



# The Binocular Sky

No. 134  
February 2023

# Newsletter

## Introduction



Welcome, especially to new readers to February's **Binocular Sky** Newsletter. We've had a recent surge in subscriptions, presumably related to the media-hyped "green comet".

As regular readers will know, my intention is to highlight some of the binocular targets for the coming month. This is primarily intended for visual astronomers, with binoculars or small telescopes, in the UK, but it should have some utility for observers anywhere north of Latitude 30°S and possibly even further south.

In the Solar System, **Uranus** is still available in the evening, but we've lost Neptune for 3 months.

Comet C/2022 E3 (ZTF) is naked eye visibility at the beginning of the month, so be sure to catch it before the Moon becomes too obtrusive.

The subject of light pollution is one that is dear to me, so it's great to see that there are at least six UK Dark Sky festivals this month, one of which I have helped to organise. Do take a look – this potentially benefits us all (page 9).

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.)*

February skies are not markedly different from those of January with respect to what is observable in the evening. We are losing the “summer triangle” constellations (Cygnus, Aquila and Lyra) and the *Pleiades* (M45) culminates before the end of twilight, followed an hour later by the *Hyades*, the *Great Orion Nebula* (M42) and the *trio of open clusters* in Auriga. While you are in Auriga, do take a look at the *Leaping Minnow* and adjacent to it to the north-east, the unearthly grin of the *Cheshire Cat* asterism, which has M38 as one of its cheeks. The “Queen of Clusters”, M35 in Gemini, culminates soon after. If you take the northern tip of the *Hyades* “vee”, *Oculus Boreas*, and pan half a 10x50 field of view towards Perseus, you will find an asterism called *Davis’s Dog*. That spans about 3.5° of sky. The stars 51, 56 and 53 Tau form its head, and  $\kappa^1$ ,  $\kappa^2$ ,  $\upsilon$  and 71 form its tail.

*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.*

Return to M35, and use averted vision to 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. M44 (*Praesepe*) and M67, two fine open clusters in Cancer, are very well placed for evening observation. Lower in the southern sky are more well-placed open clusters M46, M47 and, near Sirius, M41.

In the north rather indistinct open cluster NGC1502, is brought to prominence by a favourite binocular asterism named *Kemble's Cascade*, although the imagination of it being a ribbon waterfall plunging into a splash-pool (NGC 1502) needs some gravity-defying modification because, in late winter evenings, the waterfall flows upwards!

While you are observing in the region of the Orion Nebula, take the time to study R Leporis (*Hind's Crimson Star*), which is a candidate for the reddest star in the heavens. To the north of that, just to the SE of Alnitak ( $\zeta$  Ori) is

