



# The Binocular Sky

No. 107  
October 2020

# Newsletter

## Introduction

Welcome, especially to new readers, to October's **Binocular Sky Newsletter**! As regular readers will know, the newsletter is intended primarily for binocular observers in the UK (but I hear from many small telescope observers who also find it useful, and some astronomy clubs that use it for ideas for their beginners observing programme).



Equinox has gone, so the nights are longer, and darker earlier, so observing season proper is with us. Let's see what the sky has to offer us this month.

Region of sky south of the galactic plane is becoming better placed in the evening, so it's a good time for observing the galaxies here.

Several Mira-type stars, including **Mira** (*o Ceti*) itself, near maximum brightness this month. You don't even need binoculars to see Mira.

The binocular planets, ice giants **Uranus** and **Neptune**, are now very easily visible.

As well as some lunar occultations, including two disappearances of relatively bright stars towards the end of the month, we have a different lunar challenge mid-month, skies permitting – details on p7.

If you would like to receive the 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 on the objects.)*

As the sky darkens at twilight, the Milky Way arches overhead as it has done for the last month or so. It is richly rewarding in binoculars of any size but especially, I find, in low-power wide-field glasses. If you get the opportunity, do try these “quirky” 2-ish x 40-ish Galilean-configuration binoculars. There are at least 5 different options from which to choose.

In the north are [NGC 457](#) (the Owl Cluster) and [NGC 663](#) in Cassiopeia and the [Perseus Double Cluster](#), from which you can easily find [Stock 2](#) (the [Muscleman Cluster](#)). [Kemble’s Cascade](#) and its “splash pool”, [NGC 1502](#) are also conveniently placed. To the East of them lie [M34](#) in Perseus and the often-overlooked [NGC 752](#) in Andromeda. More open Clusters are visible in the southern sky in the region of Ophiuchus. These include [Melotte 186](#), [NGC 6633](#) and [M11](#), The [Wild Duck Cluster](#), all of which are easily visible in 50mm binoculars. The [Auriga](#) clusters, [M36](#), [M37](#) and [M38](#), are rising in the north-east, along with the [Leaping Minnow](#) asterism. To the south of them, the [Pleiades](#) and [Hyades](#) make a welcome return to evening skies. Just above the Hyades you’ll find another asterism, [Davis’s Dog](#). 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 October, 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. 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

