



The Binocular Sky

March
2018

Newsletter

Introduction


Welcome to March's **Binocular Sky** Newsletter. For those who are new to it, the intention of this monthly offering is to highlight some of the binocular targets for the coming month. It is primarily targeted at binocular observers (although I know that many small-scope observers use it as well) in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and possibly even further south.

I am delighted that the [Binoculars for Astronomical Outreach](#) appeal that I started last month has exceeded my expectations, and I am now well on the way to acquiring both a set of small hand-held binoculars and at least one parallelogram-mounted larger one. There are more details [here](#).

If you perhaps want to use one of the funded binoculars, I will be conducting workshops later in the year; details on page 8.

We bid farewell to *Uranus* near the end of the month; it and *Neptune* will be back with us in June.

The Moon occults several stars in the *Hyades*, including *Aldebaran*, on the 22nd.

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The Deep Sky

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

The [Pleiades \(M45\)](#) and the [Great Orion Nebula \(M42\)](#) culminate before Civil Twilight ends, as do the [trio of open clusters](#) in Auriga and [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. Also high are [M44 \(Praesepe\)](#) and [M67](#), two fine open clusters in Cancer. Lower in the southern sky are more open clusters [M46](#), [M47](#) and, near Sirius, [M41](#).

The rather indistinct open cluster, [NGC1502](#), is brought to prominence by an asterism, that is named [Kemble's Cascade](#), in honour of Fr. Lucian Kemble, a Canadian amateur astronomer and Franciscan friar, who discovered it with a 7x35 binocular. He described as "a beautiful cascade of faint stars tumbling from the northwest down to the open cluster [NGC 1502](#)." It is one of the most pleasing objects in small and medium 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.

One of the best objects for small binoculars is [Melotte 111](#), the cluster that gives [Coma Berenices](#) its name. In Greek mythology, it is the hair of Queen Berenice, but the Romans saw it as the veil dropped by Thisbē in [Ovid's tale of star-crossed lovers](#). In early March it is suitably placed from about midnight.

If you are up around midnight (or later) it is worth looking out for the galaxy trios in Leo ([M95/96/105](#) and [M65/66/NGC3628](#)) and [Markarian's Chain](#) in Coma Berenices. If you have a big binocular, also observe the edge-on [NGC4565 \(Berenice's Hair Clip\)](#), which is next to [Melotte 111](#). A galaxy in this region that is often ignored, owing to the lack of nearby bright stars, is [NGC 3521](#), which is bright enough to be sometimes visible with averted vision in a 10x50, although I suggest a minimum of 70mm for ease of observation. It is considerably larger than any of the [M95/96/105](#) trio and is as bright as [M96](#).

*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 ancestors of the genus *Homo* were just evolving!*

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 (which makes 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. 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. A galaxy in this region that is often ignored, owing to the lack of nearby bright stars, is NGC 3521, which is bright enough to be sometimes visible with averted vision in a 10x50, although I suggest a minimum of 70mm for ease of observation. It is considerably larger than any of the M95/96/105 trio and is as bright as M96.

If you have binoculars of 70mm aperture or (preferably) greater, see if you can find and identify The Ghost of Jupiter (NGC 3242), a planetary nebula in Hydra. It is a difficult object because it is low in the sky, even from southern Britain.

If you missed it last month, take this opportunity to appreciate Herschel's Garnet Star, μ Cep, which is at a comfortable elevation early in the evening. The wide field of medium-sized binoculars enables you to hold it in the same field as Alderamin (a Cep), so you can appreciate the colour difference.

Lastly, if you enjoy colourful star-fields, take a look around the "back" of Leo, where there are some very pretty groups of stars within the rectangle bounded by β , δ , θ , and 93 Leonis.

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.

March Deep Sky Objects by Right Ascension

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
M45 (the Pleiades)	Tau	oc	1.6	034729	240619
Kemble's Cascade	Cam	ast	9.0	035752	630711
M38 (NGC 1912)	Aur	oc	6.4	052842	355117
M42 (NGC 1976, The Great Orion Nebula)	Ori	en	4.0	053517	-052325
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
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
NGC 3242 (the Ghost of Jupiter)	Hya	pn	8.6	102446	-183833
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
NGC 3521	Leo	gal	10.0	110548	-000215
M65 (NGC 3623)	Leo	gal	10.1	111855	130526
M66 (NGC 3627)	Leo	gal	9.7	112015	125924
Leo star fields	Leo	stars	>5.5	113000	174500
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
μ Cep (Herschel's Garnet Star)	Cep	vs	4.0	214330	584648

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
AR Cep	7.0-7.9	116	Semi-regular
RX Cep	7.2-8.2	55	Semi-regular
TX Psc	4.8-5.2	-	Irregular
RR Lyr	7.06-8.12	0.57d	RR Lyr

Selection of Binocular Variables (mag < +7.5)			
Star	Mag Range	Period	Type
TX UMa	7.0-8.8	3.06d	Eclipsing binary
R Sge	8.0-10.4	71d, 1112 d	RV Tau
U Sge	6.5-9.3	3.38d	Eclipsing binary
DY Vul	8.4-9.7	-	Irregular
U Vul	6.7-7.5	7.99d	Cepheid
X Cyg	5.9-6.9	16.39d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
AF Cyg	6.4-8.4	92.5	Semi-regular
TW Peg	7.0-9.2	90, 956	Semi-regular