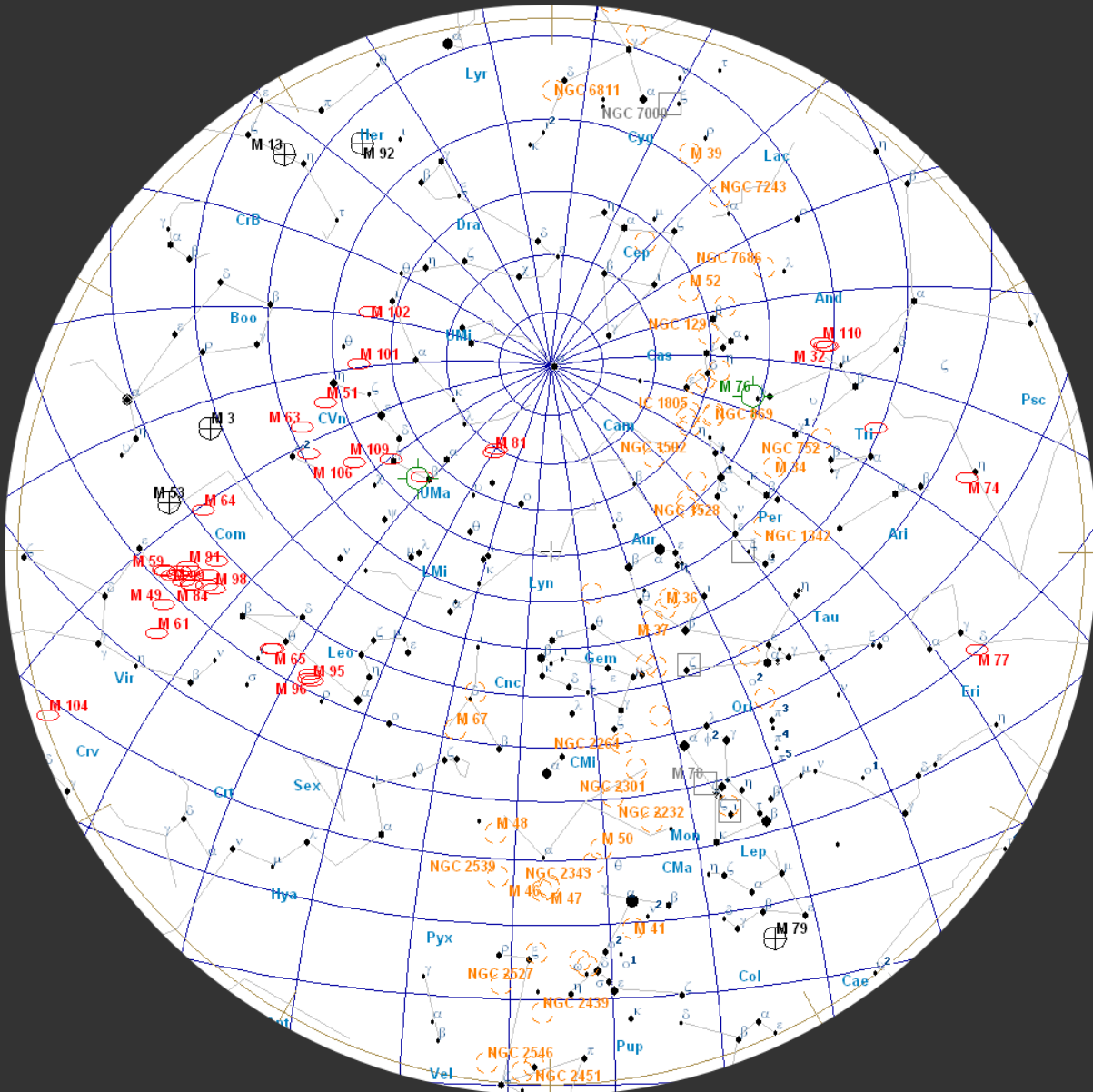
51°N

February 01, 23:00 UT

February 15, 22:00 UT

February 31, 21:00 UT

(chart is "clicky")



the multiple star  $\sigma$  Orionis. The entire region of the Orion's Belt is home to the spectacular (in small binoculars) OB association of stars, *Collinder 70*, which I sometimes call "the cluster everyone has seen and nobody knows".

Although The Great Andromeda Galaxy, M31 and M33 (The Pinwheel),

are sinking lower into the evening twilight, they are still observable this month. M31 is still 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), and is at a comfortable elevation for straight-through binoculars.

*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.*

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. If you find it difficult to see, make sure you have the correct region of sky, midway between *Metallah (a Tri)* and *82 Psc*), approximately central in your field of view, and try the tapping technique – it may well make it visible, if only as a very slightly brighter patch of sky. Once you have found the best part of the field of view is best to direct your gaze at, you will be able to use this technique to bring some previously-invisible objects to visibility.

High in the northern sky, the Ursa Major pair of Bode's Nebula (M81) and the Cigar Galaxy (M82) are conveniently placed for most of the night. Later in the evening, look out for the galaxy trios in Leo (M95/96/105 and M65/66/NGC3628) and Markarian's Chain in Coma Berenices rising in the west, although they are not at their best until after midnight. If you have a big binocular, also observe the edge-on NGC4565 (Berenice's Hair Clip), which is next to Melotte 111, the cluster that gives Coma its name.

Lastly, please do take this opportunity to appreciate *Herschel's Garnet Star,  $\mu$  Cep*, which is at a comfortable elevation early in the evening. William Herschel described it as "*a very fine deep garnet colour ... a most beautiful object, especially if we look for some time at a white star before we turn ... to it, such as Alpha Cephei, which is near at hand.*" The wide field of medium-sized binoculars enables you to hold it in the same field as *Alderamin (a Cep)*, so you can appreciate Herschel's comparison.

