



The Binocular Sky

January
2014

Newsletter

Introduction

Welcome to the ***Binocular Sky*** Newsletter of January 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 (*Hyperlinks take you to charts and more information*)

The [Pleiades \(M45\)](#) and the [Great Orion Nebula \(M42\)](#) culminate in the early evening, 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. Nearer the Pleiades is [NGC 1647](#), which is within the 'V' asterism of the [Hyades](#). It is a sparse cluster and, although it is visible in a 10x50 binocular, it really benefits from a little more aperture and magnification. Making a return 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.

While you are observing in the region, take the time to study R Leporis (*Hind's Crimson Star*), which is a candidate for the reddest star in the heavens. To the north of that, just to the SE of Alnitak (ζ Ori) is the multiple star σ Orionis. Neither should you ignore the region around Orion's Belt – this is a huge association of stars called Collinder 70 that is best observed with low magnification, wide-field binoculars. If you have binoculars of at least 70mm aperture and a good sky, see if you can spot M78 to the NE of Alnitak.

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.

Two clusters that are frequently ignored because they are closer to “more famous” objects are NGC 752 and M34. Both are fine clusters and are worth spending some time on.

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.

Two galaxies worth observing this month are The Great Andromeda Galaxy, M31 and M33 (*The Pinwheel*), both of which are close to the plane of the Milky Way. M31 in particular is very easily visible this month and is 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 (making 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.

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!

Variable Stars

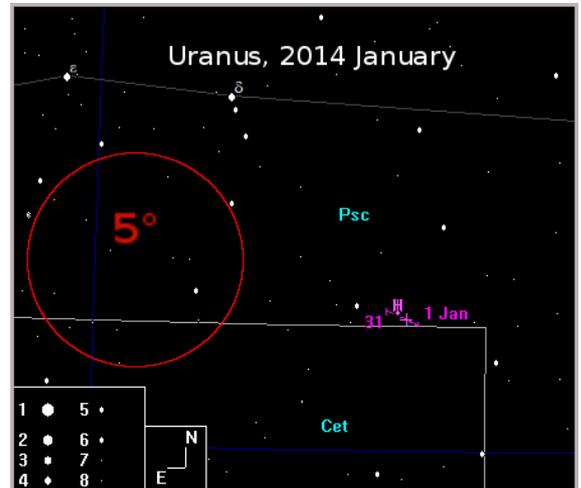
Mira-type stars near predicted maximum (mag < +8.5)		
Star	Mag Range	Period (days)
R Hya	4.5 – 9.5	389
T UMa	7.7-12.9	257

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
RX Lep	5.4-7.4	Irreg	Irregular
TW Peg	7.0-9.2	ca. 90d	Semi-regular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
EK Cep	8.2-9.5	4.3d	Eclipsing binary
T Cep	6.0-10.3	388d	Mira
SS Cep	6.7-7.8	ca. 190d	Semi-regular
RZ Cas	6.2-7.7	1.195d	Eclipsing binary

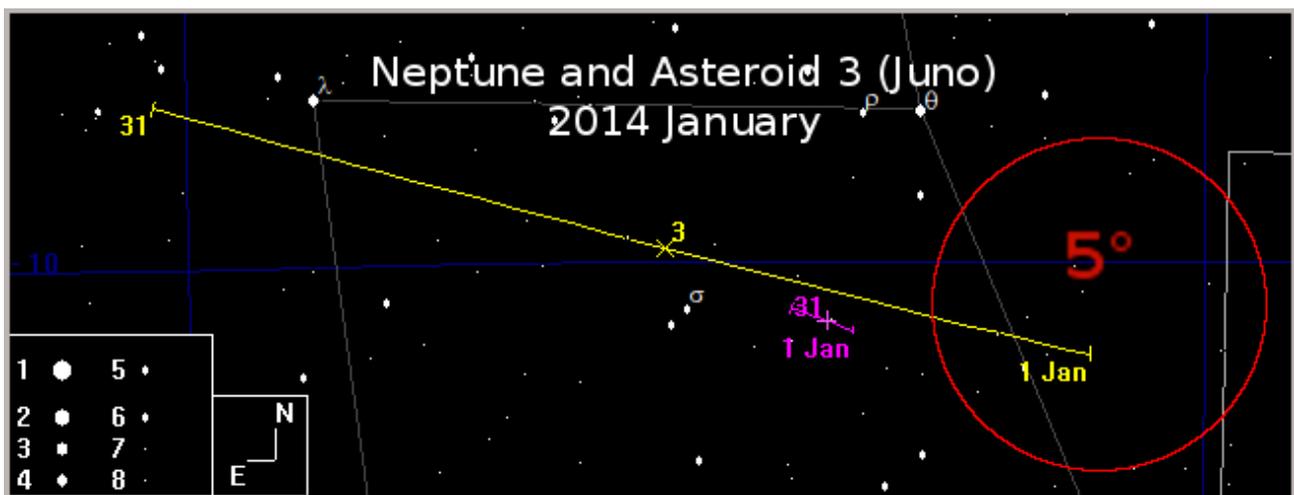
The Solar System

Binocular Planets

Uranus is at magnitude +5.9 and spends the month just over 5.5° south-southwest of δ Psc. It sets before 22:30 by the end of the month, so observe it early in the evening.