*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.*

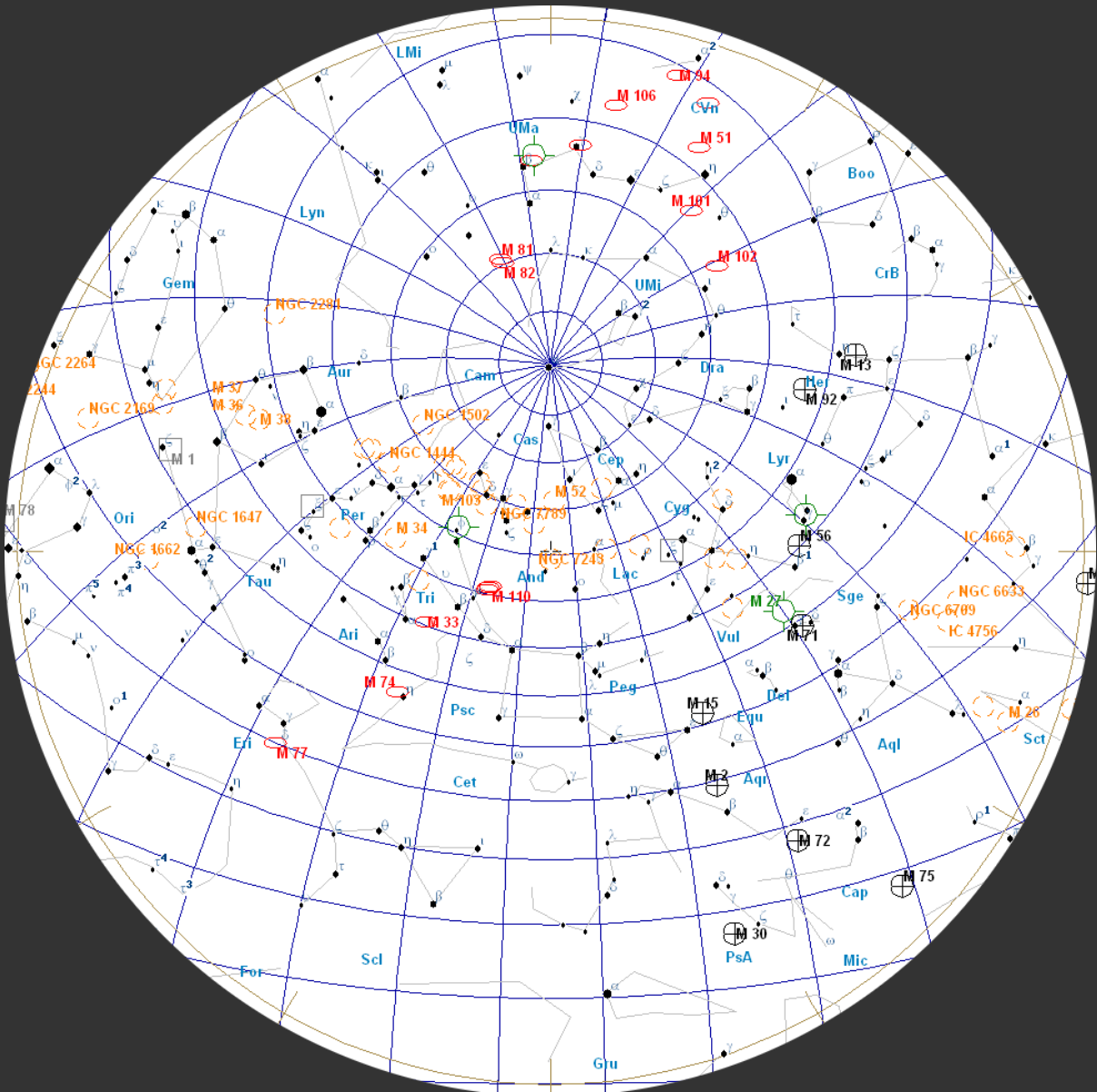
51°N

October 01, 23:00 UT

October 15, 22:00 UT

October 31, 21:00 UT

(chart is "clicky")



apparent if you look at M82. If you have good skies in the early evening, try [M51](#) (The Whirlpool) and [M101](#) (one of four galaxies sometimes called "The Pinwheel") which, although it is a large object, is very difficult owing to its low surface brightness. The same can be said of [M33](#) (another "Pinwheel"), which now very well placed for observation. Because they are of such low

surface-brightness, they benefit from low magnification. This generally makes them easier to see in, say, a 10x50 binocular than in many “starter” telescopes. The Great Andromeda Galaxy, M31, is easily visible this month. It is large and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers) although, obviously, it benefits from a dark transparent sky.

The two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are at a very good altitude for observation. Although M13 is clearly larger than M92, it is easier to resolve the outer stars of the latter one. M15 and M2 are both easy to find and easy to see, even in small binoculars.

*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.*

The easiest planetary nebula, M27 (the Dumbbell Nebula – also known as the Apple Core and the Diabolo) – is visible in the evening skies in even 30mm binoculars. The Helix Nebula, NGC 7293 is now about as well-placed

*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 ghostly planets.*

as it gets for observation from Britain before midnight; you'll need a decent southern horizon.

For interactive maps of Deep Sky Objects visible from 51°N, you can visit: [https://binocularsky.com/map\\_select.php](https://binocularsky.com/map_select.php)

