
## Introduction

Welcome to the ***Binocular Sky*** Newsletter of May 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 and possibly even further south. 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.

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

(Hyperlinked text will take you to charts and more information.)

The trio of open clusters in Auriga and M35 in Gemini are still visible low in the West as twilight darkens. 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 somewhat more difficult IC 2157, which is a degree to the ESE. Also in the West, but slightly higher are M44 (*Praesepe*) and M67 , two fine open clusters in Cancer. Also visible in the North are NGC 457 (The Owl Cluster) and

NGC 633 in Cassiopeia and the Perseus Double Cluster. The finest and best-placed open cluster available this month is last month's "object of the month", Melotte 111, the cluster that gives Coma its name.

*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 May, 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) which are now moving into the western sky, and *Markarian's Chain* in Coma Berenices, which is very well placed as we enter astronomical twilight. If you have a big binocular, also observe the edge-on NGC4565 (*Berenice's Hair Clip*), which is next to Melotte 111. Also very well placed this month are M81 (*Bode's Nebula*) and M82 (*The Cigar Galaxy*), both of which are easy in a 50mm binocular. These can be used as a good demonstration of averted vision: if you have them both I 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*) and M101 which, although it is a large object, is very difficult owing to its low surface brightness.

Of the globular clusters, M3 is a good one to start with during an May 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. Although M13 is clearly larger than M3, it is easier to resolve the outer stars of the latter one, which is why I one reason that I have nominated it as object of the month. Also becoming visible in May evenings is M5 in Serpens.

*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 assumptions 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 at least 100mm aperture, see if you can find and identify NGC 4361, a planetary nebula in Corvus. 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

| Binocular Double Stars for May | | | |
|---|---|---|---|
| **Star** | **Magnitudes** | **Spectral Types** | **Separation (arcsec)** |
| 67 Oph | 4.0, 8.1 | B5, A | 54 |
| ρ Oph | 5.0, 7.3, 7.5 | B5, A, B3 | 151, 157 |
| 53 Oph | 5.7, 7.4 | A2, F | 41 |
| δ Cep | 4.1, 6.1 | F5, A0 | 41 |
| γ Her | 3.7, 9.4 | F0, K | 43 |
| 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 |

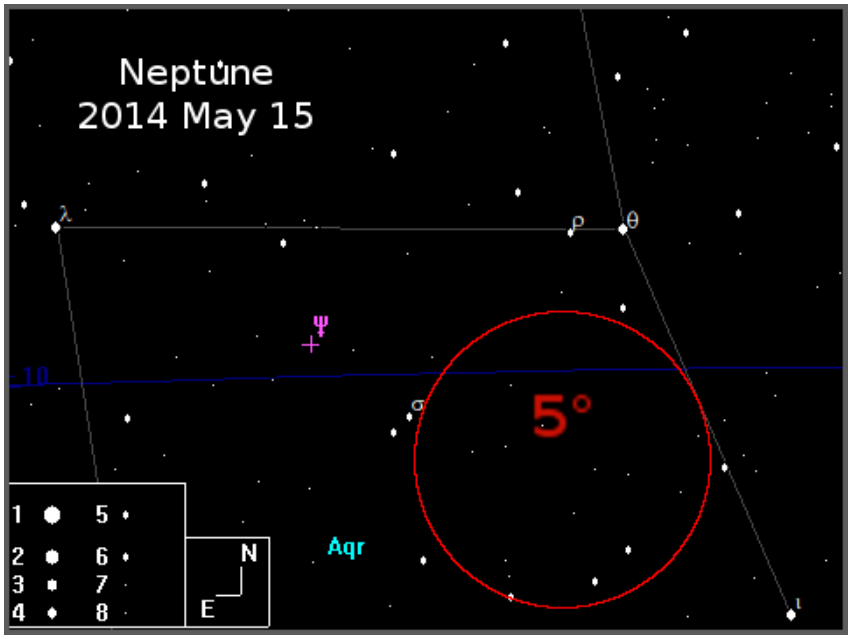
| Mira-type stars near predicted maximum (mag < +8.5) | | |
|---|---|---|
| **Star** | **Mag Range** | **Period (days)** |
| UV Aur | 7.4-10.7 | 394 |

| Selection of binocular variables (mag < +8.5) | | | |
|---|---|---|---|
| **Star** | **Mag Range** | **Period** | **Type** |
| 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 |
| V1010 Oph | 6.1-7 | 0.66d | Eclipsing binary |
| RR Lyr | 7.06-8.12 | 0.57d | RR Lyr |
| 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 |

