The Binocular Sky Newsletter

No. 136
April 2023

Introduction

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

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 (if you are further south, please let me know!)

In the Solar System, we have lost **Neptune** into the solar glare and **Uranus** is following, but **Ceres** is easily within the range of small binoculars (page 8).

In the deep sky, the "realm of galaxies" is back with us. How many can you spot this month?

International Dark Sky Week runs from the 15th to the 22nd. As it gradually dawns on us that artificial light at night (ALAN) may be an irritant to astronomers, but it is devastating to nocturnal fauna (i.e. most of it) and carries serious implications for human health, do attend any events in your area. If there aren't any, come to mine (a bit early, on the 11th).

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.)

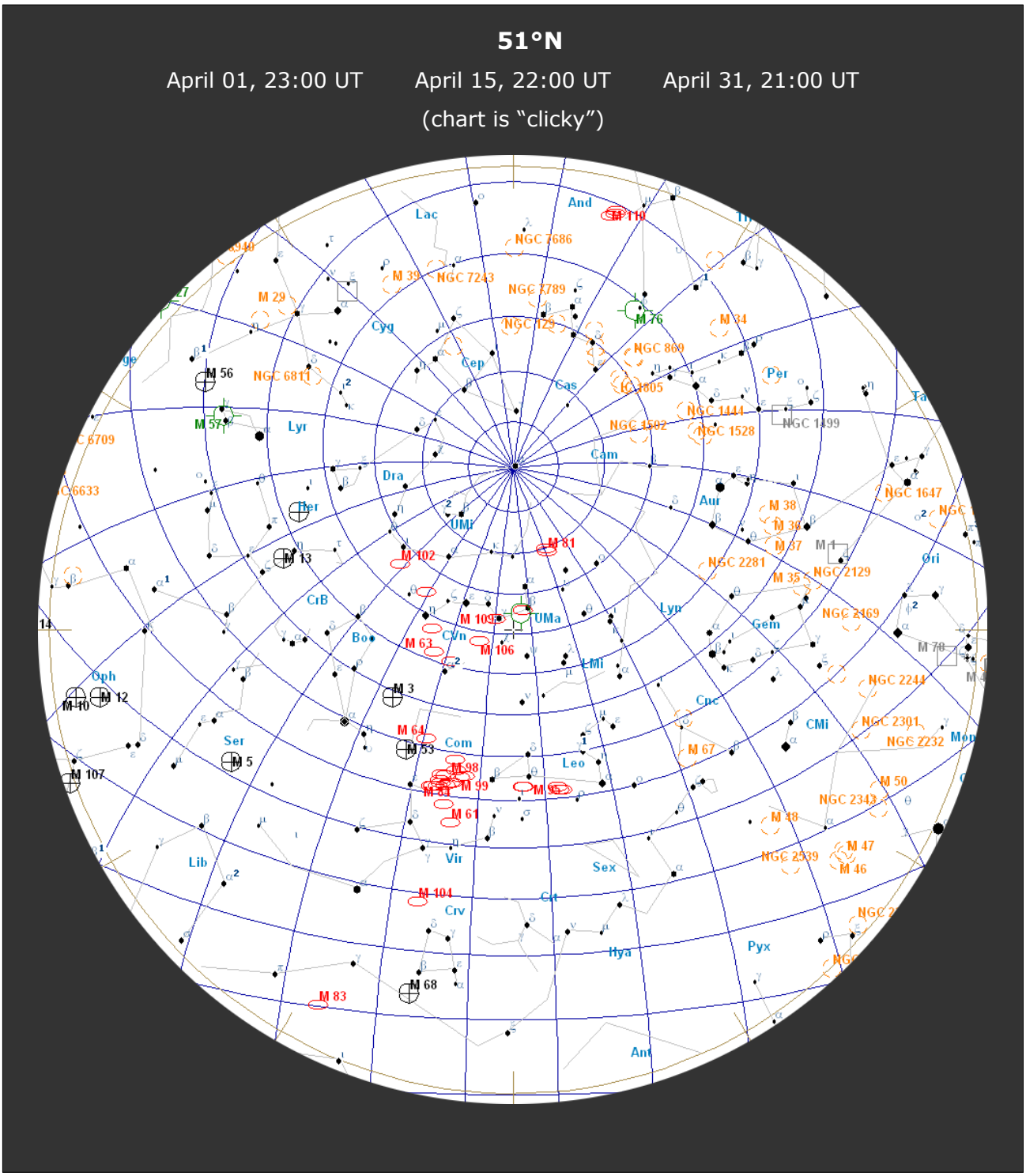
For those of us in the northern temperate zone, April nights continue to shorten rapidly: I have 7.5 hours of astronomical dark at the beginning of the month, but only 4 hours at the end. Consequently, we are rapidly losing some of the celestial delights of early spring.

