



# The Binocular Sky

No. 108  
November 2020

# Newsletter

## Introduction



Welcome, all, to November's **Binocular Sky Newsletter**. There's a great deal going on in the sky this month for those of us with binoculars (and small telescopes!) and the longer nights mean that we can do more at socially acceptable times.

In the deep sky, most of which doesn't change much from year to year, we have several Mira-type stars near maximum brightness this month, but two of these will be relatively tricky observations, one at the beginning of the month, and the very tricky one at the end.

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

Amongst the lunar occultations, we have two grazes in one night, and there is one location where you could see both of them.

Mid-month we have the Leonid meteors; the ZHR is only about 15 (so expect to see at most about eight or ten an hour), but they are renowned for having bright, persistent trains, and binoculars are ideal for watching these.

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, always a pleasure to scan with binoculars of any size, arches overhead. 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. Rising in the north-east are the [Auriga](#) clusters, [M36](#), [M37](#) and [M38](#) and, later, [M35](#) in Gemini. While you are looking at [M35](#), also see if you can identify two smaller open clusters, [NGC 2158](#), which is half a degree to the SE, and the slightly more difficult [IC 2157](#), which is a degree to the ESE. To the south of them, the [Pleiades](#) and [Hyades](#) make a welcome return to evening skies. 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 November, the Milky Way is overhead in the mid-to-late evening. This means that those objects (globular clusters and galaxies) that are outside our galaxy are not as well placed for observation as they are when the Milky Way is low in the sky. The bright [M81](#) (Bode's Nebula) and [M82](#) (The Cigar Galaxy), are still relatively easy to observe, even in a 50mm binocular, and their altitude is such that you are unlikely to get neck-strain when you do so with straight-through binoculars. [M81](#) and [M82](#) can be used as a good demonstration of averted vision, especially in larger binoculars: if you have them both in the same field of view, you will 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.*