# The Solar System

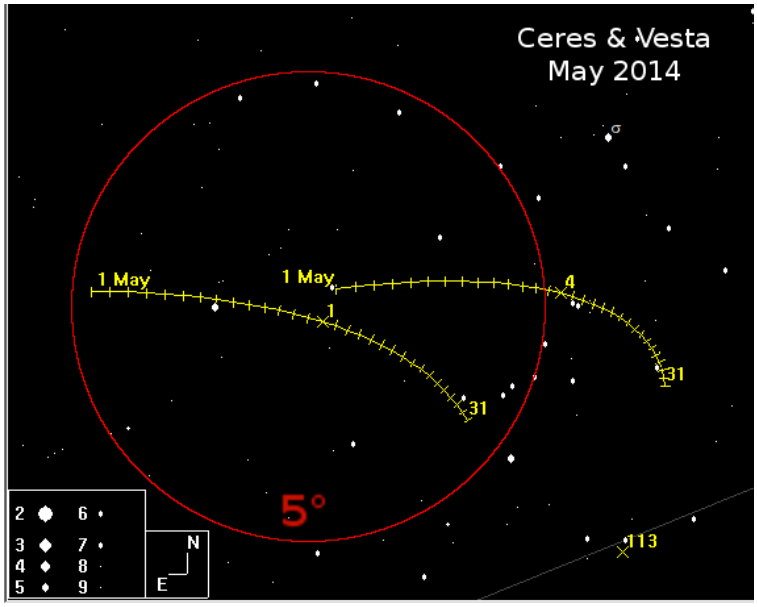
## Planets

By mid-month, **Neptune** attains an observable altitude before being washed out by the dawn twilight. **Uranus** is still too low to be easily observed before the sky is too light.



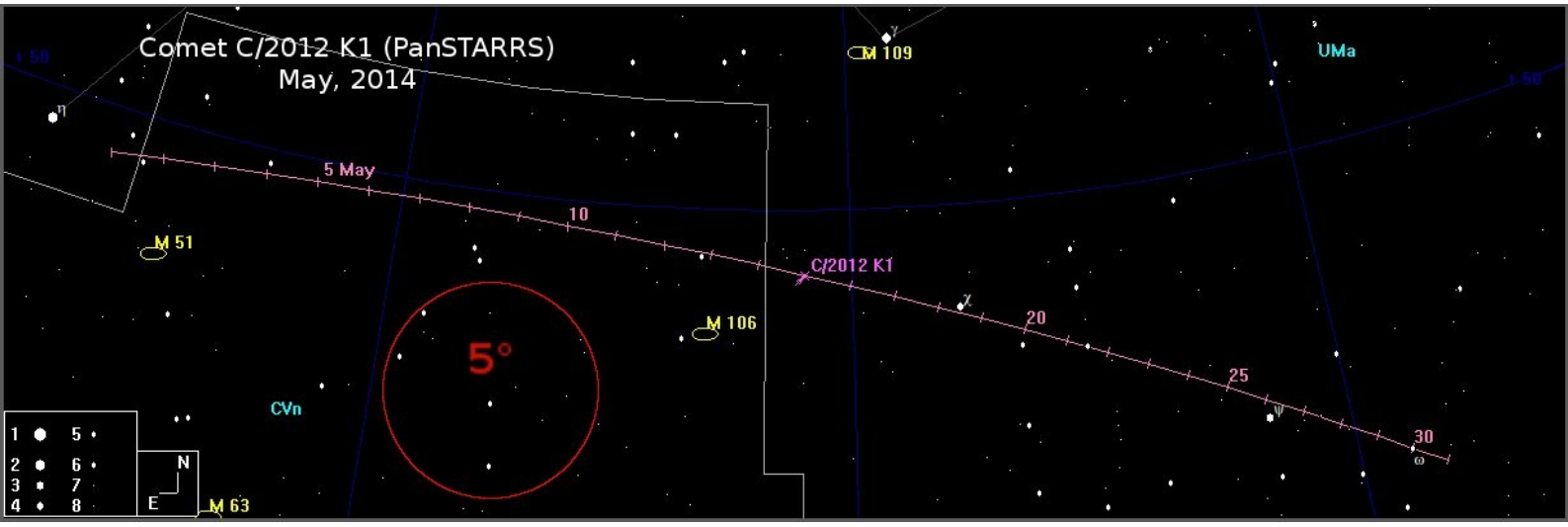
## Minor Planets

**Ceres** (mag +7.5) and **Vesta** (mag +6.2), continue to impress and are now visible throughout the hours of darkness in Virgo.

