



The Binocular Sky

November
2016



Newsletter

Introduction

Welcome to the [Binocular Sky](#) Newsletter for November 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.

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

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, 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](#).

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 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.

Two notable exceptions to the generalisation of galaxies being poorly placed on November evenings are The Great Andromeda Galaxy, M31 and M33 (The Triangulum Galaxy), 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, but you will need a good southern horizon for this.

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!

Although the two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are still observable, 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; as with NGC 253, a good southern horizon is essential.

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 (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

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
R Hya*	4.5-9.5	389

***NB:** difficult to observe in Dawn twilight at beginning of the month

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
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 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
β Cyg	3.1, 4.7	K0, B9	35
d Cep	4.1, 6.1	F5, A0	41
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

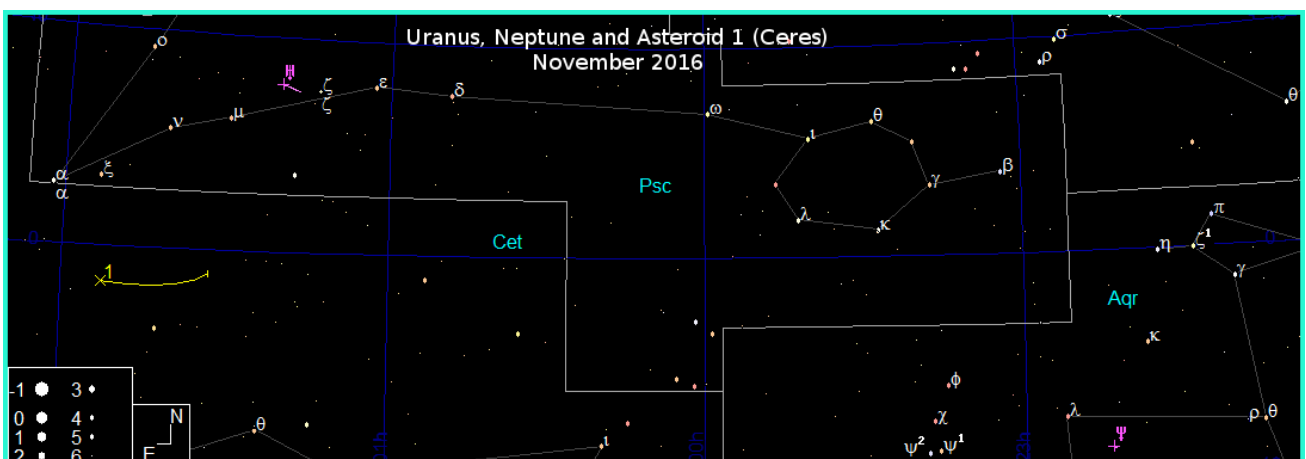
Planets

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 ο and ζ Psc.

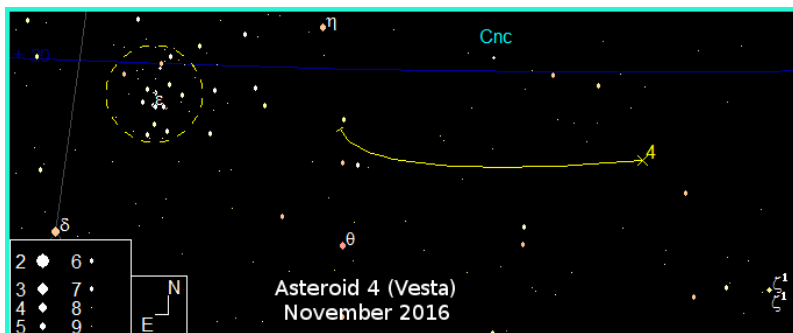
Neptune is at mag. +7.8 just south of λ Aqr. It fades slightly to mag +7.9 and changes to prograde motion for the last week of the month.

Asteroid 1 (Ceres) starts the month as a mag. +7.5 object 5° S of α Psc



(*Alrisha*). It fades to mag +8.1 as it moves 5° (retrograde) during the month.

At the beginning of November, **Asteroid 4 (Vesta)** is a late evening object 2° NE of ζ -1 *Cnc*. It brightens over half a magnitude from mag. +7.9 to +7.3 as it moves to 2° W of M44 (*The Beehive Cluster*) at the end of the month.



Comets

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

Asteroid Occultations

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

Lunar Occultations

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**)aze; I have only listed dark-limb events unless there is a (**B**).

Lunar Occultations, Nov 2016, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Nov 09	23:32:19	D	81 Aqr	K5	6.2	47N	24
Nov 10	21:38:44	D	24 Psc	G9	5.9	86S	69
Nov 12	19:08:08	D	v Psc	K3	4.5	20S	129
Nov 16	01:59:01	R	HIP 23043	K1	5.5	89N	279
Nov 16	19:52:47	R	130 Tau	F0	5.5	58S	245
Nov 18	01:24:26	R	NP Gem	M1	6	14S	205
Nov 18	23:56:31	R	HIP 3895	K0	6.1	36S	230
Nov 19	01:25:20	R	5 Cnc	B9	6	35S	229
Nov 26	06:40:57	R	HIP 67953	F8	6.6	50N	335

The Moon

Nov 07	First Quarter
Nov 14	Full Moon
Nov 21	Last Quarter
Nov 29	New Moon

Wishing you Clear Dark Skies,

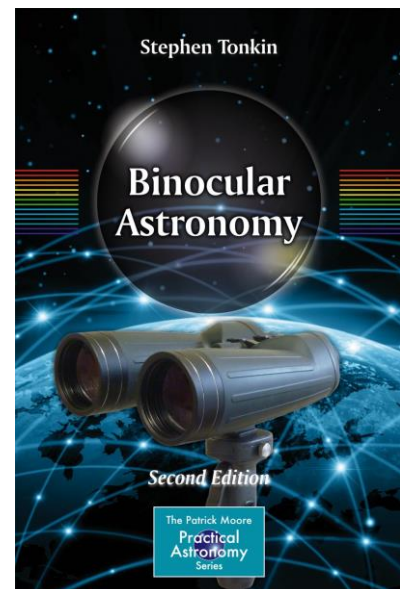
Steve Tonkin

for

The Binocular Sky

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- Purchase my book, [Binocular Astronomy](#):
Click on the image for more information
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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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