





The Binocular Sky

June
2014

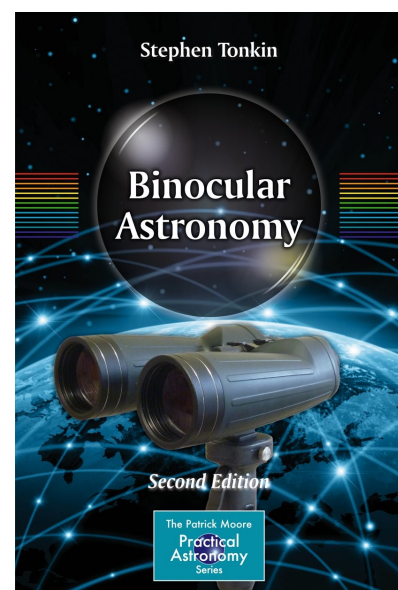
Newsletter

Introduction

Welcome to the ***Binocular Sky*** Newsletter of June 2014. 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. For this Newsletter to be a useful tool, it needs to have the information that **YOU** want in it; therefore please do not be shy about making requests – if I can accommodate your wishes, I shall do so.

If you would like me to email this newsletter to you each month, please complete and submit the [subscription form](#). You can get “between the newsletters” alerts, etc. via  and .

If you would like to support this Newsletter, the simplest way is to purchase some (i.e. just those chapters that interest you) or all of the 2nd Edition of my book, [Binocular Astronomy](#). Click on the image for more information.



The Deep Sky

([Hyperlinked text](#) will take you to charts and more information.)

Visible low in the North are [NGC 457 \(The Owl Cluster\)](#) and [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 [Melotte186](#), [NGC 6633](#) and [IC4665](#), 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 an 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, which is why I one reason that I have nominated it as object of the month. Also visible this month is [M5](#) in Serpens, which is one of the largest globular clusters known, being 165 light years in diameter. It's 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 charts of Deep Sky Objects visible from 51°N,
 please visit: http://binocularsky.com/map_select.php

Binocular Double Stars for June			
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

Mira-type stars near predicted maximum (mag < +8.5)		
Star	Mag Range	Period (days)
UV Aur	7.4-10.7	394
Chi Cyg	5.2-13.4	408

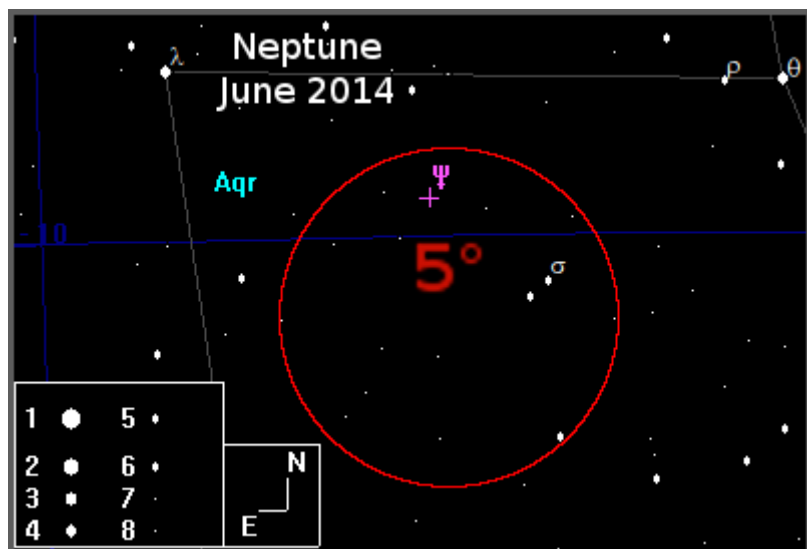
Selection of Binocular Variables (mag < +8.5)			
Star	Mag Range	Period	Type
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
EK Cep	8.2-9.5	4.3d	Eclipsing binary
V1010 Oph	6.1-7	0.66d	Eclipsing binary
RR Lyr	7.06-8.12	0.57d	RR Lyr
TX UMa	7.0-8.8	3.06d	Eclipsing binary
R Vir	6.9-11.5	145d	Mira
ZZ Boo	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

Selection of Binocular Variables (mag < +8.5)			
Star	Mag Range	Period	Type
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

