



# The Binocular Sky

June  
2016



# Newsletter

## Introduction

Welcome to the **Binocular Sky** Newsletter for June 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. It's slightly shorter than usual this month: less to see in our all-night twilight sky.

Solar-system charts are usually clickable and will take you to a larger chart that may be more useful as well as being downloadable to your computer or mobile device.

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.)*

Visible low in the North are [NGC 457](#) (The Owl Cluster), [NGC 633](#) in Cassiopeia and the [Perseus Double Cluster](#). The finest and best-placed open cluster available this month is [Melotte 111](#), the cluster that gives Coma its name. More open clusters are becoming visible in the south-eastern sky as Ophiuchus rises. These include [Melotte 186](#), [NGC 6633](#) and [IC 4665](#), all of which are easily visible in 50mm binoculars.

*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.*

While you are in the region of Ophiuchus, see if you can find Barnard's Star. This has the largest known proper motion of any star. 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 June, 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. Look out for the two galaxy trios in Leo (M95/96/105 and M65/66/NGC3628) which are now moving into the western sky, and Markarian's Chain in Coma Berenices, which is very well placed as we enter astronomical twilight. If you have a big binocular, also observe the edge-on NGC4565 (Berenice's Hair Clip), which is next to Melotte 111. Also 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 Canes Venatici globular cluster M3, is a good one to start with during a June evening's observing. Later in the evening, the two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are at a better altitude for observation. Although M13 is clearly larger than M3, 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.

*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.*

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.*

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

[http://binocularsky.com/map\\_select.php](http://binocularsky.com/map_select.php)

## Variable Stars

<b>Mira-type stars near predicted maximum (mag &lt; +7.5)</b>		
<b>Star</b>	<b>Mag Range</b>	<b>Period (days)</b>
X Oph	6.8 – 8.8	329

<b>Selection of binocular variables (mag &lt; +7.5)</b>			
<b>Star</b>	<b>Mag Range</b>	<b>Period</b>	<b>Type</b>
U Cep	6.8-9.2	2.5d (increasing)	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
AF Cyg	6.4-8.4	92.5	Semi-regular
ZZ Boo	6.7-7.4	4.99d	Eclipsing binary
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
X Cyg	5.9-6.9	16.39d	Cepheid

## Double Stars

Binocular Double Stars for June			
Star	Magnitudes	Spectral Types	Separation (arcsec)
67 Oph	4.0, 8.1	B5, A	54
$\rho$ Oph	5.0, 7.3, 7.5	B5, A, B3	151, 157
53 Oph	5.7, 7.4	A2, F	41
$\delta$ Cep	4.1, 6.1	F5, A0	41
$\gamma$ Her	3.7, 9.4	F0, K	43
$\delta$ Boo	3.5, 7.8	K0, G0	105
$\mu$ Boo	4.3, 7	F0, K0	109
$\iota$ Boo	4.0, 8.1	A5, A2	38
$\nu$ Boo	5.0, 5.0	K5, A2	628
DN & 65 UMa	6.7, 7.0,	A3, B9	63
$\pi$ -1 UMi	6.6, 7.2	G5, G5	31

## The Solar System

### Planets

The binocular planets, **Uranus** and **Neptune**, are too low to be observable in binoculars in the all-night twilight sky at our latitude this month.

### Comets

**Comet 2013 X1 (PanSTARRS)** is expected to brighten during the first half of the month, but will not be observable north of about 40°N.

### Meteor Showers

The Moon is unfavourable for the **June Boötids**, which are active from the 22<sup>nd</sup> and are expected to peak in the early hours of the 23<sup>rd</sup>. This is a very unpredictable shower and they are not expected to be bright so, coupled with the Moon and the all-night twilight, visual observation may well be fruitless. These meteors are the result of Earth travelling through the debris left by Comet P7 (Pons-Winnecke); binoculars are useful for examining the ionisation trains left by the meteors.

## Asteroid Occultations

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

## Lunar Occultations

There are several occultations of stars brighter than mag +7.5 visible from the UK this month. 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; they are all dark-limb events unless there is a **(B)**.

Lunar Occultations, June 2016, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Jun 09	22:41:31	D	ξ Leo	K0	5	54S	147
Jun 15	22:17:50	D	κ Vir	K3	4.2	89N	111
Jun 21	22:59:44	R	43 Sgr	K0	4.9	82S	244
Jun 24	02:26:35	R	EW Aqr	F*	6.5	71N	270
Jun 27	02:13:34	Gr	24 Psc	G9	5.9	1.3S	
Jun 27	02:37:06	R	24 Psc	G9	5.9	29S	186

## The Moon

- June 05 New Moon
- June 12 First Quarter
- June 20 Full Moon
- June 7 Last Quarter

## Equipment Mini-Review

There is no mini-review this month; next month I hope to review the *Levenhuk Sherman PRO 10x50*.

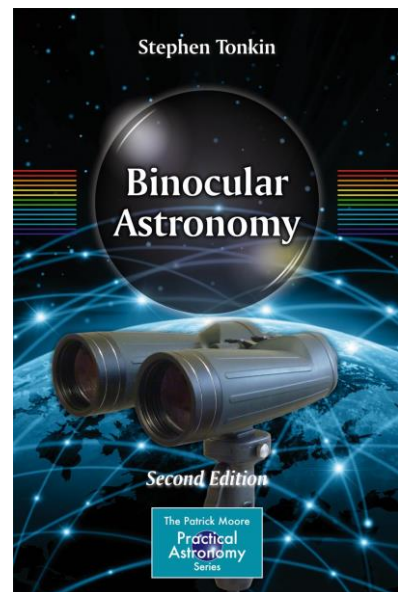
## Public Outreach & Talks

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

- |       |   |   |
|-------|---|---|
| 7th:  | <u>Wessex AS</u>  | <b>Open evening</b> ( <i>Binocular Astronomy display</i> )                                      |
| 12th: | <u>Fordingbridge Picnic in the Park</u>                               | <b>Fordingbridge Astronomers Public Outreach</b> ( <i>Display, Info &amp; Solar Observing</i> ) |
| 19th: | <u>Blashford Lakes (Hampshire &amp; Isle of Wight Wildlife Trust)</u> | <b>International Sun Day</b> ( <i>Public Solar Observing</i> )                                  |
| 22nd: | <u>Dorset Humanists</u>   | <b>Talk:</b> <i>Ten Ways the Universe Tries to Kill You</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](mailto:newsletter@binocularsky.com)



Wishing you Clear Dark Skies,

**Steve Tonkin**

for

**[The Binocular Sky](#)**

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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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