**October Deep Sky Objects by Right Ascension**

<b>Object</b>	<b>Con</b>	<b>Type</b>	<b>Mag</b>	<b>RA (hhmmss)</b>	<b>Dec (ddmmss)</b>
M31 (the Great Andromeda Galaxy)	And	gal	4.3	004244	411608
NGC 457 (the ET Cluster, the Owl Cluster)	Cas	oc	6.4	011932	581727
M33 (NGC 598, the Pinwheel Galaxy)	Tri	gal	6.2	013351	303929
NGC 663	Cas	oc	7.1	014601	611406
NGC 752	And	oc	5.7	015742	374700
Stock 2 (the Musclemans Cluster)	Cas	oc	4.4	021434	591358
NGC 884 and NGC 869 (the Perseus Double Cluster)	Per	oc	5.3	022107	570802
M34 (NGC 1039)	Per	oc	5.2	024204	424542
M45 (the Pleiades)	Tau	oc	1.6	034729	240619
Kemble's Cascade	Cam	ast	9.0	035752	630711
Davis's Dog	Tau	ast	4.2	042414	214257
Melotte 25 (the Hyades)	Tau	oc	0.5	042650	154841
Leaping Minnow	Aur	ast	5.0	051811	332207
M38 (NGC 1912)	Aur	oc	6.4	052842	355117
M36 (NGC 1960)	Aur	oc	6.0	053617	340826
M37 (NGC 2099)	Aur	oc	5.6	055218	323310
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
M51 (NGC 5194, the Whirlpool Galaxy)	CVn	gal	8.9	132952	471144
M101 (NGC 5457)	UMa	gal	7.7	140312	542057
M13 (NGC 6205, the Great Hercules Cluster)	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
Melotte 186	Oph	oc	3.0	180030	025356
NGC 6633	Oph	oc	4.6	182715	063030
M11 (NGC 6705, Wild Duck Cluster)	Sct	oc	5.8	185106	-061600
M27 (NGC 6853, the Dumbbell Nebula)	Vul	pn	7.6	195936	224318
M15 (NGC 7078)	Peg	gc	6.2	212958	121003
M2 (NGC 7089)	Aqr	gc	6.5	213327	-004922
NGC 7293 (the Helix Nebula)	Aqr	pn	6.5	222938	-205013

**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>
R And	5.8 – 15.2	409.2
UV Aur	7.3 – 11.1	393.7
o Cet	2.0 – 10.1	331.96
R Cyg	6.1 – 14.4	426.45

*(A few sources I have seen note that R Hya is also near maximum; unfortunately, it is only above the horizon during daylight!)*

<b>Selection of Binocular Variables (mag &lt; +7.5)</b>			
<b>Star</b>	<b>Mag Range</b>	<b>Period</b>	<b>Type</b>
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
T Cep	6.0-10.3	388d	Mira
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

### Double Stars

<b>Binocular Double Stars for October</b>			
<b>Star</b>	<b>Magnitudes</b>	<b>Spectral Types</b>	<b>Separation (arcsec)</b>
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
d Cep	4.1, 6.1	F5, A0	41
γ Her	3.7, 9.4	F0, K	43
Σ2277 Her	6,2, 8.9	A0, K	27
8 Lac	5.7, 6.3	B3, B5	22
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

## The Solar System

(Charts are “clicky” for higher resolution alternatives)

### The Moon

October 01	Full Moon
October 10	Last Quarter
October 16	New Moon
October 23	First Quarter
October 31	Full Moon

### Lunar Occultations

Data are for my location and may vary by several minutes for other UK locations. The phases are **(D)**isappearance, **(R)**eappearance and **(Gr)**aze; they are dark-limb events unless there is a **(B)**.

Lunar Occultations October 2020 50.9°N 1.8°W							
Date	Time (UT)	Phase	Star	Spectral Type	Magnitude	Position Angle	Cusp Angle
Oct 02	22:50:30	R	HIP 6751	B9	6.6	143	47S
Oct 03	23:21:04	R	64 Cet	G0	5.6	137	86N
Oct 04	00:37:50	R	Xi-1 Cet	G8	4.4	161	81N
Oct 05	21:08:05	R	HIP 17058	K0	6.2	83	78N
Oct 07	03:02:10	R	HU Tau	B8	5.9	162	89N
Oct 07	21:14:57	R	109 Tau	G8	5.0	64	64S
Oct 08	23:10:17	R	9 Gem	B3	6.2	74	85S
Oct 08	23:48:59	R	10 Gem	G5	6.6	81	32S
Oct 20	18:16:15	D	44 Oph	A3	4.2	216	72N
Oct 21	18:20:27	D	Lam Sgr	K1	2.8	204	61N

