



The Binocular Sky

June
2017

Newsletter

Introduction

Welcome, especially to new readers, to June'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.

Highlights this month include the return of Uranus to the morning sky, a couple of comets, and a review of an unusual binocular.

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 .

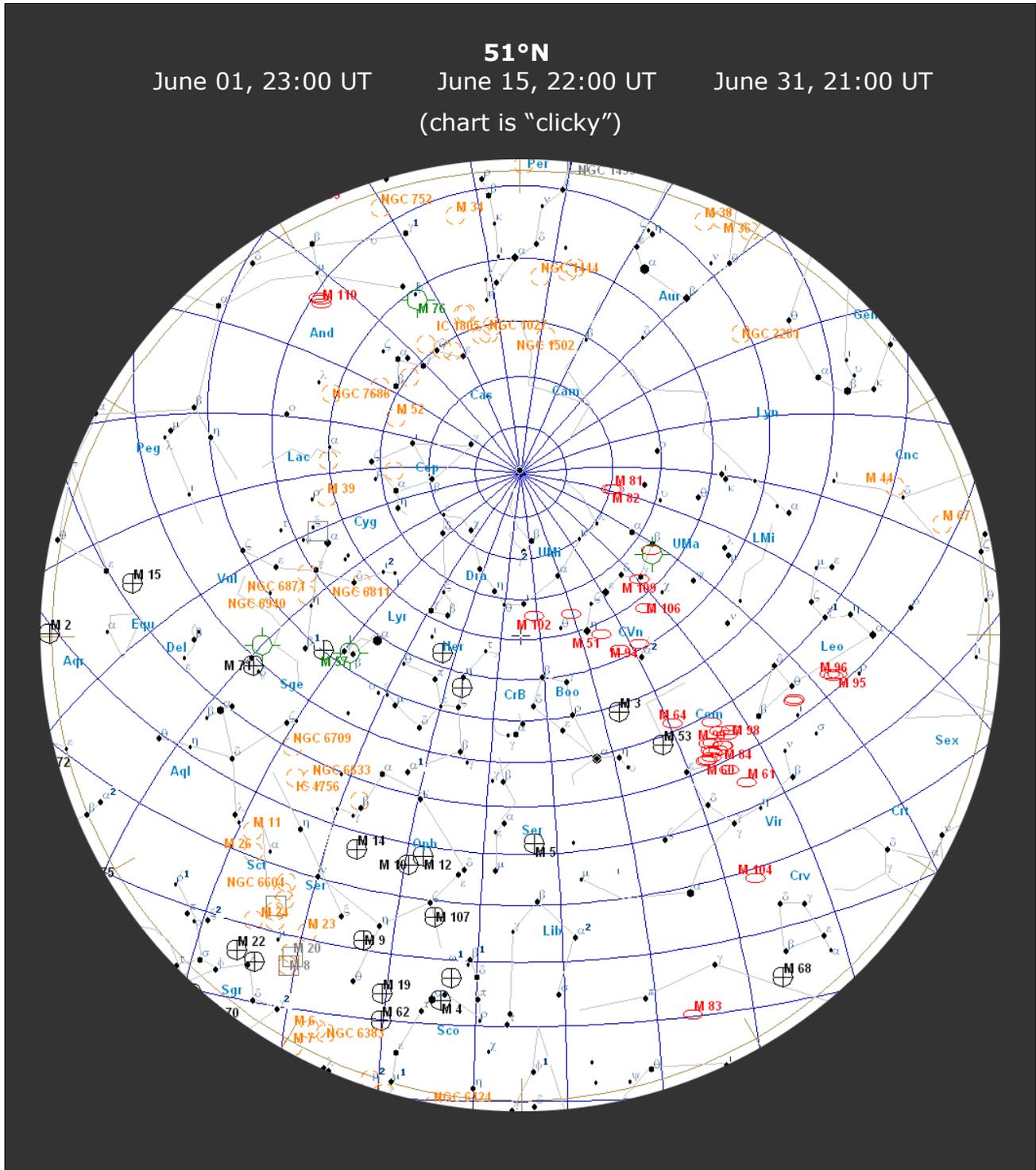
The Deep Sky

([Hyperlinks](#) will take you to finder charts and more information about the object.)