The *Pleiades* (M45) and the *Great Orion Nebula* (M42) culminate before Civil Twilight ends, but are still fine sights in binoculars early in the month, as are 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 such as M46 and M47, and, near Sirius, M41.

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.

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, although you'll need to wait until autumn if you want to realise the imagination of it being a ribbon waterfall plunging into a splash-pool because, during spring evenings, the waterfall flows diagonally upwards!

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 April it is suitably placed at astronomical dusk and later.



If you look at the chart above, you will see the objects in red, the galaxies, down the centre of the chart. The open clusters, which are more concentrated along the Milky Way (hence their alternative name, "galactic clusters") are mostly confined to the horizon region. So, during April evenings, we are able to look out of the plane of the Milky Way and its

obscuring dust and stars. This makes other galaxies available for observation. Look out for the two galaxy trios in Leo (M95/96/105 and M65/66/NGC3628) and Markarian's Chain in Coma Berenices. This entire region behind Leo is full of galaxies. How many you can see will be dependent on your local conditions and the aperture of your binoculars. A few years ago, on a particularly transparent April evening, I decided to see how many Vir/Com galaxies I could count using my 16x70s. I gave up; not only were there so many, but most were only visible with averted vision so, of course, when I looked *at* them, they simply disappeared and this made it difficult to remember patterns so that I could avoid duplication (or omission). Do try it – not the counting, just the sheer pleasure of being able to detect so many with such simple kit.

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.

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 a big binocular, also observe the edge-on NGC4565 (Berenice's Hair Clip), which is next to Melotte 111.

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.

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.

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 (α Cep)*, so you can appreciate the colour difference.

Lastly, the colourful star-fields around the "back" of Leo that we looked at

last month are still on view for a couple of months. In particular, enjoy the pretty groups of stars within the rectangle bounded by *β, δ, θ,* and *93 Leonis*, and, later this month, the region just to the south of *σ Virginis*.

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

April Deep Sky Objects by Right Ascension					
Object	**Con**	**Type**	**Mag**	**RA (hhmmss)**	**Dec (ddmmss)**
NGC 884 and NGC 869 (the Perseus Double Cluste	Per	oc	5.3	022107	570802
M45 (the Pleiades)	Tau	oc	1.6	034729	240619
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
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
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
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
M94 (NGC 4736)	CVn	gal	8.2	125053	410717
M53	Com	gc	7.6	131255	181010
M63 (NGC 5055, the Sunflower Galaxy)	CVn	gal	8.6	131549	420159
M51 (NGC 5194, the Whirlpool Galaxy)	CVn	gal	8.9	132952	471144
M3 (NGC 5272)	CVn	gc	6.2	134211	282233
M101	UMa	gal	7.7	140312	542957
M5	Ser	gc	5.7	151833	20459
M13 (NGC 6205, the Great Hercules Globular Clust	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
μ Cep (Herschel's Garnet Star)	Cep	vs	4.0	214330	584648