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)

**February Deep Sky Objects by Right Ascension**

| Object  | Con | Type | Mag  | RA<br>(hhmmss) | Dec<br>(ddmmss) |
|---|-----|------|------|----------------|-----------------|
| M45 (the Pleiades)                            | Tau | oc   | 1.6  | 034729         | 240619          |
| Kemble's Cascade                              | Cam | ast  | 9.0  | 035752         | 630711          |
| Davis's Dog                                   | Tau | ast  | 5.0  | 042109         | 214809          |
| R Leporis (Hind's Crimson Star)               | Lep | vs   | 8.2  | 045936         | -144821         |
| M38 (NGC 1912)                                | Aur | oc   | 6.4  | 052842         | 355117          |
| The Leaping Minnow                            | Aur | ast  | 5.0  | 051811         | 332207          |
| M42 (NGC 1976, The Great Orion Nebula)        | Ori | en   | 4.0  | 053517         | -052325         |
| Collinder 70                                  | Ori | oc   | 0.4  | 053532         | -010407         |
| M36 (NGC 1960)                                | Aur | oc   | 6.0  | 053617         | 340826          |
| $\sigma$ Orionis                              | Ori | ms   | 3.8  | 053845         | -023553         |
| M37 (NGC 2099)                                | Aur | oc   | 5.6  | 055218         | 323310          |
| M35 (NGC 2168)                                | Gem | oc   | 5.1  | 060900         | 242100          |
| M41 (NGC 2287)                                | CMa | oc   | 4.5  | 064559         | -204515         |
| M47 (NGC 2422)                                | Pup | oc   | 4.4  | 073634         | -142846         |
| M46 (NGC 2437)                                | Pup | oc   | 6.1  | 074146         | -144836         |
| M44 (NGC 2632, Praesepe, the Beehive Cluster) | Cnc | oc   | 3.1  | 083957         | 194020          |
| M67 (NGC 2682)                                | Cnc | oc   | 6.9  | 085124         | 114900          |
| 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          |

**Double Stars**

**Binocular Double Stars for February**

| Star           | Magnitudes | Spectral<br>Types | Separation<br>(arcsec) |
|----------------|------------|-------------------|------------------------|
| $\alpha$ Leo   | 1.4, 8.1   | B8, G             | 176                    |
| 7 Leo          | 6.3, 9.3   | A0, F8            | 41                     |
| $\tau$ Leo     | 5.0, 7.4   | K0, G5            | 89                     |
| $\delta$ Cep   | 4.1, 6.1   | F5, A0            | 41                     |
| 56 And         | 5.7, 5.9   | K0, K2            | 128                    |
| $\Sigma$ 1 And | 7.1, 7.3   | G5, G5            | 47                     |
| 14 Ari         | 5.0, 7.9   | F0, F2            | 106                    |
| 62 Eri         | 5.4, 8.9   | B9, B8            | 67                     |
| $\tau$ Tau     | 4.3, 7.0   | B5, A0            | 63                     |
| $\nu$ Gem      | 4.1, 8.0   | B5, A0            | 113                    |
| $\zeta$ Gem    | 4.0, 7.6   | G0, G             | 101                    |
| $\iota$ Cnc    | 4.0, 6.0   | G5, A5            | 31                     |
| $\pi$ -1 Umi   | 6.6, 7.2   | G5, G5            | 31                     |

## Variable Stars

| <b>Selection of binocular variables (mag &lt; +7.5)</b> |                  |                   |                  |
|---|------------------|-------------------|------------------|
| <b>Star</b>   | <b>Mag Range</b> | <b>Period</b>     | <b>Type</b>      |
| AA Cam  | 7.5-8.8          | Irreg             | Irregular        |
| RX Lep  | 5.4-7.4          | Irreg             | 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 |

## The Solar System

### The Moon

|             |               |
|-------------|---------------|
| February 05 | Full Moon     |
| February 13 | Last Quarter  |
| February 20 | New Moon      |
| February 27 | First Quarter |