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

Variable Stars

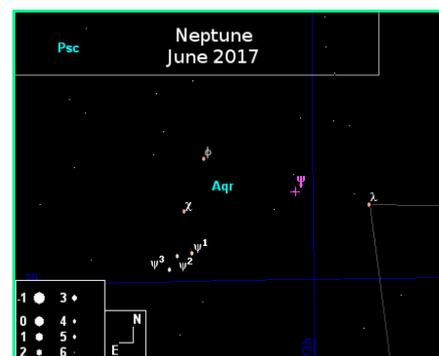
Selection of binocular variables (mag < +7.5)			
Star	Mag Range	Period	Type
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
V1010 Oph	6.1-7	0.66d	Eclipsing binary
RR Lyr	7.06-8.12	0.57d	RR Lyr
TX UMa	7.0-8.8	3.06d	Eclipsing binary
AF Cyg	6.4-8.4	92.5	Semi-regular
ZZ Boo	6.7-7.4	4.99d	Eclipsing binary
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

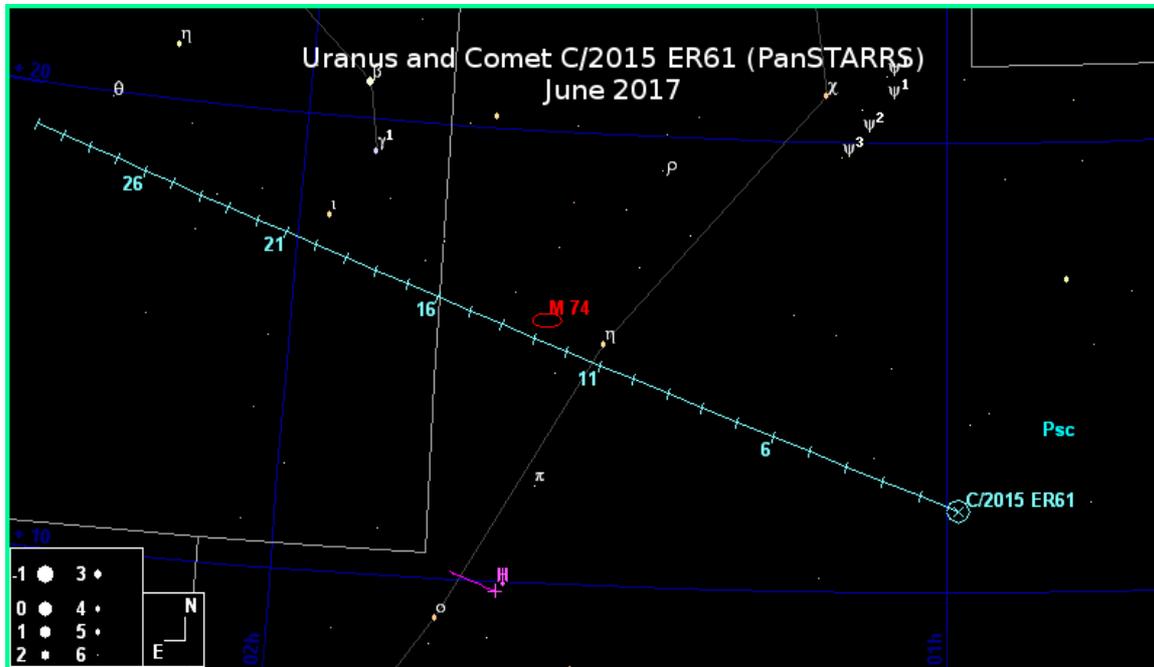
Binocular Double Stars for June			
Star	Magnitudes	Spectral Types	Separation (arcsec)
67 Oph	4.0, 8.1	B5, A	54
ρ Oph	5.0, 7.3, 7.5	B5, A, B3	151, 157
53 Oph	5.7, 7.4	A2, F	41
δ Cep	4.1, 6.1	F5, A0	41
γ Her	3.7, 9.4	F0, K	43
δ Boo	3.5, 7.8	K0, G0	105
μ Boo	4.3, 7	F0, K0	109
ι Boo	4.0, 8.1	A5, A2	38
ν 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

The Solar System (charts are 'clicky')

Neptune is now back in the morning sky, but is only 10° above the horizon at the end of astronomical twilight at the beginning of the month, but more than double this by the end of the month. It is shining at mag. +7.9 midway between two reddish stars, λ and ϕ Aqr. It hardly moves at all as it changes from prograde to retrograde motion.