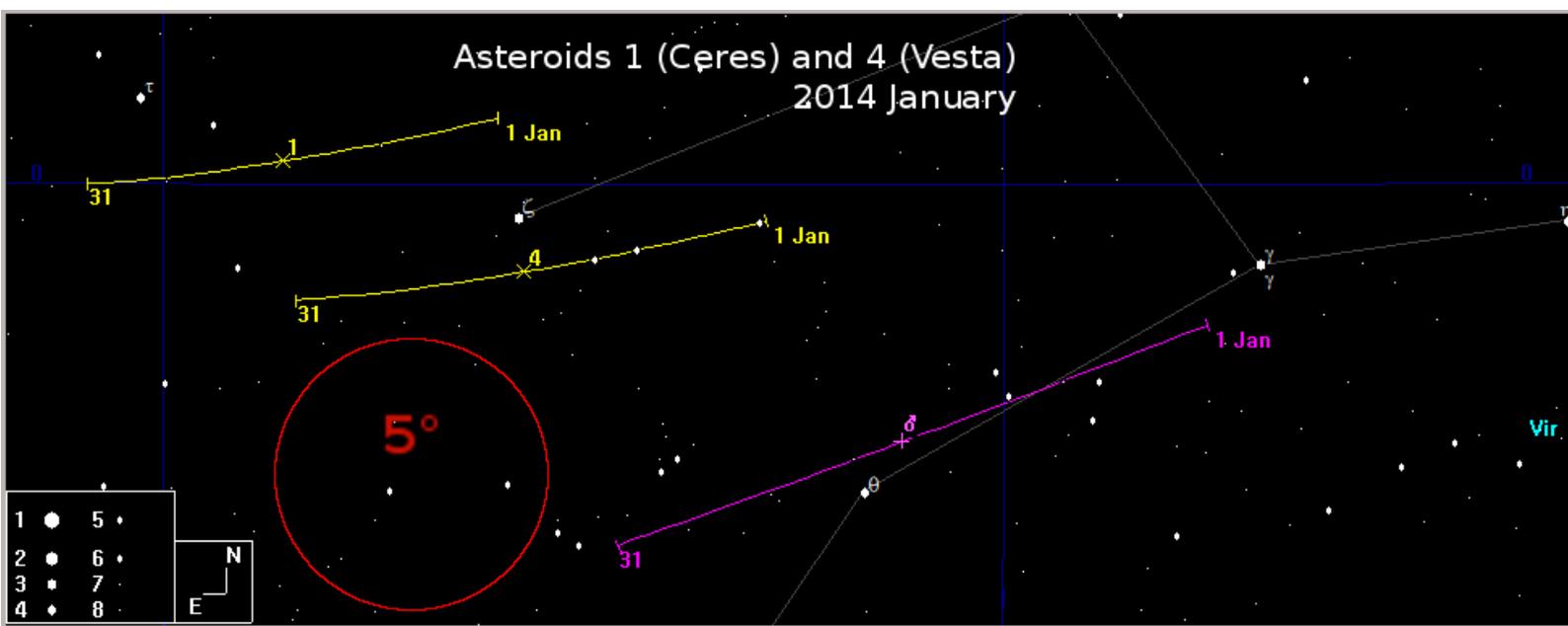


Neptune spends the month 2.5° west of σ Aqr, but is much fainter at magnitude +7.9. By the end of the month it is only 7° above the horizon at the end of nautical twilight, so observe it early in the evening early in the month. Juno overtakes Neptune and the appulse is on the 9th. At magnitude +10.1 and low in the sky, this will be a tricky observation that requires large aperture binoculars.



Minor Planets

Asteroids 1 (Ceres) and **4 (Vesta)** rise before midnight by the end of the month and are both brightening, to +8.2 and +7.2 respectively.