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
X Oph	6.8-8.8	329

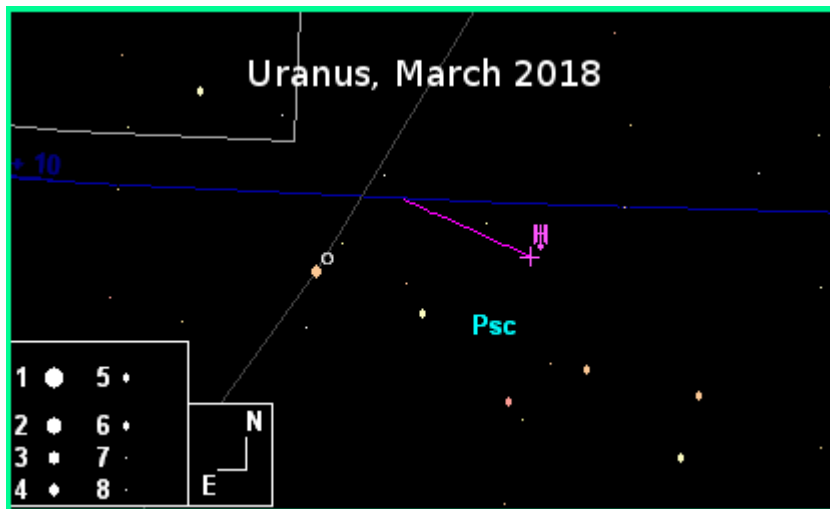
Double Stars

Binocular Double Stars for March			
Star	Magnitudes	Spectral Types	Separation (arcsec)
α Leo	1.4, 8.1	B8, G	176
7 Leo	6.3, 9.3	A0, F8	41
τ Leo	5.0, 7.4	K0, G5	89
δ Cep	4.1, 6.1	F5, A0	41
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
ι Cnc	4.0, 6.0	G5, A5	31
65 Uma	6.7, 7.0	A3, B9	63
α Cvn	2.9, 5.5	A0, F0	17.5

The Solar System

Neptune is unavailable until late May/early June.

Uranus is available from the onset of twilight, but sets around 22:00 at the beginning of the month, but is lost in the evening twilight after a couple of weeks. It starts the month shining at mag. +5.9 just over 2° west of α Psc, and its position changes by 1.5° ENE (prograde) during March.



Comets

There are no comets suitable for small to medium binoculars this month.

Meteor Showers

There are no major meteor showers this month.

Asteroid Occultations

There are no predicted asteroid occultations of stars mag +7.5 or brighter, visible from mainland UK, this month.

Lunar Occultations

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

Lunar Occultations, Mar 2018, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
01 Mar	06:09:56	D	Regulus	B7	1.4	83N	105
05 Mar	03:06:46	R	80 Vir	G6	5.7	63N	314
06 Mar	05:02:20	R	HIP 70784	K0	6.6	71N	304
11 Mar	04:31:48	R	HIP 91438	G5	5.9	61S	238
22 Mar	20:19:12	D	75 Tau	K2	5	61S	113
22 Mar	23:40:38	D	Aldebaran	K5	0.9	43S	131
23 Mar	22:43:29	D	119 Tau	M2	4.3	66S	112
23 Mar	23:20:19	D	120 Tau	B2	5.7	51S	127
26 Mar	00:43:13	D	HIP 37107	F0	6.9	80S	108
28 Mar	00:38:03	D	7 Leo	A1	6.3	68N	86
28 Mar	01:51:59	D	11 Leo	F2	6.6	23N	42
29 Mar	21:11:43	D	HIP 55455	F8	6.7	79S	131

Occultation data derived with Dave Herald's *Occult*

Don't get too excited about the occultation of *Regulus* on the 1st:
Although it is strictly a "dark limb" event, the Moon will be over 90% illuminated and, from the UK, will only be a few degrees away from setting. The occultation of *Aldebaran* on the 22nd will be a much better bet, although, again, it will be quite low altitude from the UK.

The Moon

March 02 Full Moon
March 09 Last Quarter
March 17 New Moon
March 24 First Quarter
March 31 Full Moon

Public Outreach & Talks

During March I will be at the following public events; please do come and say "Hello" if you attend:

2 nd :	<u>Tiverton and Mid Devon Astronomical Society</u>	Ten Ways the Universe Tries to Kill You (Talk)
10 th :	<u>Bournemouth Natural Science Society</u>	Young Explorers Astronomy
14 th :	<u>Luton Astronomical Society</u>	Ten Ways the Universe Tries to Kill You (Talk)
16 th :	<u>Dorset Wildlife Trust, Kingcombe</u>	Astronomy Workshop (booking essential)

Later in the year, I will be giving some *Binocular Astronomy* workshops:

On April 7th & 8th, I will be giving talks and, weather permitting, observing workshops at [**Battlesteads Dark Sky Observatory**](#) in Northumbria.

