



The Binocular Sky


April
2015

Newsletter

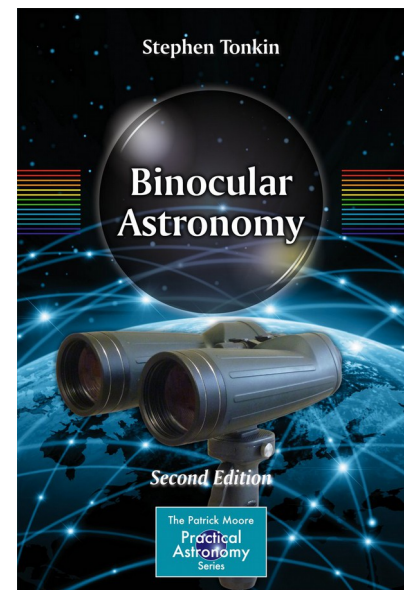
Introduction

Welcome to the ***Binocular Sky*** Newsletter of April 2015. The intention of this monthly offering is to highlight some of the binocular targets for the coming month. It is primarily targeted at observers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and possibly even further south.

Solar-system charts are clickable and will take you to a (usually) larger chart that may be more useful as well as being downloadable to your computer or smartphone.

If you would like me to email this newsletter to you each month, please complete and submit the [subscription form](#). You can get "between the newsletters" alerts, etc. via  and .

If you would like to support this Newsletter, the simplest way is to purchase my book, [Binocular Astronomy](#). Please click on the image for more information.



The Deep Sky *(Hyperlinks take you to charts and more information)*

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 [M46 & 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.

In April, 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. Look out for the two 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](#), the cluster that gives Coma its name. You should find [M81 \(Bode's Nebula\)](#) and [M82 \(The Cigar Galaxy\)](#) 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 apparent if you look at [M82](#). If you have good skies, try [M51 \(The Whirlpool\)](#), [M94](#) and [M63 \(The Sunflower\)](#). [M63](#) really needs a 70mm or larger binocular in anything other than pristine skies.

The globular cluster [M3](#) is a good one to start with during an April evening's observing. Later in the evening, the two Hercules globulars, [M92](#) and the very impressive, and very easy to find, [M13](#) are at a

better altitude for observation.

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. They are important for two reasons: Firstly, they contain some of the oldest stars in the galaxy, so studying them helps us understand the evolution of stars. Secondly, they are useful as "standard candles" in establishing a distance scale of the Universe, based on the assumption that the brightest stars in any globular cluster will be approximately the same brightness and that the brightest globulars in a galaxy will be approximately the same brightness.

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 planets.

For interactive maps of Deep Sky Objects visible from 51°N, please visit:

http://binocularsky.com/map_select.php

Variable Stars

Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
o Cet	3.4-9.3	332

NB: *Mira (o Cet)* will be a very difficult object, low down in evening twilight, only observable at the beginning of the month. The other bright Mira star near maximum, *R Aqr (6.5-10.3)*, is too close to the Sun to be observable.

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 CncT	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			
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
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

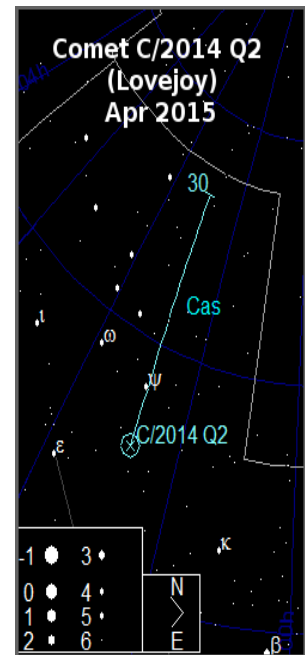
(The charts in this section are "clicky")

Planets

Of the binocular planets, **Uranus** is very close to the Sun and is not observable this month. **Neptune** is very low in the morning twilight and may just become a difficult binocular object by the end of the month. There are no bright **asteroids** observable this month.

Comets

Comet C/2014 Q2 (Lovejoy) is now circumpolar and slowly fading from about magnitude +7, it is becoming an increasingly difficult binocular object all month as it moves through Cassiopaea. On the night of the 8th/9th, it passes within 8 arcminutes of the mag +4.7 ψ Cas.



Meteor Showers

The Moon is favourable for the April Lyrids, which peak on the night of the 22nd/23rd, and will be best observed after Moonset (just before midnight). They usually peak at 20-30/hr, but have sometimes had outbursts of over 100/hr, which makes them very much worth watching. These meteors are dust particles from the tail of Comet Thatcher. As these particles enter the atmosphere, they compress and heat the air in front of them. This heat causes the surface of the particle to ablate and ionise. Binoculars are useful for observing the persistence of these ionisation trains that form the streak in the sky which is what we observe as a "shooting star".

The Moon

- Apr 04 Full Moon
- Apr 12 Last Quarter
- Apr 18 New Moon
- Apr 25 First Quarter

Lunar Occultations

As April nights get shorter, there are fewer occultations of stars brighter than mag +7.0 visible from the UK this month. Times and Position Angles are for my location (approx: 50.9N, 1.8W) and will vary by up to several minutes for other UK locations. The types are all (D)isappearances.

Lunar Occultations, Apr 2015, 50.9°N, 1.8°W					
Date	Time	Type	SAO	Mag	PA (°)
Apr 22	21:21	D	SAO 94760	7	105
Apr 24	23:39	D	SAO 97012	6.6	122
Apr 24	23:41	D	68 Gem	5.3	77
Apr 28	22:42	D	35 Sex	6.2	63
Apr 30	20:37	D	SAO 138637	6.7	150

Wishing you Clear Dark Skies,

Steve Tonkin

for

The Binocular Sky



Acknowledgments:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com>

Variable star data based on David Levy's *Observing Variable Stars*

Occultation data derived with Dave Herald's *Occult*

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