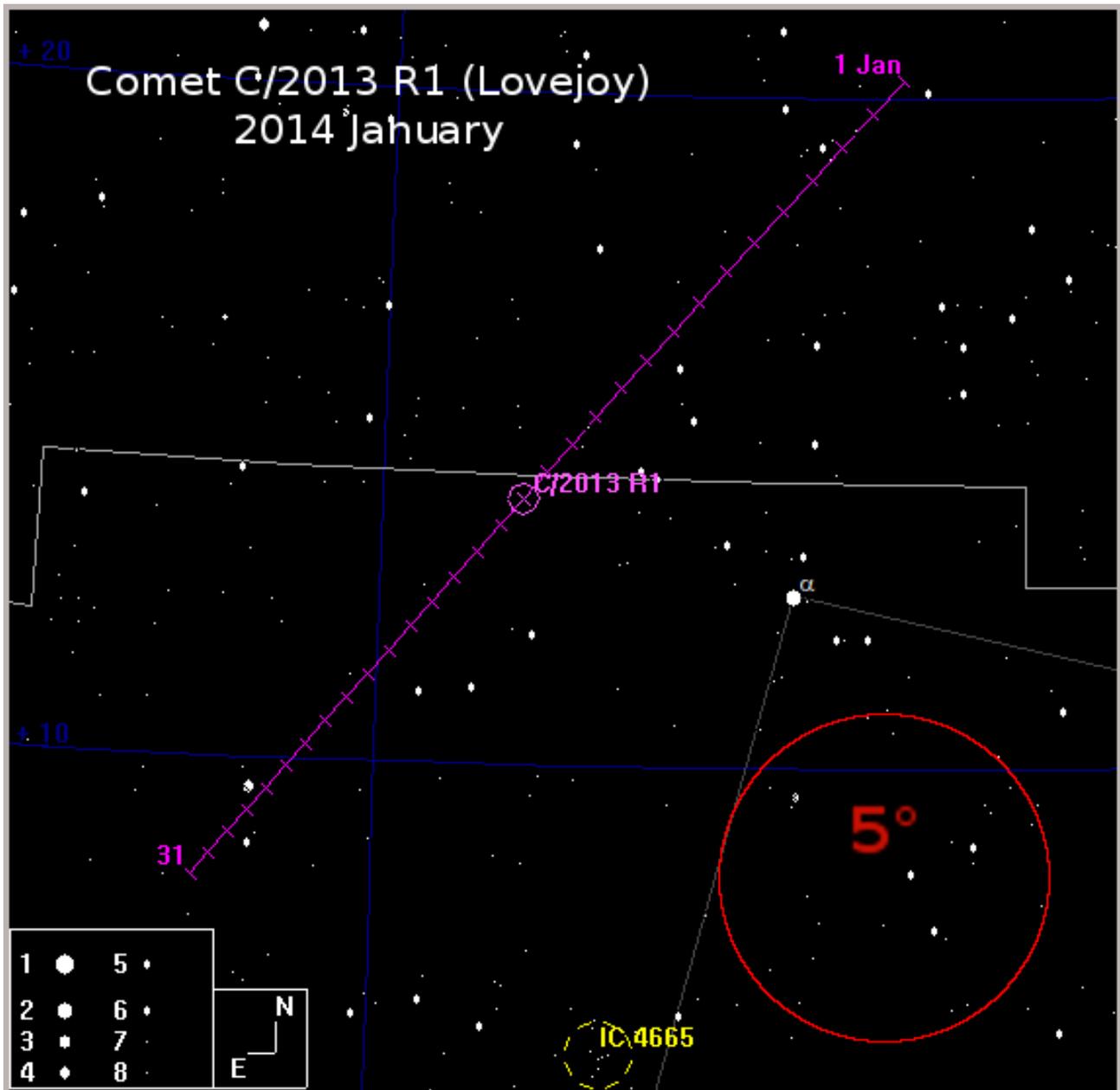


The Moon

Jan 01	New Moon
Jan 08	First Quarter
Jan 16	Full Moon
Jan 24	Last Quarter

Comets

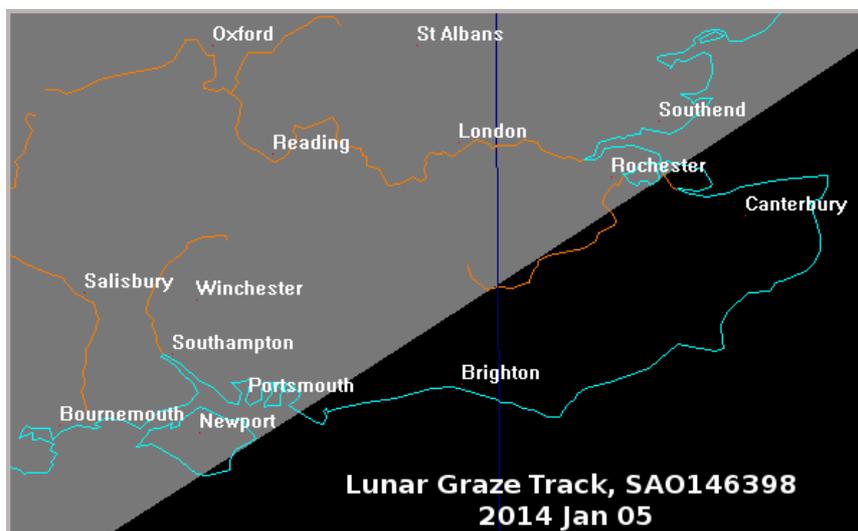
Comet C/2013 R1 (Lovejoy) is now the brightest comet in our sky, having been at naked-eye visibility during December. It is now slowly fading, and is best observed in the morning as it moves from Hercules to Ophiuchus.



Lunar Occultations

There are several occultations of stars brighter than mag +8.5 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, Jan 2014, 50.9°N, 1.8°W					
Date	Time	Type	SAO	Mag	PA (°)
Jan 04	18:22:26	D	145842	8.1	085
Jan 04	18:46:19	D	145840	8.4	012
Jan 04	19:22:26	D	145861	8.0	110
Jan 05	17:24:08	D	146398	8.4	142
Jan 05	17:24:14	D	146402	6.6	076
Jan 05	17:31:12	Gr	146398	8.4	See map
Jan 05	17:37:54	D	146405	7.7	067
Jan 05	18:52:14	D	146429	7.8	061
Jan 05	20:09:04	D	146458	7.6	075
Jan 06	18:46:35	D	128429	8.1	126
Jan 06	19:41:42	D	128436	6.3	009
Jan 07	21:14:24	D	109461	6.0	018
Jan 07	22:55:48	D	109505	8.0	057
Jan 08	20:19:14	D	92538	8.4	056
Jan 10	23:04:46	D	93408	7.9	053
Jan 11	01:26:00	D	93441	8.1	058
Jan 11	02:31:57	D	93454	7.1	041
Jan 12	01:07:25	D	93849	7.5	064
Jan 13	01:06:37	D	94351	7.9	078
Jan 13	17:15:37	D	94857	7.8	111
Jan 14	00:19:27	D	95070	7.1	088
Jan 14	00:44:23	D	95090	7.6	076
Jan 14	20:23:56	D	96038	7.8	057
Jan 15	00:58:15	D	96160	7.6	033
Jan 15	03:46:51	D	96261	7.7	049
Jan 18	00:45:53	R	98440	7.8	252
Jan 18	05:07:14	R	98495	7.2	284
Jan 19	22:09:01	R	118443	6.7	334
Jan 19	23:45:05	R	118471	7.1	323