Then, in August at Builth Wells, Powys, I will be offering a *Binocular Astronomy Workshop* as part of the [**SolarSphere festival**](#):



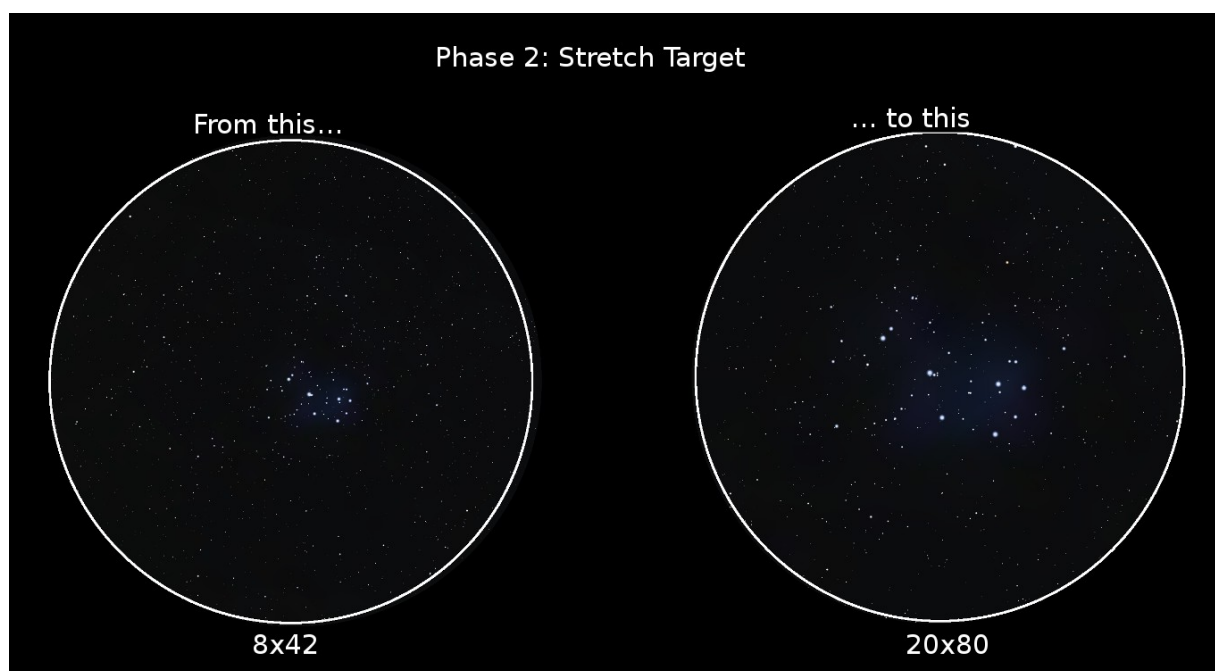
For those who like to mix music, camping and astronomy, [**Solarsphere**](#) boasts a good dark site (with a "red light only" camping option for observers), decent showers/loos, good craic, and is very family-friendly.

I'll also be giving a talk (*Pseudoastronomy – Planet X, Zetans and Lost Civilisations*).

Crowdfunding initiative

As part of my outreach activities, I lead a lot of sessions for beginners, like the workshops at Solarsphere and Battlesteads (above). An increasing number of these beginners are youngsters, i.e. the astronomers of tomorrow. Whilst I do have some binoculars that I share around, I don't have enough, so queuing and waiting is inevitable. These outreach events would be far more "efficient", and enjoyable for the participants, if individuals could each use one binocular without having to share.

To that end, I am trying to raise some money to enable me to get a "suite" of binoculars. Opticron UK has generously offered to match the number of funded binoculars on a one-to-one basis by donating up to ten binoculars, so any money raised will have double the effect! Then, last week, the Exeter-based astronomical equipment supplier, First Light Optics, made an announcement that it would donate half (i.e. six) of the hand-held binoculars I want. This now frees up Previously pledged money for the next phase of the project, i.e. some larger mounted binoculars.

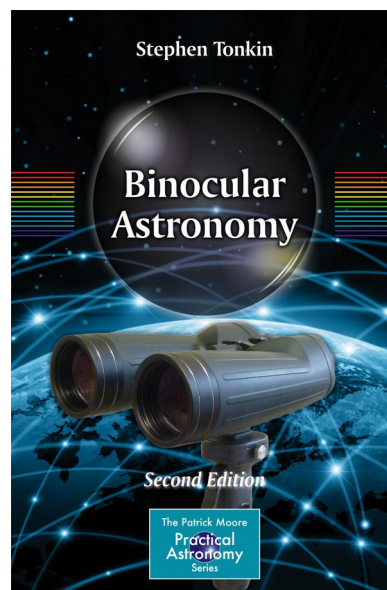


As binocular astronomers, you know how effective binoculars are for simple, quick astronomy. There's still a few weeks left so, you are able, [please click here to support this initiative.](#)

Thanks!

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](#)
- Donate to my [Binoculars for Astronomical Outreach](#) crowdfunder.



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 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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