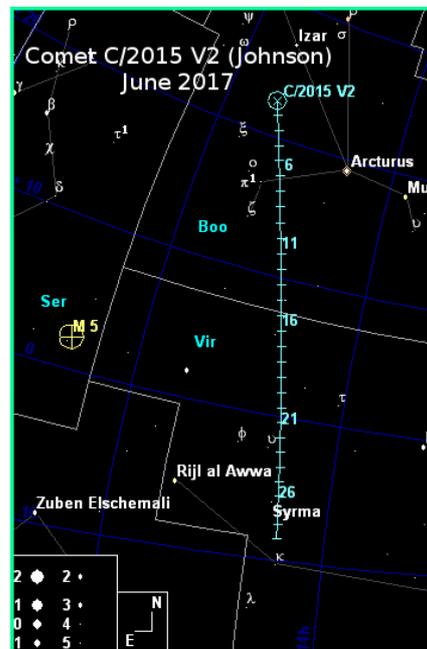


Uranus is back from about mid-month, but only about 6° high at the end of astronomical twilight. By the end of the month, this has increased to 15° . It is much brighter than Neptune, at mag. +5.8. Its position changes by about 1° as it moves to the same distance north of *o Psc*.



Comet C/2015 ER 61 (PanSTARRS) is now a very difficult morning object, in the same part of the sky as Uranus.

Comet C/2015 V2 (Johnson) is well-placed in Boötes at the beginning of the month, dropping into Virgo at mid-month. It is quite high during astronomical twilight and may be your best bet for nabbing a comet this month. During the clear nights of late May, I found it easy in 16x50, possible with direct vision in 10x50, and possible in 6.5x32 with averted vision (suburban location).



Asteroid Occultations

There are no predicted asteroid occultations of stars visible from the UK and suitable for binoculars (mag. < +7.5) this month.

Lunar Occultations

Owing to the short nights, there are few occultations of stars brighter than mag +7.0 visible from the UK this month. Data are for my location and may vary by several minutes for other UK locations. The types are **(D)**isappearance and **(R)**eappearance ; they are all dark-limb events.

Lunar Occultations, Jun 2017, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Jun 02	22:53:34	D	HIP 58466	K0	6.8	33S	171
Jun 08	00:02:17	D	HIP 78120	M1	6.5	44N	70
Jun 08	02:29:57	D	49 Lib	F7	5.5	53S	152
Jun 17	01:47:49	R	HIP 116060	K0	6.4	48N	289

The Moon

June 01 First Quarter
June 09 Full Moon
June 17 Last Quarter
June 24 New Moon

Public Outreach & Talks

During June I will be at the following events. If you attend any of them, please come and say hello!

- 9th: Talk: *Binocular Astronomy* at Milton Keynes AS
18th: International SUNday *Solar Observing* (only if clear), 10:30am at Fordingbridge Recreation Ground
21st: Talk: *Ten ways the Universe Tries to Kill You* at Crewkerne and District AS
22nd: Talk: *Binocular Astronomy* at Cardiff AS

Equipment Mini-Review

Vixen SG 6.5x32 WP ED

Manufacturer's Specification

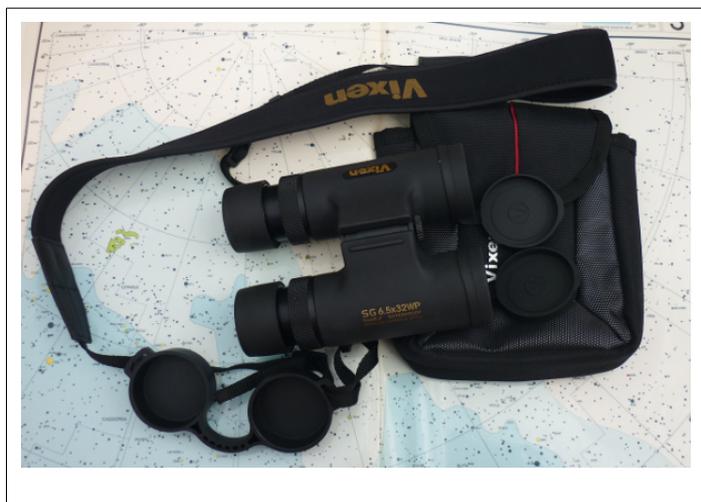
Weight (g)	608
Field of View (°)	9.0
Eye Relief (mm)	20
IPD (mm)	56-76
Waterproof	Yes
Prism Type	Roof
UK Guarantee	2 years
Origin	Japan
Body Material	Magnesium Alloy
Armour Type	Rubber
Nitrogen Gas Filled	Yes
Prism Material	BK7
Prism Coatings	SHRC, PC, FMC
Lens Coating	Fully multi-coated
Eyecup Type	Twist-up