Jan 20	03:40:21	R	118536	7.7	011
Jan 20	05:40:29	R	118558	7.4	268
Jan 20	22:53:54	R	138233	7.0	257
Jan 21	04:07:18	R	138306	8.1	326
Jan 21	04:37:18	R	138313	7.6	316
Jan 23	00:55:05	R	139175	5.6	326
Jan 25	06:47:12	R	158995	7.8	328



Meteor Showers

The major meteor shower in January is the Quadrantids, which are active from Dec 28 to Jan 12. The Moon is out of the way for the maximum on the 3rd, but at the time of predicted maximum, 19:30, the radiant will be only just above the northern horizon, so it may be worth waiting until the early hours of the 4th, when the radiant will be higher and the geometry better. The ZHR varies enormously, from about 60 to 200, so this is always a good shower to watch!

Stargazing Live

Lastly, There are BBC Stargazing Live events in the UK during January and February. I expect to be at the following events with astronomical binoculars, and would be very pleased to meet readers of this newsletter, so please do come and introduce yourself if you are there.

Jan 07: [Portsmouth Historic Dockyard](#)

Jan 10: [Hyde Common](#)

Feb 01: [Hyde Common](#)

Feb 07: [Durlston Country Park](#)

Feb 08: [Moors Valley Country Park](#)

Wishing you Clear Dark Skies,

Steve Tonkin for The Binocular Sky



Acknowledgments:

Charts and occultation tracks prepared with Guide v9.0 from <http://projectpluto.com>

Lunar occultation data produced with David Herald's [Occult v4.1.0](#)

Variable star data from David Levy's [Observing Variable Stars](#)

© 2013 Stephen Tonkin under a [Creative Commons BY-NC-SA License](#)