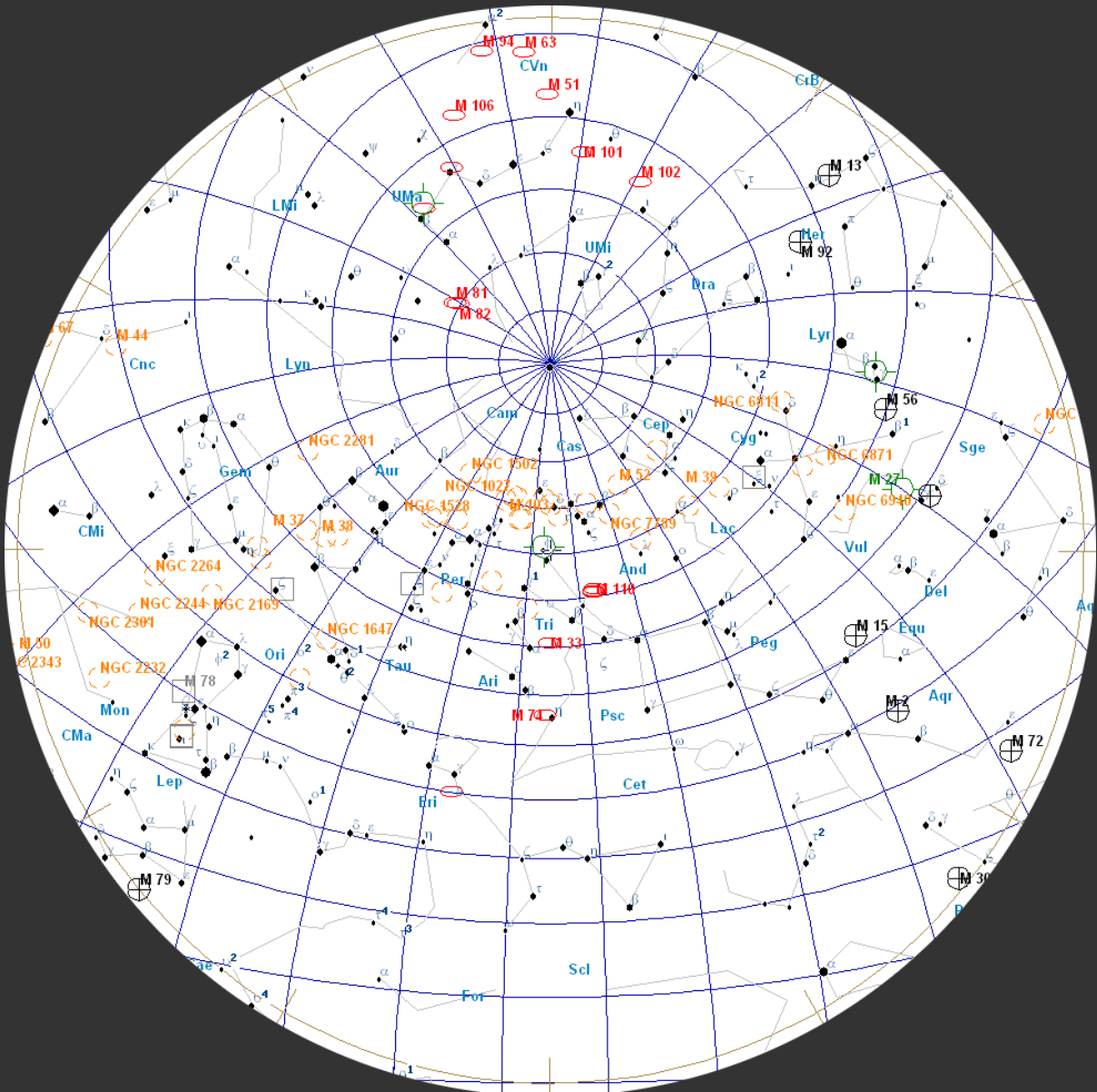
51°N

November 01, 23:00 UT

November 15, 22:00 UT

November 31, 21:00 UT

(chart is "clicky")



apparent if you look at M82. M51 (The Whirlpool) and M101 are becoming much more difficult owing to their lower altitudes; if you wish to see them this month, you should look as soon as the sky is dark.

Notable exceptions to the generalisation of galaxies being poorly placed

on November evenings are some of those south of the galactic plane, notably The Great Andromeda Galaxy, M31 and M33 (The Triangulum Galaxy). M31 in particular is very easily visible this month and is a naked eye object in moderately dark skies. It is large and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers). M33 has a low surface-brightness and benefits from lower magnification. This generally makes it easier to see in, say, a 10x50 binocular than in many “starter” telescopes. It is in November evenings that the Sculptor Galaxy, NGC 253, becomes observable before midnight, but you will need a good southern horizon for this.

Although the two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are still observable, their altitude becomes less favourable as the month progresses. M15 and M2 are both better placed. This is also the best time of year to observe NGC 288 in the evening; as with NGC 253, a good southern horizon is essential.

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

*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.*

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)

### November Deep Sky Objects by Right Ascension

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
M31 (the Great Andromeda Galaxy)	And	gal	4.3	004244	411608
NGC 253	Scl	gal	8.0	004733	-251717
NGC 288	Scl	gc	8.1	005246	-263512
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
NGC 884 and NGC 869 (the Perseus Double Cluster)	Per	oc	5.3	022107	570802
Melotte 25 (the Hyades)	Tau	oc	0.5	042650	154841
NGC 1647	Tau	oc	6.4	044555	190542
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
M35 (NGC 2168)	Gem	oc	5.1	060900	242100
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 Globular Cluster)	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
M11 (NGC 6705, Wild Duck Cluster)	Sct	oc	5.8	185106	-061600
M27 (NGC 6853, the Dumbbell Nebula, the Apple Core, the Diabolo)	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

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
UV Aur	7.3 – 11.1	393.7
R Cyg	6.1 – 14.4	426.45
R Hya	3.5 – 10.9	380
X Oph	5.9 – 8.6	338

*(R Hya will be visible as a difficult morning object towards the end of the month; X Oph will be best observed early in the month in the evenings.)*

### Selection of binocular variables (mag < +7.5)

Star	Mag Range	Period	Type
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
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

#### Binocular Double Stars for November

Star	Magnitudes	Spectral Types	Separation (arcsec)
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
τ Tau	4.3, 7.0	B5, A0	63
ν Gem	4.1, 8.0	B5, A0	113
ζ Gem	4.0, 7.6	G0, G	101
π-1 Umi	6.6, 7.2	G5, G5	31

## The Solar System

(Charts are "clicky" for higher resolution alternatives)

