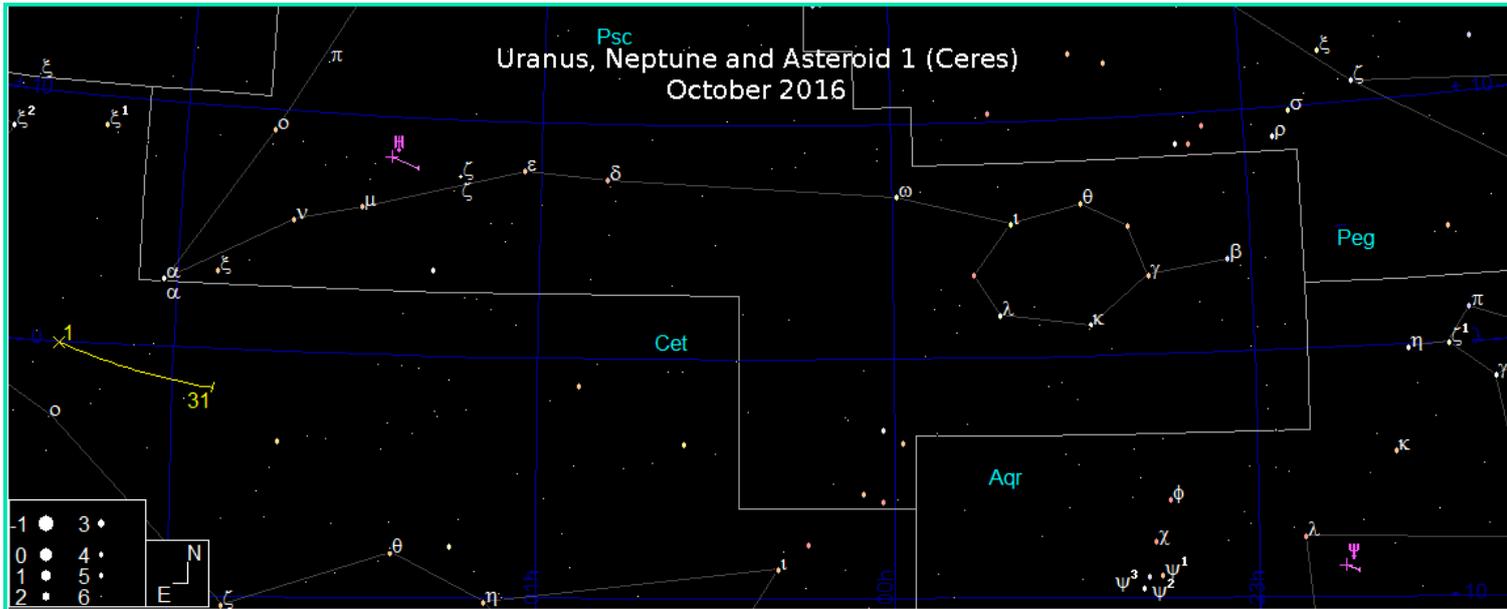
There are no comets suitable for binoculars and visible from the UK this month.

Planets

The binocular planets, **Uranus** and **Neptune**, are now available in a fully dark sky all month.

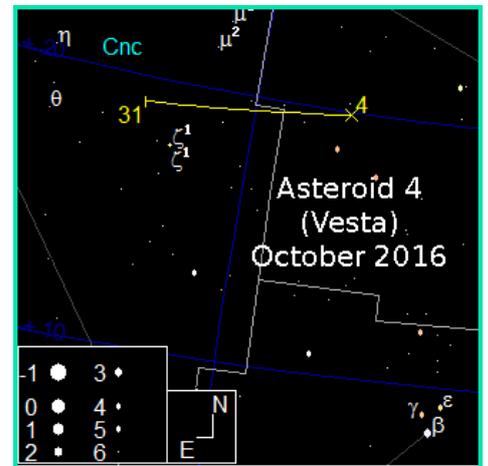
Uranus is at mag. +5.7 on a direct line between α and ζ Psc. It is at opposition on the 15th., when it may be observed throughout the hours of darkness.

Neptune is at mag. +7.8 just south of λ Aqr. At the beginning of the month, it sets about an hour before astronomical dawn.



Asteroid 1 (Ceres) starts the month as a mag. +7.8 object 2.8° N of α *Cet* (*Mira*). It brightens to mag +7.5 as it moves 6.5° (retrograde) during the month.

At the beginning of October, **Asteroid 4 (Vesta)** is a late evening object, lying 1.5° N of δ *Gem*. It moves about 8° (prograde) during the month, brightening slightly from mag. +8.2 to +7.9.



