



The Binocular Sky

No. 138
June 2023

Newsletter

Introduction

Welcome to June's **Binocular Sky** Newsletter.

Short evenings this month (hence a relatively short newsletter): even in southern Britain, we will not have astronomical darkness until mid-July (although we do have a few hours of astronomical twilight) so observing opportunities in June are necessarily limited.

But, as ever, the summer Deep Sky offers us a wonderful variety, which many of us will be able to enjoy without having to swathe ourselves in multi-layers of thermal insulation. It's a real gift to be able to simply walk outside with binoculars on a clear night and be with old friends in the sky, knowing that other like-minded folk are sharing the same wonders.

In the Solar System, we have only two lunar occultations, but Neptune is emerging from the solar glare – just!

It is, of course, the season for festivals and fairs, so there's a lot of opportunity for outreach, including solar observing (but make sure you do so safely whether you are using solar-filtered binoculars or using them for image projection!).

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The Deep Sky

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

It's unfortunate that June's nights are so short, and never completely dark, in the northern temperate latitudes because, as you will see from the chart on page 3, examples of all the major classes of deep sky object are well-placed.

In the northern sky we can see [NGC 457](#) (The Owl Cluster), the "Triple Cluster" ([NGC 663](#), [NGC 654](#) and [NGC 659](#)) in Cassiopeia and the [Perseus Double Cluster \(PDC\)](#). A double string of stars from the PDC leads us back into Cassiopeia, where we find the [Muscleman Cluster \(Stock 2\)](#)

Open (also called 'Galactic') Clusters are loosely packed groups of stars that are gravitationally bound together; they June contain from a few dozen to a few thousand stars which recently formed in the galactic disk.

We look to the southern sky for one of the finest and best-placed open clusters available in the evening this month: [Melotte 111](#), the cluster that gives the constellation Coma Berenices its name. More open clusters are becoming visible in the south-eastern sky as the Ophiuchus region rises. These include [Melotte186](#), [NGC 6633](#) and [IC4665](#), all of which are easily visible in 50mm binoculars.

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. [Markarian's Chain](#) in Coma Berenices is very well placed as we enter astronomical twilight and,

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 technology consisted of rocks, sticks and bones.