Variable Stars

Selection of Binocular Variables (mag < +7.5)			
Star	**Mag Range**	**Period**	**Type**
AA Cam	7.5-8.8	Irreg	Irregular
Y Lyn	7.2-7.8	110d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
X Cnc	5.6-7.6	165d	Semi-regular
R Cnc	7.1-8.6	90d	Semi-regular
TX UMa	7.0-8.8	3.06d	Eclipsing binary
R Vir	6.9-11.5	145d	Mira
ZZ Boo	6.7-7.4	4.99d	Eclipsing binary

Double Stars

Binocular Double Stars for April			
		Spectral	**Separation**
Star	**Magnitudes**	**Types**	**(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
ι Cnc	4.0, 6.0	G5, A5	31
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
ν Dra	4.9, 4.9	A5, A5	62
39 Dra	5.1, 7.9	A2, F8	89

The Solar System

(Low resolution charts may be "clicky" for higher resolution alternatives)

The Moon

April 06	Full Moon
April 13	Last Quarter
April 20	New Moon
April 27	First Quarter

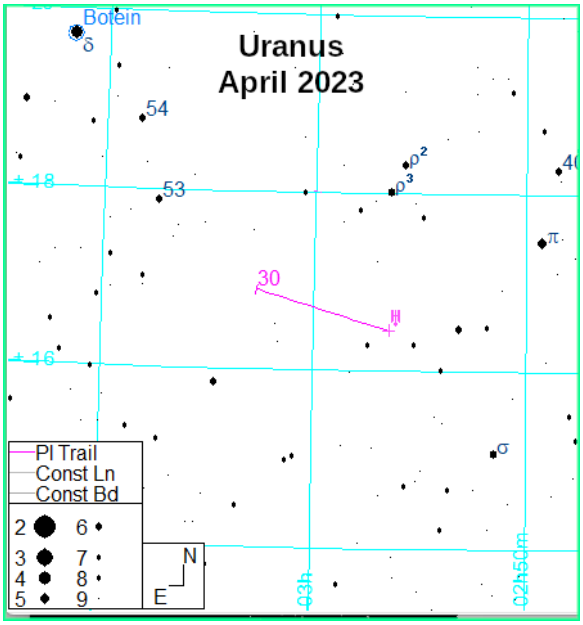
Lunar Occultations

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 April 2023 50.9°N 1.8°W							
Date	**Time (UT)**	**Phase**	**Star**	**Spectral Type**	**Magnitude**	**Position Angle**	**Cusp Angle**
Apr 10	02:38:22	D	sig Sco	B1	2.9	-43S	Apr 10
Apr 10	03:36:09	R	sig Sco	B1	2.9	56S	Apr 10
Apr 11	04:31:41	R	43 Oph	K4	5.3	74S	Apr 11
Apr 21	19:38:14	D	HIP 15048	K5	6.5	54S	Apr 21
Apr 24	20:10:05	D	HIP 28417	K1	6.6	76S	Apr 24