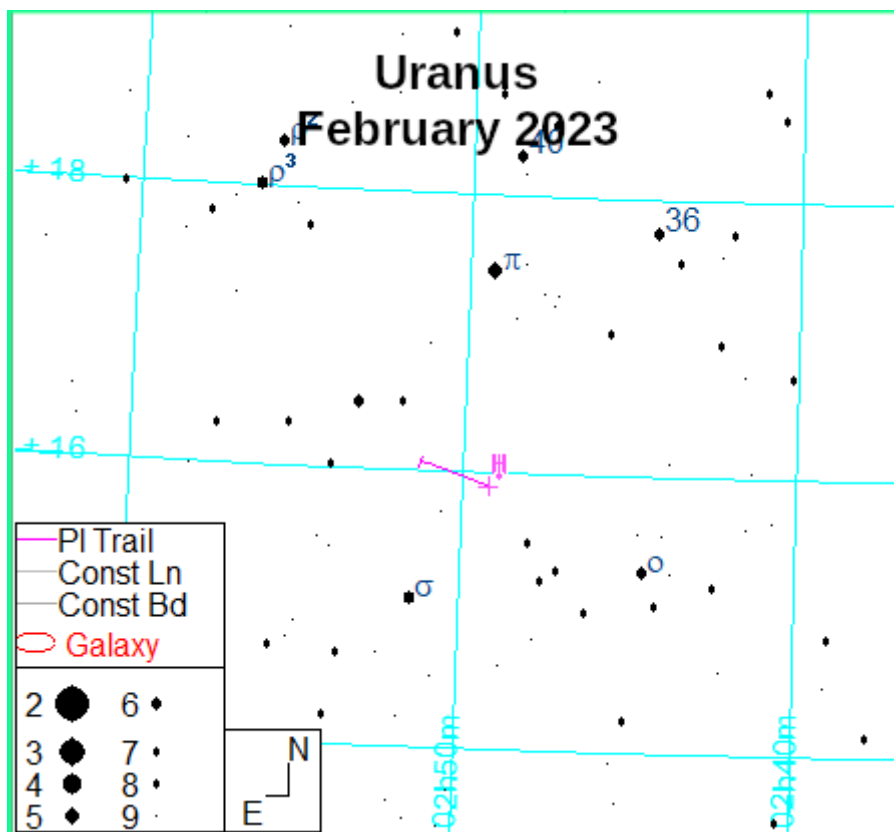
## Lunar Occultations

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 the Cusp Angle is negative.

| Lunar Occultations 2023 50.9°N 1.8°W |           |       |           |          |           |            |
|--------------------------------------|-----------|-------|-----------|----------|-----------|------------|
| Date                                 | Time (UT) | Phase | Star      | Spectrum | Magnitude | Cusp Angle |
| Feb 3                                | 18:17:27  | D     | 76 Gem    | K5       | 5.3       | 64N        |
| Feb 8                                | 07:16:21  | R     | HIP 54863 | K3       | 5.8       | 66S        |
| Feb 10                               | 03:54:09  | R     | HIP 61578 | F5       | 7.0       | 81S        |
| Feb 14                               | 05:55:35  | R     | V0928 Sco | B8       | 6.8       | 69N        |
| Feb 25                               | 17:54:14  | D     | 50 Ari    | A0       | 6.7       | 25N        |
| Feb 26                               | 20:17:05  | D     | 32 Tau    | F2       | 5.6       | 55N        |
| Feb 26                               | 21:19:14  | R     | 32 Tau    | F2       | 5.6       | -60N       |