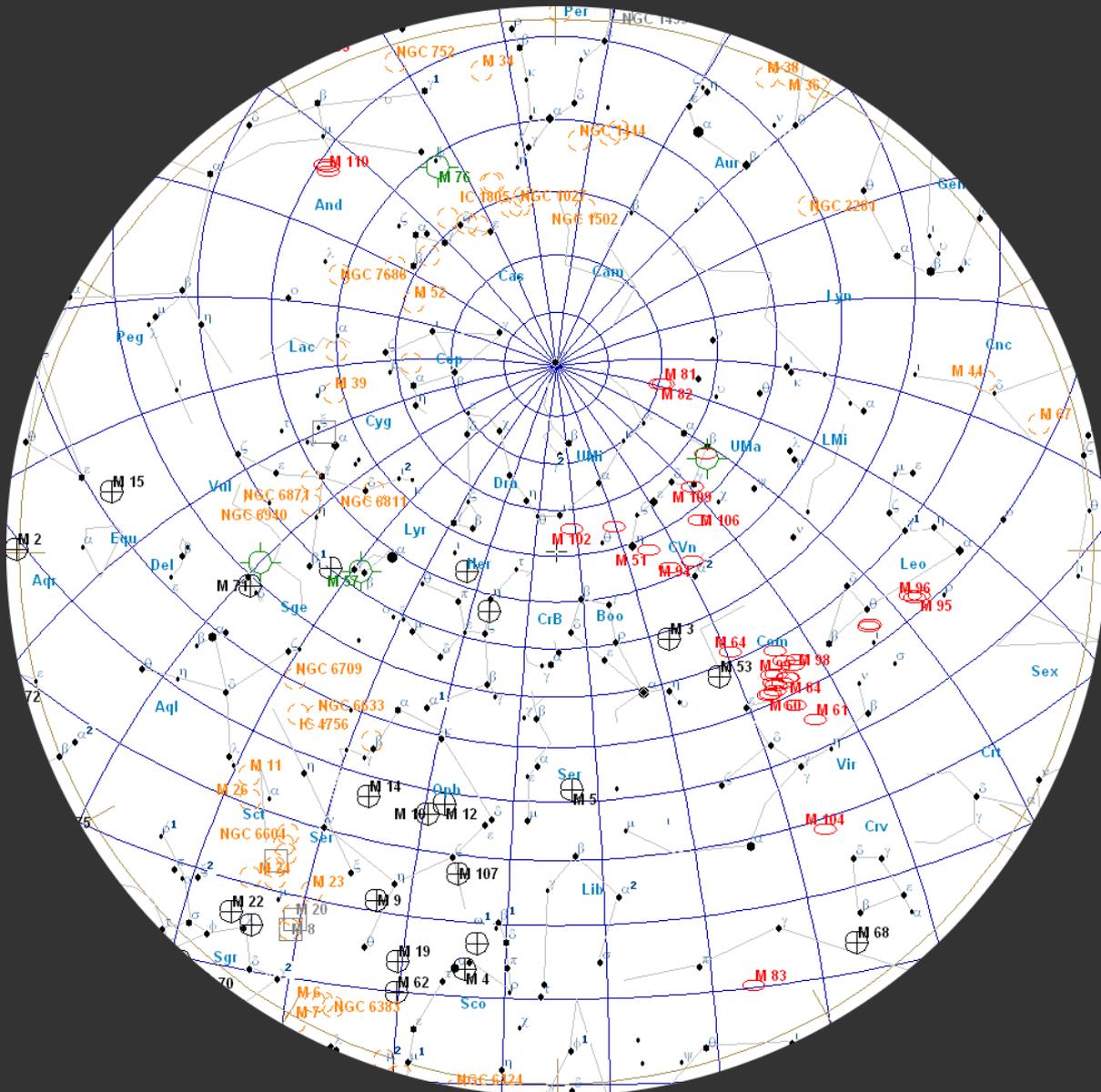
51°N

June 01, 23:00 UT

June 15, 22:00 UT

June 31, 21:00 UT

(chart is "clicky")



if you have a big binocular, also observe the edge-on [NGC4565 \(Needle Galaxy, Berenice's Hair Clip\)](#), which is next to [Melotte 111](#).

[M81 \(Bode's Nebula\)](#) and [M82 \(The Cigar Galaxy\)](#), both of which are easy in a 50mm binocular, are well-placed this month. These can be used as a

good demonstration of averted vision: if you have them both in the same field of view, you June see that the core of M81 becomes more apparent when 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, although it is easier in say, 10x50 binoculars than an equivalent-priced small telescope.

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 inand 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.

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.

This month we can also see 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 the Moon. If you have a good southern horizon, have a go at M22, which is the largest globular cluster visible from the British Isles.

With binoculars of at least 100mm aperture, you might be able to find NGC 6572, a planetary nebula in Ophiuchus. It looks stellar, even at 40x, but you can identify it by its colour; I see it as green (but apparently younger people can see it as blue – what do you see?).

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 ghostly planets.

Later in the night, look out for M27 in Vulpecula (the Dumbbell) which,

although it is not as large or bright as NGC 7293 (the Helix), is arguably the easiest planetary nebula to see from the latitude of Britain, owing to the Helix's low culmination altitude and surface brightness.

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

June Deep Sky Objects by Right Ascension

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
NGC 457 (the ET Cluster, the Owl Cluster)	Cas	oc	6.4	011932	581727
NGC 663, NGC 654, NGC 659	Cas	oc	7.1	014601	611406
Stock 2 (Muscleman Cluster)	Cas	oc	4.4	021434	591358
NGC 884 and NGC 869 (the Perseus Double Cluste	Per	oc	5.3	022107	570802
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
M95 (NGC 3351)	Leo	gal	10.6	104357	114211
M96 (NGC 3368)	Leo	gal	10.1	104645	114912
M105 (NGC 3379)	Leo	gal	10.5	104749	123449
M65 (NGC 3623)	Leo	gal	10.1	111855	130526
M66 (NGC 3627)	Leo	gal	9.7	112015	125924
Melotte 111	Com	oc	1.8	122430	260122
Markarian's Chain	Vir	gal	9.9	122611	125647
NGC 4565 (Berenice's Hair Clip)	Com	gal	9.9	123620	255914
M51 (NGC 5194, the Whirlpool Galaxy)	CVn	gal	8.9	132952	471144
M3 (NGC 5272)	CVn	gc	6.2	134211	282233
M101 (NGC 5457)	UMa	gal	7.7	140312	542057
M5 (NGC 5904)	Ser	gc	5.7	151833	020459
M13 (NGC 6205, the Great Hercules Globular Clust	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
IC 4665 (The Summer Beehive)	Oph	oc	4.2	174618	054300
Barnard's Star	Oph	st	9.5	175749	044136
Melotte 186	Oph	oc	3.0	180030	025356
NGC 6572	Oph	pn	9.0	181206	065113
NGC 6633	Oph	oc	4.6	182715	063030
M22 (NGC 6656)	Sgr	gc	5.1	183624	-235410
M27 (NGC 6853)	Vul	pn	7.6	195936	224318