Price: £459

Available from: [Vixen Optics UK Dealers](#)

This unusual binocular is a roof-prism model with individual eyepiece focusing. Unusually for a binocular this size, it has a standard photographic (1/4" Whitworth) threaded bush at the distal end of the hinge to enable it to be tripod-mounted with a narrow tripod adaptor (not included). It also has a line-sight adjacent to the hinge. The lightly-knurled metal focus ring on each eyepiece is easy to focus, and wide enough so you can avoid twisting the eyecup, even with



gloved fingers when you are focusing. It has variable focus speed: it is slower near infinity-focus.

The cordura case has enough padding to protect the binocular from knocks it might get in reasonable use. It has a belt-loop but no shoulder strap, but is designed so that the binocular's neck-strap can be used as a shoulder strap. All lens caps are tethered and the objective ones are completely removable.

This is a remarkably nice little binocular. The field is wide and flat; I was able to split Delta Cephei (41 arcsec separation, magnitudes +4.1 and +6.1) to within half a degree of the edge! The variable focus speed is sheer genius: it makes attaining perfect focus so easy. Whilst I doubt that I would mount it very often, the ability to do so is an added bonus and the line sight is helpful in this regard. It is very comfortable to hold and easy to hold steadily; its 'heft' aids this. Most importantly, the optics, whilst not of the quality of a binocular costing two or three times as much, are very good indeed. The 'ED glass' does what it should: off-axis lateral chromatic aberration is minimal. This contributes to the clarity and faithful colour rendition that extends over most of the field of view.

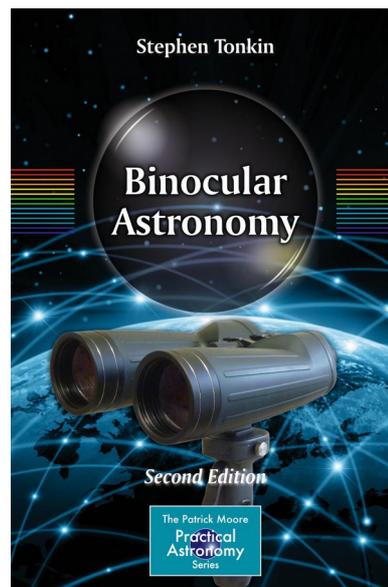
So who is it for? At £459, it is not a beginner's binocular. With its individual eyepiece focusing and near focus of 6 m, it is probably not an ideal option for birding or racing. It isn't a substitute for a "typical" astronomical binocular. I imagine this would appeal to someone who appreciates decent glass and well thought-out design, and who wants an ultra-portable "sheer enjoyment" option for casual widefield observation or pleasurable entertainment during long imaging runs.

You can read the full review at [Binocular Sky Reviews](#).

Binocular Sky Ratings (/10)	
Sharpness of Image	10
Size of usable field	9.2
Colour Correction	9
Control of stray light	9
Eye relief	10
IPD	10
Overall Optical Quality	9.5
Focus mechanism	10
Eye cups	10
Hinge	10
Armour	10
Weight and balance	10
Overall Mechanical Quality	10
Case	7
Neck-strap	10
Objective caps	10
Eyepiece caps	10
Value for Money	9.5
Overall	9.6

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

Acknowledgments:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com> or [Stellarium](#) under [GNU Public License](#), incorporating Milky Way panorama © [Axel Mellinger](#)

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

Occultation data derived with Dave Herald's *Occult*

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

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