





# The Binocular Sky

April  
2014

# Newsletter

## Introduction

Welcome to the *Binocular Sky* Newsletter of April 2014. 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. For this Newsletter to be a useful tool, it needs to have the information that **YOU** want in it; therefore please do not be shy about making requests – if I can accommodate your wishes, I shall do so. As a consequence of such a request, from this month, I am including a selection of binocular double stars.

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 .

## The Deep Sky

The Deep Sky ([Hyperlinked text](#) will 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](http://binocularsky.com/map_select.php)

<b>Mira-type stars near predicted maximum (mag &lt; +8.5)</b>		
<b>Star</b>	<b>Mag Range</b>	<b>Period (days)</b>
U Ori	6.3-12.0	368

<b>Selection of binocular variables (mag &lt; +8.5)</b>			
<b>Star</b>	<b>Mag Range</b>	<b>Period</b>	<b>Type</b>
RU Cam	8.1-9.8	22.06d	Cepheid
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
EK Cep	8.2-9.5	4.3d	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

Binocular Double Stars for April			
Star	Magnitudes	Spectral Types	Separation (arcsec)
a 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
$\iota$ Cnc	4.0, 6.0	G5, A5	31
$\nu$ Boo	5.0, 5.0	K5, A2	628
DN & 65 UMa	6.7, 7.0,	A3, B9	63
$\pi$ -1 Umi	6.6, 7.2	G5, G5	31
$\nu$ Dra	4.9, 4.9	A5, A5	62
39 Dra	5.1, 7.9	A2, F8	89

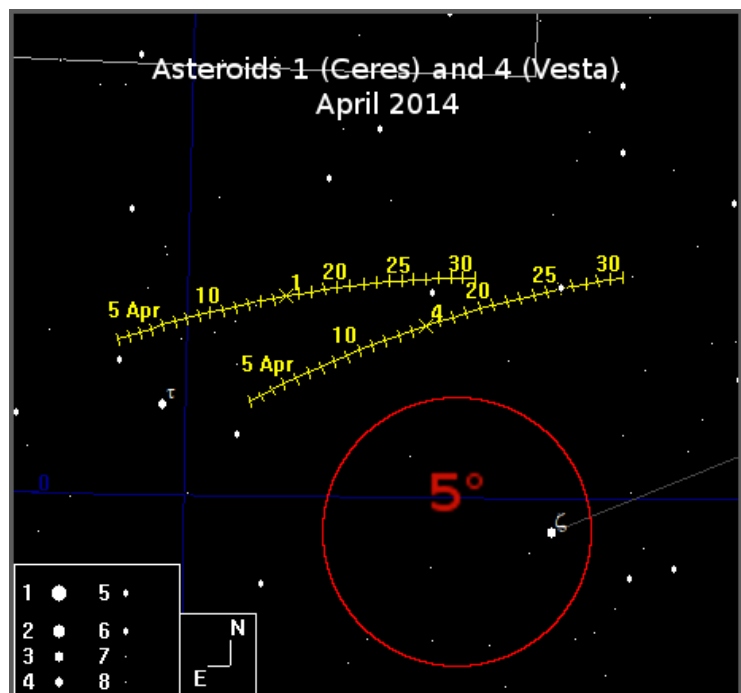
## The Solar System

### Planets

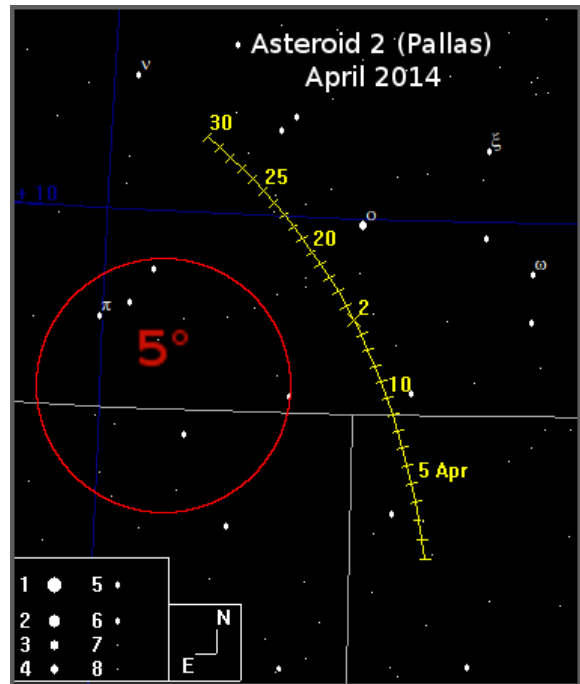
The binocular planets, **Neptune** and **Uranus**, are not observable this month.