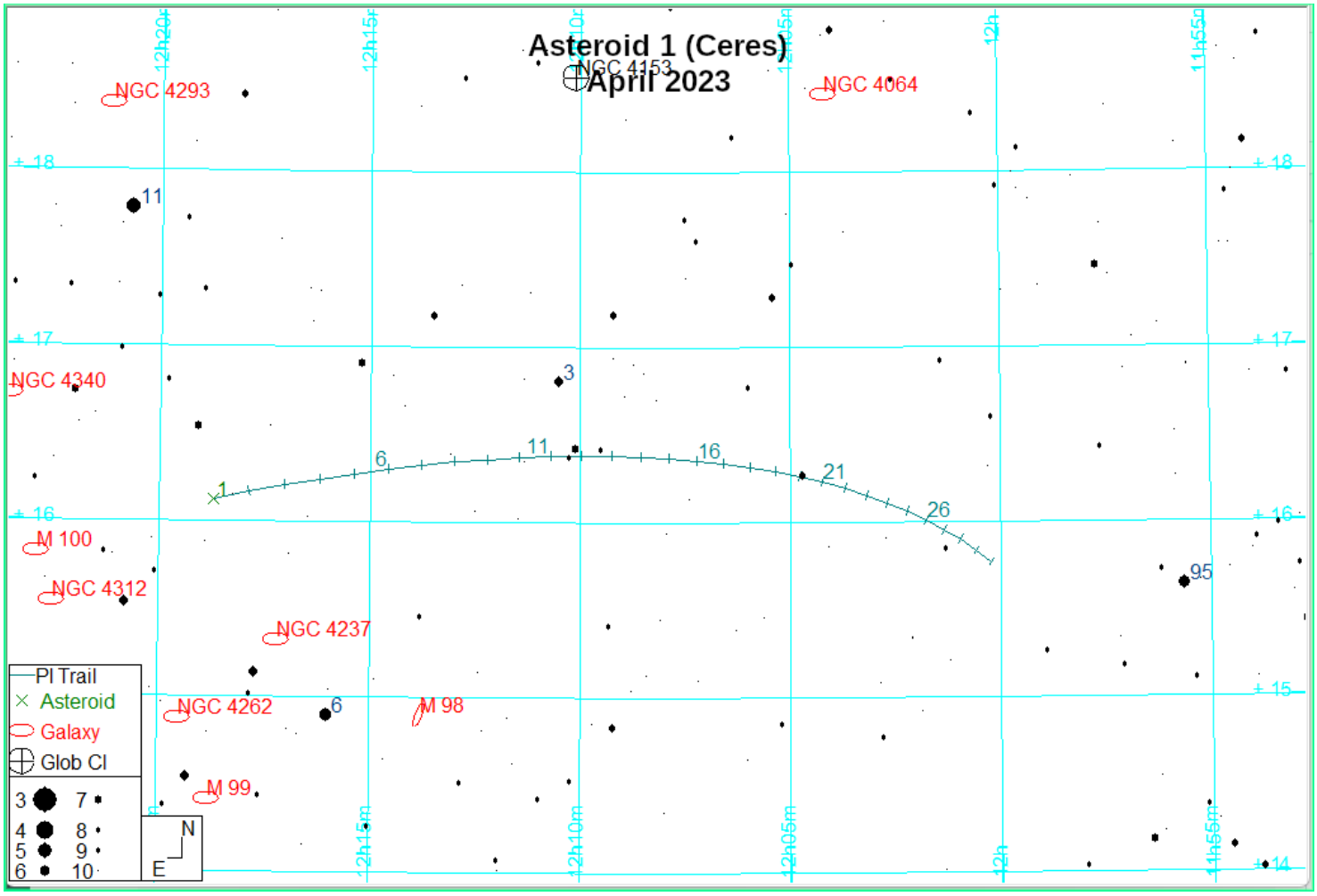
Planets

Of the binocular planets, Neptune is not visible this month, and Uranus is sinking into the evening twilight in Aries, so is becoming more difficult. Binoculars will help if you want to observe Mercury, which is at greatest eastern elongation on the 11th. There is also a close (and challenging!) grouping of Mercury, Uranus and a not yet 2-day old, 2% illuminated, crescent Moon on the 21st.



Asteroids

Asteroid 1 (Ceres) is in Coma Berenices, and fades from mag. +7.2 to +7.8 during the month, so is still easily within the range of small binoculars.



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

Apr 11th	Bournemouth Natural Science Society	**Lighting, Biodiversity and Health** (H)
Apr 13th	Fovant Independent Ladies	**The Work of Cranborne Chase IDSR**
Apr 17th	Ambassador Club	**Time and Calendars**
Apr 18th	Tweeddale AS	**Ten Ways the Universe Tries to Kill You** (Z)
Apr 20th	Andover AS	**How Old Is It?**
Apr 24th	Longbridge Deverill Parish Council	**The Right Light at Night**
April 25th	Teffont Parish Meeting	**The Right Light at Night**

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, 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

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*

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