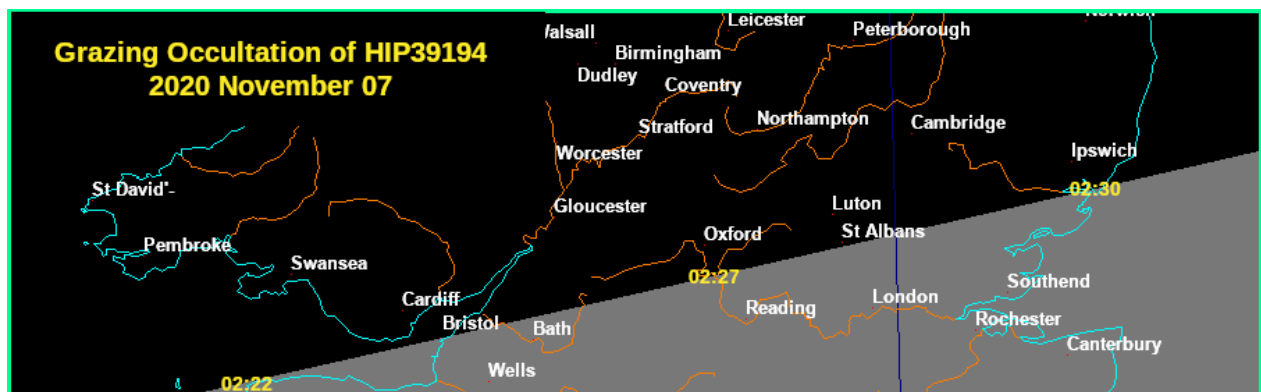
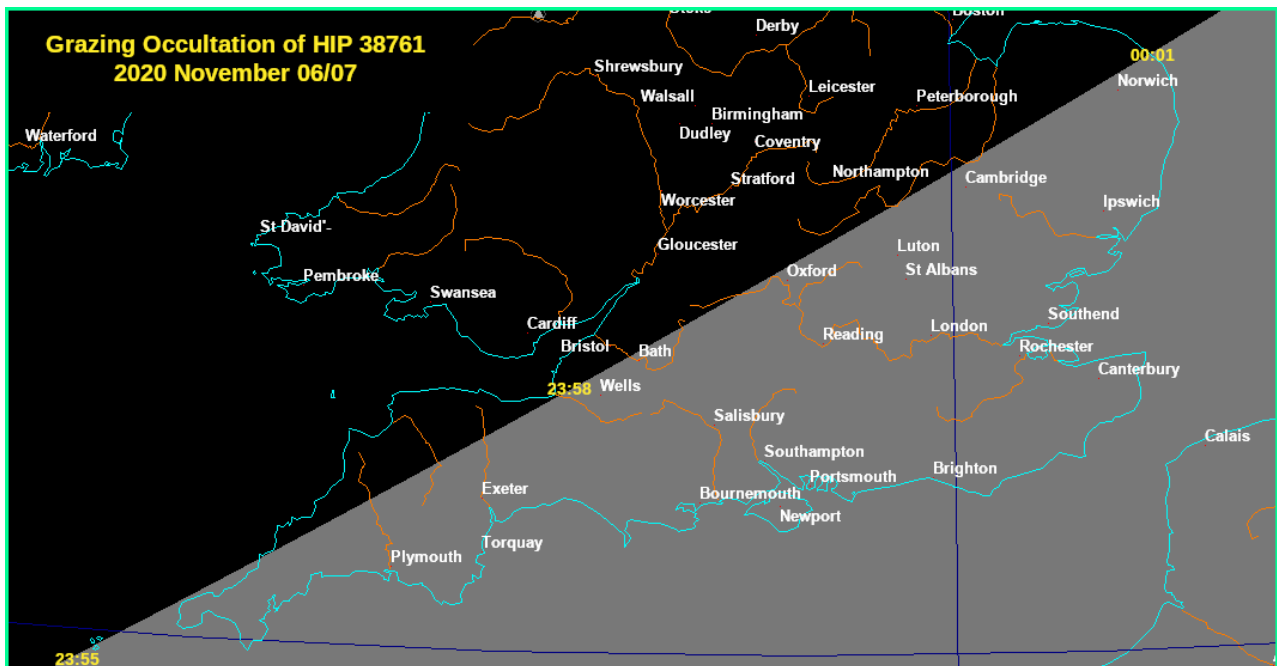
### The Moon

November 08	Last Quarter
November 16	New Moon
November 22	First Quarter
November 30	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)**. The highlights are the two grazing occultations on the night of the 6<sup>th</sup>/7<sup>th</sup>. The two predicted graze tracks intersect in the Frogwell area of Chippenham, Wiltshire.