### Minor Planets

Asteroids **1 (Ceres)** and **4 (Vesta)** (**Vesta**) brighten to magnitudes +7.0 and +5.7 respectively as they come to opposition in Virgo at mid-month, bringing them easily within the capability of even 8x30 binoculars.

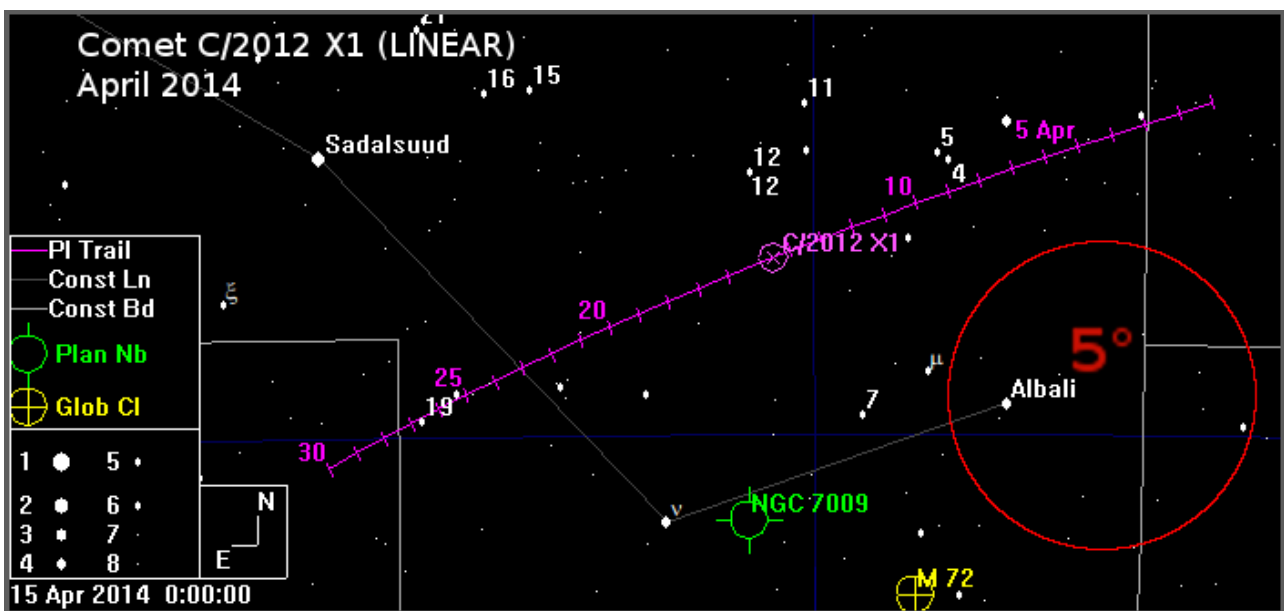


Asteroid **2 (Pallas)** has passed opposition and fades from magnitude +7.6 to +8.4 during the month.



## Comets

Comet 2012 X1 (LINEAR) is a morning object and is holding steady at around 8th magnitude and is expected to fade by less than half a magnitude during April.



## Lunar Occultations

There are several occultations of stars brighter than mag +7.5 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 **(D)**isappearance, **(R)**eappearance and **(Gr)**aze; they are all dark-limb events unless there is a **(B)**.

Lunar Occultations, Apr 2014, 50.9°N, 1.8°W					
Date	Time	Type	SAO	Mag	PA (°)
Apr 03	21:16:53	D	93810	6.1	112
Apr 08	00:51:24	D	97192	7.3	68
Apr 09	01:05:31	D	97890	7.3	57
Apr 10	01:18:02	D	98495	7.2	41
Apr 11	19:43:41	D	118471	7.1	55
Apr 12	01:25:52	D	118558	7.4	117
Apr 14	02:09:01	D	138816	7.4	79
Apr 17	02:25:32	R	159028	5.2	323
Apr 17	02:56:32	R	159030	6.4	268
Apr 18	03:27:42	R	159677	6.7	295
Apr 21	01:29:30	R	162050	6.4	249
Apr 22	02:38:24	R	163173	7.2	321

## Meteor Showers

A last quarter Moon interferes with the April Lyrids, which peak on the morning of the 22<sup>nd</sup>. The best time to observe will be before the Moon starts to become obtrusive around 01:30 UT. 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 07 First Quarter

Apr 15 Full Moon

Apr 22 Last Quarter

Apr 29 New Moon

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>

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