Variable Stars

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
W And	6.7-14.6	397.3
R And	5.8-15.2	409.2

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
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
δ Cep	4.1, 6.1	F5, A0	41

The Solar System

The Moon

June 04	Full Moon
June 10	Last Quarter
June 18	New Moon
June 26	First Quarter

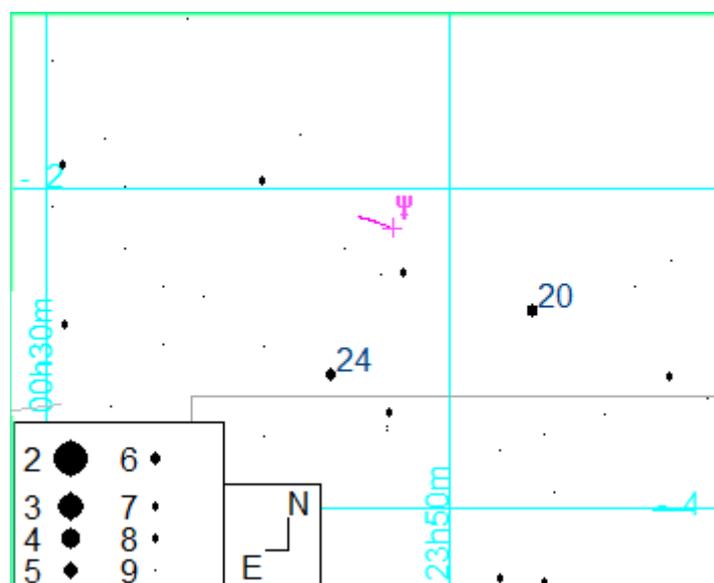
Lunar Occultations

Only two this month, and one is a reappearance! Data are for my location and June vary by several minutes for other UK locations. The phases are **(D)**isappearance, **(R)**eappearance and **(Gr)**aze; they are dark-limb events unless the Cusp Angle is negative.

Lunar Occultation June 2023 50.9°N 1.8°W							
Date	Time (UT)	Phase	Star	Spectral Type	Magnitude	Position Angle	Cusp Angle
Jun 7	03:02:07	R	59 Sgr	K3	4.5	10S	Jun 7
Jun 25	22:12:12	D	HIP 58466	K0	6.8	9S	Jun 25

Planets

Neptune (mag +7.9) is back with us – just – but it gets easier as the month progresses. At the beginning of the month it will be extremely difficult, low down in the morning twilight but, by the end of the month, it'll be a whopping 20° above the horizon as Nautical Twilight ends. Still tricky, but doable. Use 20 and 24 Psc as guides.



Public Outreach & Talks

If you're at any of these, do come and say hello (or give me a virtual "wave" if it's on Zoom). Dates are UT. "Z" = Zoom. "H" = Hybrid

June 1 st	East Sussex AS	Two Eyes Are Better Than One
June 13 th	Nadder Centre	Dark Skies Outreach & Childrens Activities (Great Big Green Week)
June 14 th	Leeds AS	Ten Ways the Universe Tries To Kill You (Z)
June 15 th	Wilton	Dark Skies Outreach & Childrens Activities (Great Big Green Week)
June 20 th	Stratford AS	Fuzzy Blobs: A Guide for the Perplexed (Z)
June 24 th	Frogham Fair	Solar Observing and Public Outreach
June 26 th - July 2 nd	Chalke Valley History Festival	Public Outreach (International Dark Sky Reserve)

Zoom/Webex/Teams Talks?

I regularly give talks, on *Binocular Astronomy* and numerous other astronomical topics. I'd be happy to do this – including locations anywhere in the world on Zoom, Webex or Teams – if that is of interest.

**If you would like a talk for your society/group,
[Click here for current talks.](#)**

The **Binocular Sky Newsletter** will always be free to anyone who wants it.

Wishing you Clear Dark Skies,

Steve Tonkin

for

The Binocular Sky

Acknowledgements:

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 *The International Variable Star Index*

Occultation data derived with Dave Herald's *Occult*

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