Meteor Showers

There are no major meteor showers this month

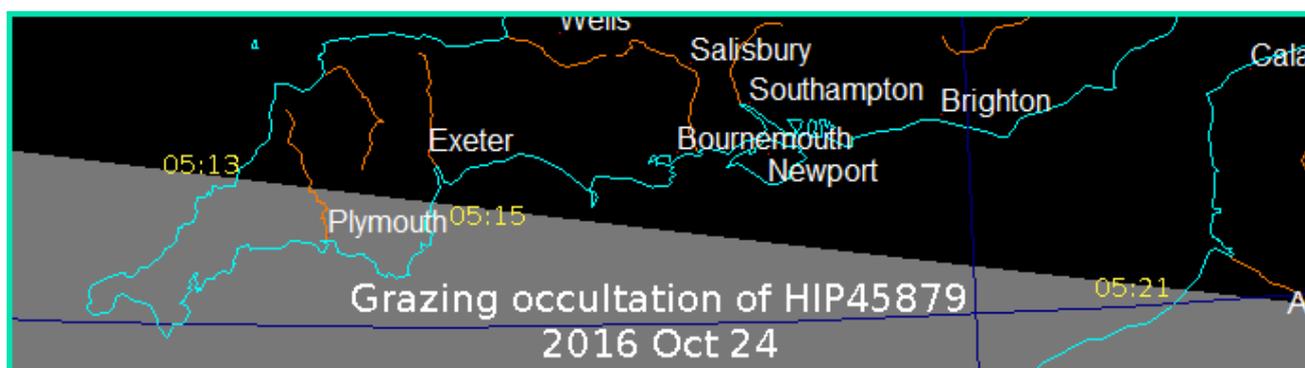
Asteroid Occultations

There are no asteroid occultations suitable for binoculars observable from our location this month.

Lunar Occultations

There is a good number of occultations of stars brighter than mag +7.0 visible from the UK this month, especially on the night of the 18th/19th, when the Moon passes through the Hyades. There is also a graze on the 24th, whose track passes through the West Country, approximately between Port Isaac and Torquay. Times and Position Angles are for my location (approx: 50.9N, 1.8W) and will vary by up to several minutes for other UK locations. The phases are **(D)**isappearance, **(R)**eappearance and **(Gr)**raze; I have only listed dark-limb events unless there is a **(B)**.

Lunar Occultations, October 2016, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Oct 10	20:13:57	D	HIP 196078	A5	6.2	65S	101
Oct 13	20:37:52	D	HIP 115257	K0	6.2	65S	90
Oct 15	02:08:51	D	10 Cet	G8	6.4	81S	67
Oct 17	20:26:02	R	HIP 14764	B8	6	63S	240
Oct 18	22:16:09	R	48 Tau	F5	6.3	78N	279
Oct 19	00:10:19	R	γ Tau	G8	3.7	85N	272
Oct 19	03:13:32	R	70 Tau	F7	6.6	89N	269
Oct 19	04:39:06	R	θ-2 Tau	A7	3.4	49S	227
Oct 19	04:43:31	R	θ-1 Tau	G7	3.8	70S	248
Oct 19	04:57:36	R	HIP 20916	F7	6.7	72N	286
Oct 19	05:44:23	R	HIP 21029	A6	4.8	75N	283
Oct 19	05:51:33	R	HIP 21053	F5	6.5	85N	272
Oct 20	01:36:15	R	111 Tau	F8	5	57S	238
Oct 20	23:46:05	R	HIP 30218	G9	6.3	37S	222
Oct 22	05:58:04	R	HIP 36616	K2	5.5	48S	238
Oct 23	00:50:00	R	HIP 40675	K0	6.4	66S	259
Oct 24	05:18:21	Gr	HIP45879	F8	6.7	1.9N	
Oct 25	03:33:42	R	31 Leo	K4	4.4	79N	301
Oct 26	03:16:26	R	56 Leo	M5	5.9	28S	230
Oct 26	06:04:29	R	59 Leo	A5	5	76N	306



The Moon

October 01	New Moon
October 09	First Quarter
October 16	Full Moon
October 22	Last Quarter

Public Outreach & Talks

During October I will be at the following events, where I would be delighted to meet any readers of this newsletter who attend:

17 th :	<u>Chipping Norton Amateur Astronomy Group</u>	Binocular Astronomy <i>(Talk)</i>
20 th :	<u>Andover Astronomical Society</u>	Binocular Astronomy <i>(Talk)</i>
27 th :	<u>Blashford Lakes (HIWWT)</u>	Public Stargazing Evening <i>(booking essential)</i>

Wishing you Clear Dark Skies,

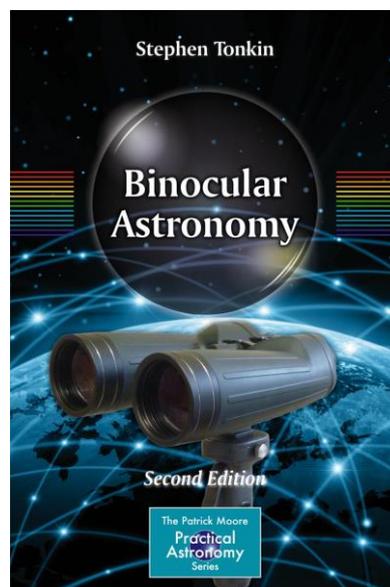
Steve Tonkin

for

The Binocular Sky

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



Acknowledgments:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com>

Variable star data based on David Levy's *Observing Variable Stars*

Lunar occultation data derived with Dave Herald's *Occult*

Asteroid occultation data derived from Hristo Pavlov's *OccultWatcher*

Disclosure: Links to *Amazon* or *The Binocular Shop* may be affiliate links

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