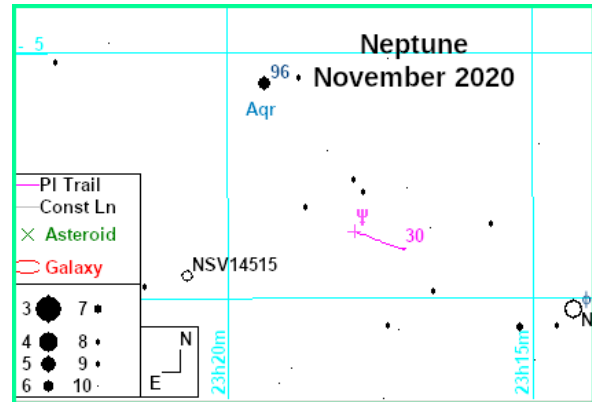
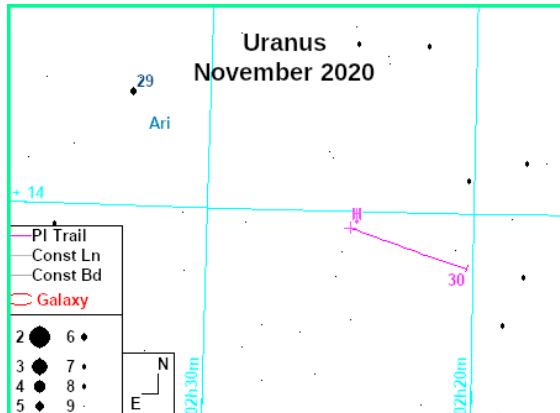
Nov 06	01:30:34	R	Ome Gem	G5	5.2	116	56S
Nov 06	04:16:34	R	HIP 53766	M1	6.7	182	39S
Nov 06	23:58:49	Gr	HIP 38761	B8	6.8		9.7N
Nov 07	00:05:21	R	HIP 38761	B8	6.8	87	24N
Nov 07	02:15:04	R	HIP 39077	K0	6.9	115	42S
Nov 07	02:26:19	Gr	HIP 39194	K1	6.4		6.4N
Nov 07	02:35:29	R	HIP 39194	K1	6.4	120	22N
Nov 10	03:12:31	R	HIP 52683	A2	6.9	101	68S
Nov 11	05:27:37	D(B)	Nu Vir	M0	4.0	123	-61S
Nov 22	20:49:32	D	69 Aqr	B9	5.7	212	59S
Nov 22	22:11:34	D	Tau Aqr	K5	4.1	230	79N
Nov 25	23:18:37	D	HIP 4979	F1	6.1	225	31N
Nov 27	19:25:55	D	HIP 11427	F5	6.5	126	76N





## Planets

**Uranus** (mag +5.7) is becoming an evening object (it was at opposition on Oct 31st), and **Neptune** (mag +7.9) is best early in the evening. Both ice giants still transit during astronomical dark all month.



(NB: These charts are not to the same scale!)

## Meteor Shower

The Leonid meteors are active from the 6<sup>th</sup> to the 30<sup>th</sup>, and peak on the 17<sup>th</sup>; it should be worth watching on the nights of the 16<sup>th</sup>/17<sup>th</sup> and 17<sup>th</sup>/18<sup>th</sup>, after about 22:45 when the radiant has risen. There will be very little Moonlight to interfere. The Leonids result from the dust left by Comet Temple-Tuttle. We don't use binoculars to watch for the meteors themselves, but the Leonids tend to leave bright, persistent trains, and it is these that we can watch with binoculars, as they reveal the wind patterns in the upper atmosphere.

## Binocular Astronomy on Facebook

Last month, a [Binocular Astronomy Facebook Group](#) was started by the American amateur astronomer [Dave Mitsky](#). It's growing apace and has 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

If you're at any of these, do give me a virtual "wave":



**ELAN VALLEY DARK SKY DAY ONLINE**

Join the Elan Valley International Dark Sky Park for a GALACTIC day of online events

**Date: 1st November 2020 from 12.30pm**

1pm	Elan Valley International Dark Sky Park Introduction
1:30pm	A Guide to The Night Sky & Telescope Selection with Pete Williamson
2:30pm	Astronomical Drawing & Art with Mary McIntyre
3:45pm	Are There Penguins in The Venusian Clouds? with Dr Julian Onions
4:45pm	Children's Space Activities with Emma Wride AstroCymru
5:30pm	Short Break
5:45pm	Nightscape Photography with Nigel A Ball
7pm	Astronomer Q & A with Steve Tonkin, Dave Eagle, Dave Galvin and Mary McIntyre
8pm	Live Viewing with Slooh (weather permitting) or look at some astro-photographs

Login Via Zoom  
Topic: Elan Valley on line Astronomy

Join Zoom Meeting:  
<https://zoom.us/j/91094835078>  
Meeting ID: 910 9483 5078

Broadcasting on Astro Radio:  
[www.astro-radio.earth](http://www.astro-radio.earth)  
Live Video on:  
[www.astro-tv.earth](http://www.astro-tv.earth)

Ymddiriedolaeth Cwm Elan Elan Valley Trust

ASTRO RADIO [www.astro-radio.earth](http://www.astro-radio.earth)

Cwm Elan Valley

Dŵr Cymru Welsh Water

ida INTERNATIONAL DARK SKY ASSOCIATION

Nov 1<sup>st</sup> [Elan Valley Dark Sky Day \(Zoom and AstroTV\)](#)

**Astronomy Q&A**

Nov 12<sup>th</sup> [Bearsted and District U3A](#)

**Pseudoastronomy: Planet X, Zetans, and Lost Civilisations** (talk)

Nov 12<sup>th</sup> [Northumberland AS](#)

**Two Eyes Are Better Than One** (talk & demo)

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### Zoom Talks during the SARS-CoV-2 emergency?

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.

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:**

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*

**Disclosure:** Links to *Amazon* or *First Light Optics* may be affiliate links

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