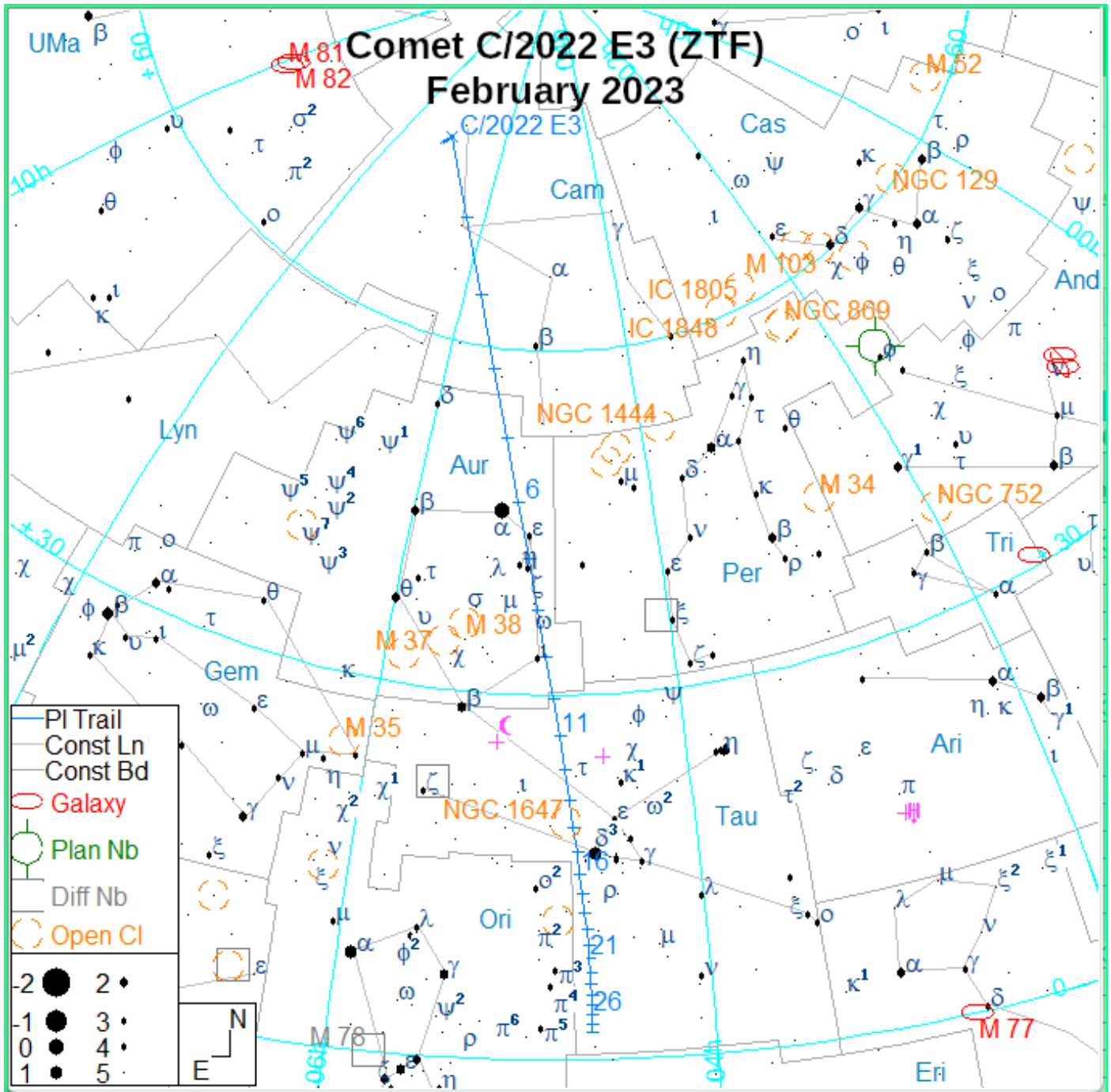
## Planets

**Uranus** (mag +5.7) is an evening object, between  $\eta$  and  $\rho$  *Arietis*; it moves only half a degree during the month. Observe it as early as you can, both in the evening and in the month; it is highest during nautical twilight at the beginning of the month and gets progressively lower.



## Comets

Comet C/2022 E3 ZTF is brightest at the beginning of the month, but fades rapidly as it passes southwards through Auriga and Taurus. At the time of writing, it has been at naked eye visibility from a Bortle 4 site, and we can expect that to persist for maybe a week into February, but you will need your binoculars after that.





## Dark Skies Festivals

There are several UK dark Skies Festivals in the UK this month:

[Dark Skies Cumbria](#)

[North York Moors](#)

[Yorkshire Dales](#)

[South Downs](#)

[Wales](#)

...and especially close to my heart since I am one of the organisers, is [Cranborne Chase AONB International Dark Sky Reserve Dark-Skies StarFest](#):

## 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.

|                      |  |  |
|----------------------|--|--|
| Feb 2 <sup>nd</sup>  | <a href="#"><u>Sutton Veny PC</u></a>                  | <b>The Right Light at Night</b>                |
| Feb 8 <sup>th</sup>  | Banstead Probus Club (Z)                               | <b>Time and Calendars</b>                      |
| Feb 9 <sup>th</sup>  | <a href="#"><u>Deverills Conservation Group</u></a>    | <b>The Right Light at Night + Stargazing</b>   |
| Feb 10 <sup>th</sup> | <a href="#"><u>Cranborne Chase AONB</u></a>            | <b>Dark Skies StarFest</b>                     |
| Feb 11 <sup>st</sup> | <a href="#"><u>Cranborne Chase AONB</u></a>            | <b>Dark Skies StarFest</b>                     |
| Feb 13 <sup>th</sup> | <a href="#"><u>Newtown AS (Z)</u></a>                  | <b>Time and Calendars</b>                      |
| Feb 14 <sup>th</sup> | <a href="#"><u>Solent AS</u></a>                       | <b>Fuzzy Blobs: A Guide for the Perplexed</b>  |
| Feb 15 <sup>th</sup> | <a href="#"><u>Crewkerne AS</u></a>                    | <b>Ten Ways the Universe Tries to Kill You</b> |
| Feb 16 <sup>th</sup> | Wylye Parish Meeting                                   | <b>The Right Light at Night</b>                |
| Feb 20 <sup>th</sup> | <a href="#"><u>CADSAS (Z)</u></a>                      | <b>Ten Ways the Universe Tries to Kill You</b> |
| Feb 21 <sup>st</sup> | <a href="#"><u>Letchworth Arts and Leisure (Z)</u></a> | <b>The Right Light at Night</b>                |
| Feb 23 <sup>rd</sup> | Western Downland School                                | <b>Yr 5 Astronomy Activities</b>               |

### **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.](#)**

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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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