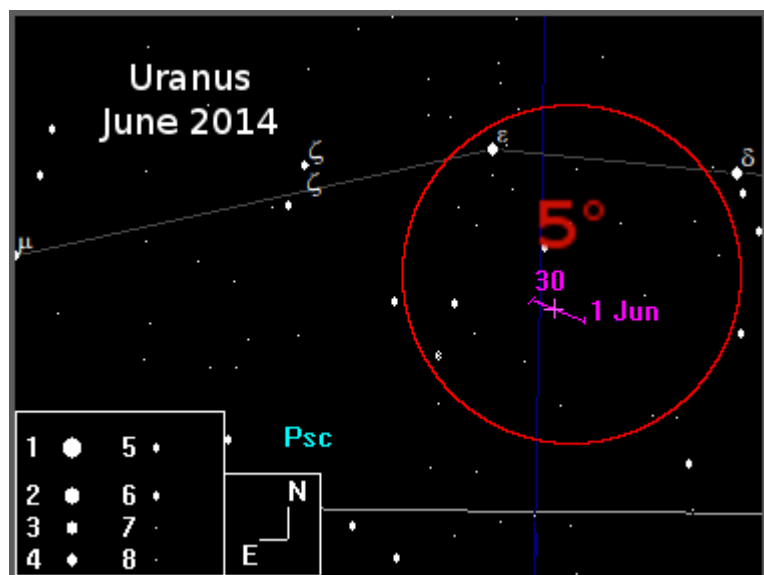
The Solar System

Planets

Neptune is a difficult, but possible, object low in the south-eastern sky, before it is washed out by the dawn twilight. It moves less than 5 minutes of arc throughout the month.

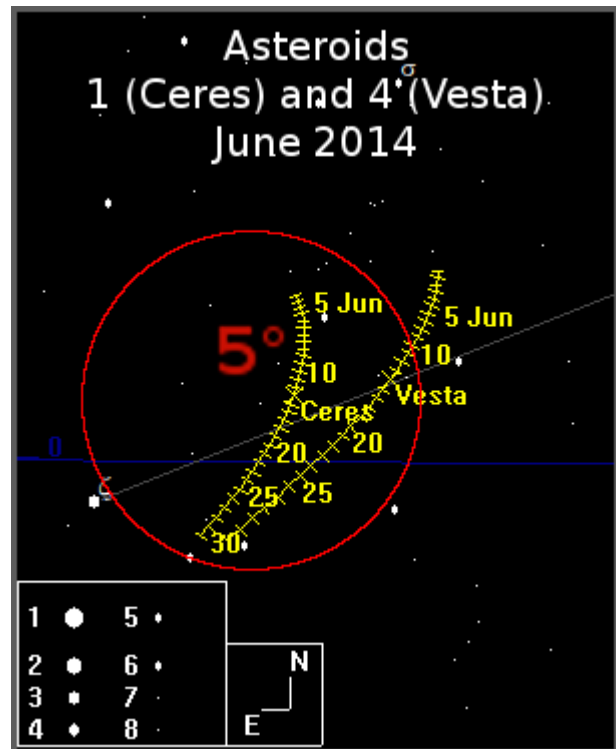


Uranus rises around local midnight (01:00 UT), and may be observed very low in the east before dawn twilight washes it out.



Minor Planets

Ceres (mag +8.1) and **Vesta** (mag +6.8), are gradually fading as they approach their appulse on 6th July. Despite the persistence of twilight throughout the night, they are still visible all 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 types are (**D**)isappearance, (**R**)eappearance and (**Gr**)raze; they are all dark-limb events unless there is a (**B**).

Lunar Occultations, Jun 2014, 50.9°N, 1.8°W					
Date	Time	Type	SAO	Mag	PA (°)
Jun 03	21:47:57	D	117717	5.5	105
Jun 15	00:09:46	D(B)	162512	3.9	53
Jun 15	01:13:29	R	162512	3.9	295
Jun 16	02:59:15	R	163564	7.3	266
Jun 19	01:56:45	R	146580	7.2	251
Jun 21	02:32:20	R	109581	6.1	291

Asteroid Occultations

There are no asteroid occultations suitable for binocular observers in the UK this month.

Meteor Showers

Although we have all-night twilight all month, the conditions are otherwise very favourable for the June Boötids, which peak with the New Moon on the 27th, but this is usually a very weak shower, with only one or two meteors visible every hour, but there have been outbursts with Zenithal Hourly Rates of 100 or more. These relatively slow meteors are dust particles from the tail of Comet Pons-Winnecke. 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".

The Moon

Jun 05 First Quarter
Jun 13 Full Moon
Jun 19 Last Quarter
Jun 27 New Moon

Wishing you Clear Dark Skies,

Steve Tonkin for The Binocular Sky



Acknowledgments:

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

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