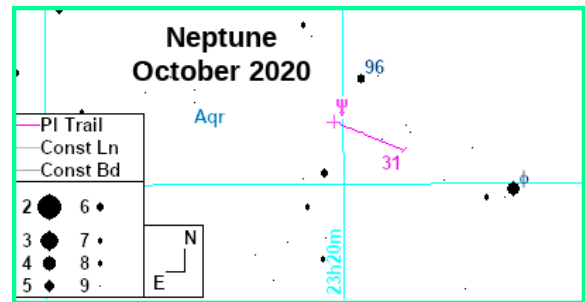
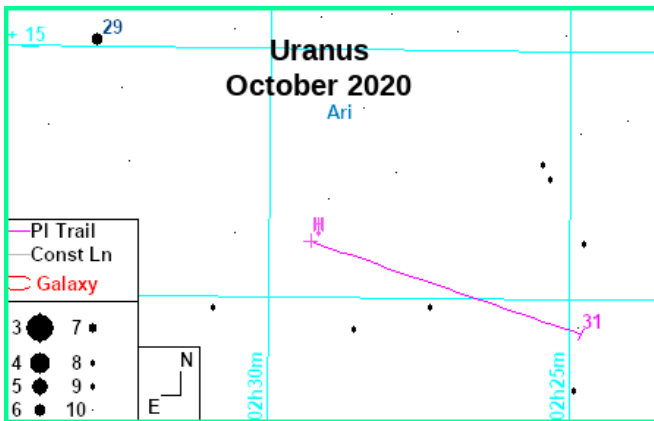
The Moon offers another observing challenge for European observers this month. Moonrise on the 16<sup>th</sup> occurs only 14 hours before New, and an hour ahead of Sunrise. Can you see the 0.5% illuminated sliver? There’s a similar challenge the next day when the setting Moon presents a 1.3% sliver at Sunset, but will be lower in the sky.

## Asteroid Occultation

There is a tricky (low altitude) occultation of a mag +6.3 star, potentially visible from northern Scotland, on the 20<sup>th</sup>. Details [here](#). Observers in the eastern USA will have it much easier.

## Planets

**Uranus** (mag +5.7) is still best observed within a couple of hours either side of midnight (it's at opposition on the 31st), but **Neptune** (mag +7.8), is best before midnight all month. Both ice giants transit during astronomical dark all month.



## Binocular Astronomy on Facebook

Recently, a [Binocular Astronomy Facebook Group](#) was started by the American amateur astronomer [Dave Mitsky](#). At the time of writing, the membership is small, but the hope is that it will become a valuable sharing resource for our little niche of this wonderful hobby. If you're on Facebook and interested, do come along and join us!



## Public Outreach & Talks

All my “in person” public talks for the next few months have been postponed or cancelled, but some socially distanced outreach events are still scheduled to go ahead. However, I will be doing some Zoom talks and events during the month. If you’re at any of them, do give me a virtual “wave”:

- Oct 8<sup>th</sup> [Reach Out and Touch Space](#) **Astronomy Discussion** (guest)
- Oct 21<sup>st</sup> [Bridgend AS](#) **Two Eyes Are Better Than One** (talk & demo)
- Oct 28<sup>th</sup> Bath Astronomers **Two Eyes Are Better Than One** (talk & demo)

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### Zoom Talks during “Lockdown”?

I regularly give talks, on *Binocular Astronomy* and numerous other astronomical topics. During the current “lockdown” in the UK, I’d be happy to do this on Zoom if that is of interest. For astronomy societies (and some other groups), I would not charge unless I incurred expenses (although I have never knowingly refused a donation made on my behalf to the [BAA Commission for Dark Skies](#)).

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

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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 one of my books, **Binocular Astronomy** or **Discover the Night Sky through Binoculars**.
- 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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**Acknowledgements:**

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Variable star data based on *The International Variable Star Index*

Occultation data derived with Dave Herald's *Occult*

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