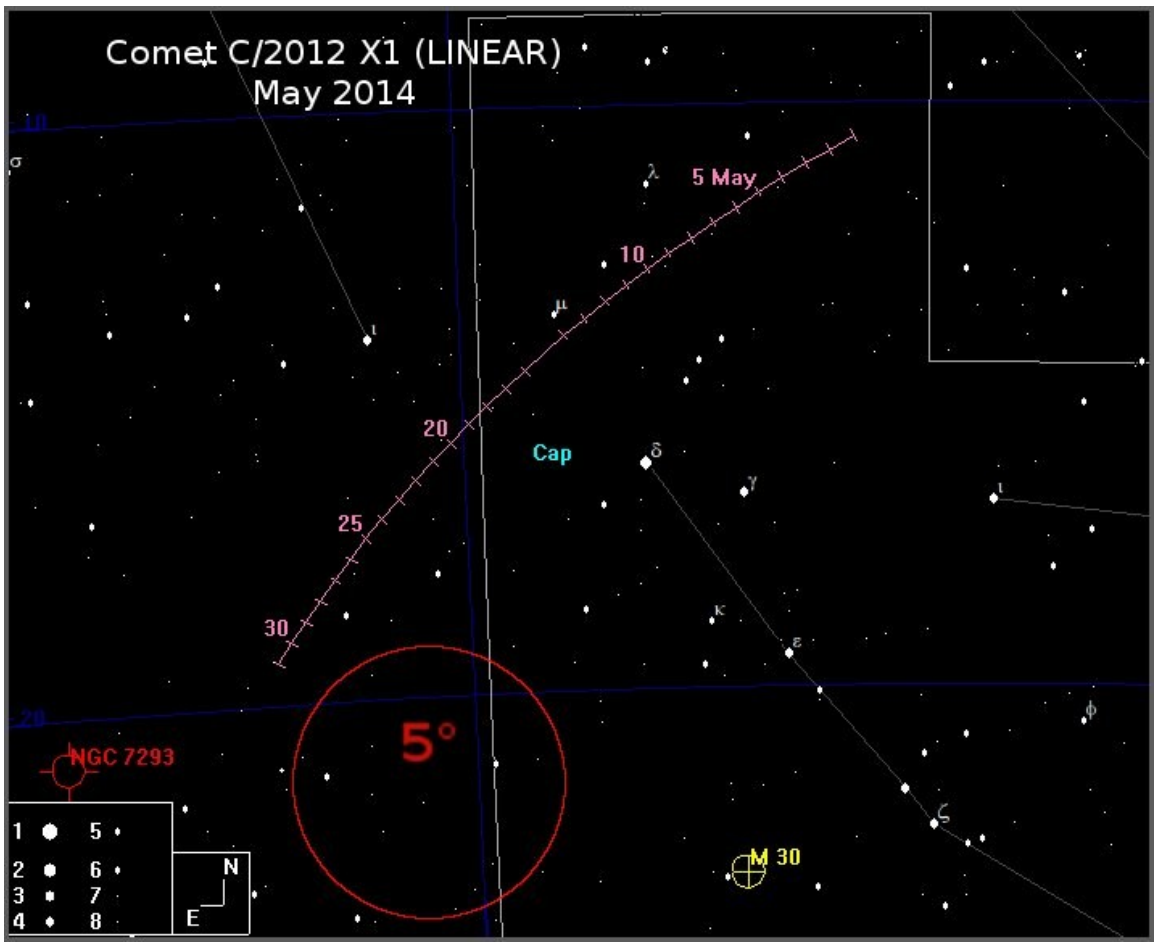



## Comets

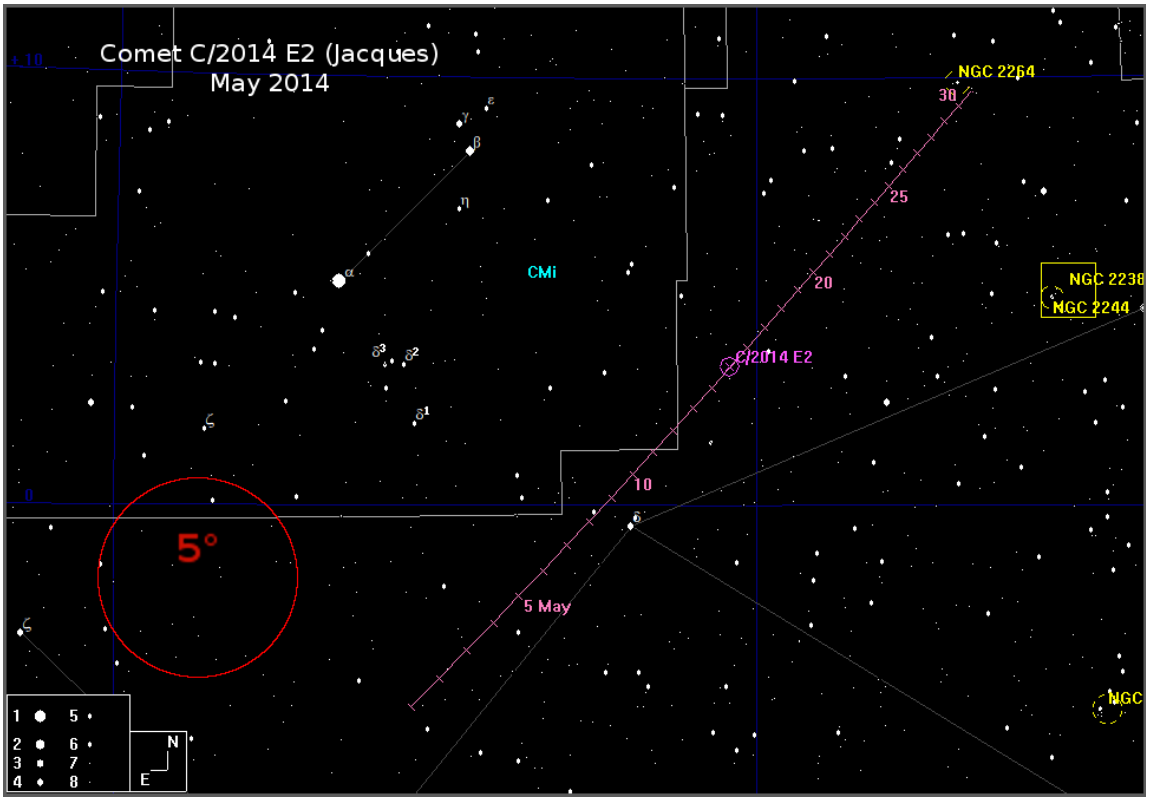
A year ago, we were being treated by a Comet PanSTARRS, and now another comet of the same name is brightening to binocular visibility. **Comet C/2012 K1 (PanStarrs)** is circumpolar in Canes Venatici and Ursa Major all month.




**Comet C/2012 X1 (LINEAR)** is holding it's brightness, but is getting trickier to observe as it dives towards the dawn horizon in Capricorn.




Finally, a newly (March) discovered comet, **C/2014 E2 (Jacques)**, is brightening towards binocular visibility in the early evening sky.



## 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**)raze; they are all dark-limb events unless there is a **(B)**.

| Lunar Occultations, May 2014, 50.9°N, 1.8°W | | | | | |
|---|---|---|---|---|---|
| **Date** | **Time** | **Type** | **SAO** | **Mag** | **PA (°)** |
| May 03 | 22:05:37 | D | 95771 | 7.3 | 132 |
| May 04 | 20:15:49 | D | 96746 | 3.6 | 38 |
| May 04 | 21:18:40 | D | 96786 | 6.9 | 108 |
| May 05 | 23:17:23 | D | 97647 | 6.5 | 31 |
| May 10 | 20:57:55 | D | 138553 | 7.5 | 20 |
| May 11 | 00:18:25 | D | 138602 | 7.5 | 102 |
| May 14 | 01:39:33 | D | 158788 | 6.3 | 76 |
| May 18 | 01:05:33 | R | 161754 | 6.3 | 198 |
| May 19 | 03:02:28 | R | 162980 | 6.9 | 191 |

## Asteroid Occultations

There are no asteroid occultations visible in binoculars from the UK this month.

## Meteor Showers

The conditions for this month's meteor shower, the *Eta Aquarids*, are very fairly good for tropical and southern hemisphere observers, with the peak predicted to be at 07:00 on the 6th. These meteors are dust particles from the tail of Comet Halley. 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 trains of this shower tend to be long. Owing to the position

of the radiant, this is essentially a shower for observers at a latitude south of about 35°N.

## The Moon

May 07 First Quarter

May 14 Full Moon

May 21 Last Quarter

May 28 New Moon

## Binocular Astronomy Talks

This month I shall be giving three talks on Binocular Astronomy, at which I'd be delighted to meet any readers of this newsletter:

May 02: Tiverton and Mid Devon Astronomical Society

May 06: Lincoln Astronomical Society

May 24: Bournemouth Natural Science Society

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