




The Binocular Sky

October
2013

Newsletter

Introduction

Welcome to the ***Binocular Sky*** Newsletter of October 2013. 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*)

As the sky darkens at twilight, in the North are [NGC 457](#) (the Owl Cluster) and [NGC 633](#) in Cassiopeia and the [Perseus Double Cluster](#). To the East of them lie [M34](#) in Perseus and the often-overlooked [NGC 752](#) in Andromeda. More open Clusters are still visible in the south-western sky in the region of Ophiuchus. These include [Melotte 186](#), [NGC 6633](#) and [M11](#), The Wild Duck Cluster, all of which are easily visible in 50mm binoculars. Rising in the north-east are the

Auriga clusters, M36, M37 and M38. To the south of them, the Pleiades and Hyades make a welcome return to evening skies. Also look out for the nearby NGC1647.

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 October, 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. 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 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 in the early evening, try M51 (The Whirlpool) and M101 which, although it is a large object, is very difficult owing to its low surface brightness. The same can be said of M33 (The Pinwheel), which is now very well placed for observation. Because they are of such low surface-brightness, they benefit from low magnification. This generally makes them easier to see in, say, a 10x50 binocular than in many "starter" telescopes. The Great Andromeda Galaxy, M31, is easily visible this month. It is large and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers) although, obviously, it benefits from a dark transparent sky.

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!

The two Hercules globulars, M92 and the very impressive, and very easy to find, M13 are at a very good altitude for observation. Although M13 is clearly larger than M92, it is easier to resolve the outer stars of the latter one. M2 is easy to find and easy to see, even in small binoculars. If you are observing it

The Deep Sky (contd)

at the end of the month, see if you can find [Comet 154P \(Brewington\)](#) nearby.

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.

The easiest planetary nebula, [M27 \(the Dumbbell Nebula](#) – although I insist that it looks more like an apple core than a dumbbell!) – is visible in the evening skies in even 30mm binoculars. The [Helix Nebula, NGC 7293](#) is now about as well-placed as it gets for observation from Britain before midnight; you'll need a decent southern horizon.

Planetary Nebulae are short-lived (generally 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 disc-like appearance of planets.

Variable Stars

Mira-type stars near predicted maximum (mag < +8.5)			
Star	Mag Range	Period	Notes
X Cam	8.1-12.6	144d	
R CrB	8.5-14.2	363d	Not behaving as predicted
S CrB	7.3-12.9	360d	

Variable Stars (contd)

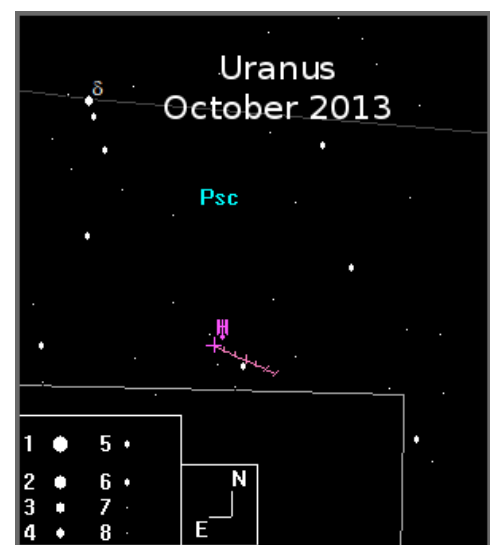
Selection of binocular variables (mag < +8.5)			
Star	Mag Range	Period	Type
XY Lyr	5.8-6.4	Irreg	Irregular
R Sge	8.0-10.4	71d	RV Tauri
U Sge	6.5-9.3	3.38d	Eclipsing binary
U Vul	6.7-7.5	7.99d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
U Del	7.0-8.0	ca. 110d	Irregular
V Aqr	7.6-9.4	ca. 244d	Semi-regular
TW 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

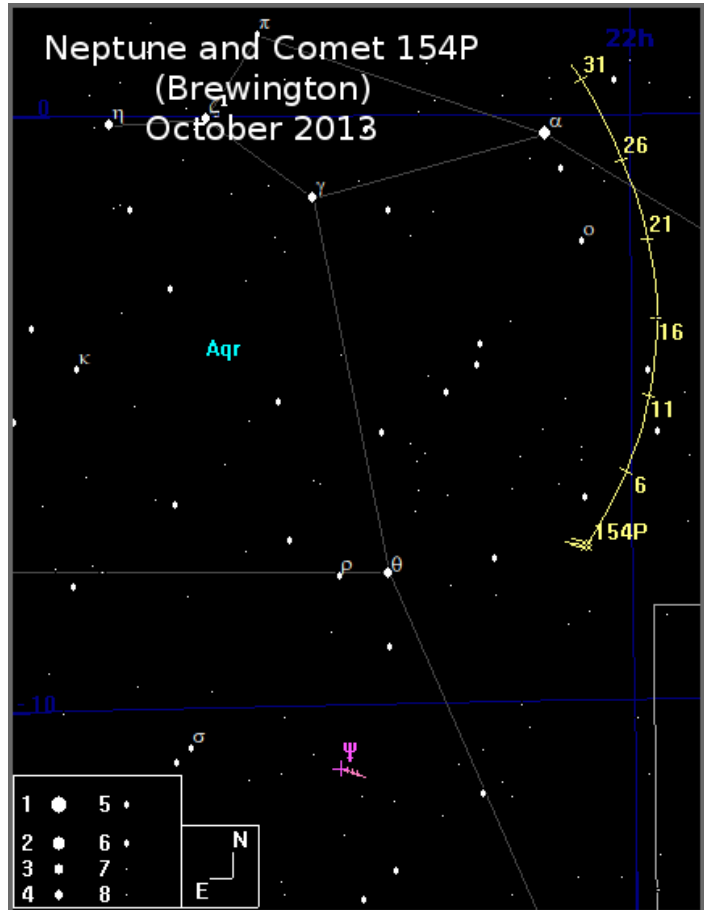
Planets

The binocular planets, **Uranus** and **Neptune**, are now available throughout the hours of darkness.

Uranus is at magnitude +5.7 and starts the month about 4.5° south-southeast of δ Psc. It moves just over a degree during the month, passing the mag +6.5 star PPM 143688 around mid-month.

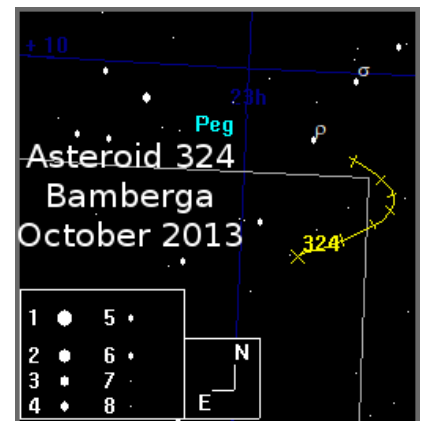


Neptune starts the month 2.5° west of σ Aqr, but is much fainter at magnitude +7.8, and moves about half a degree westwards during the month. Nearby is Comet 154P (Brewington).

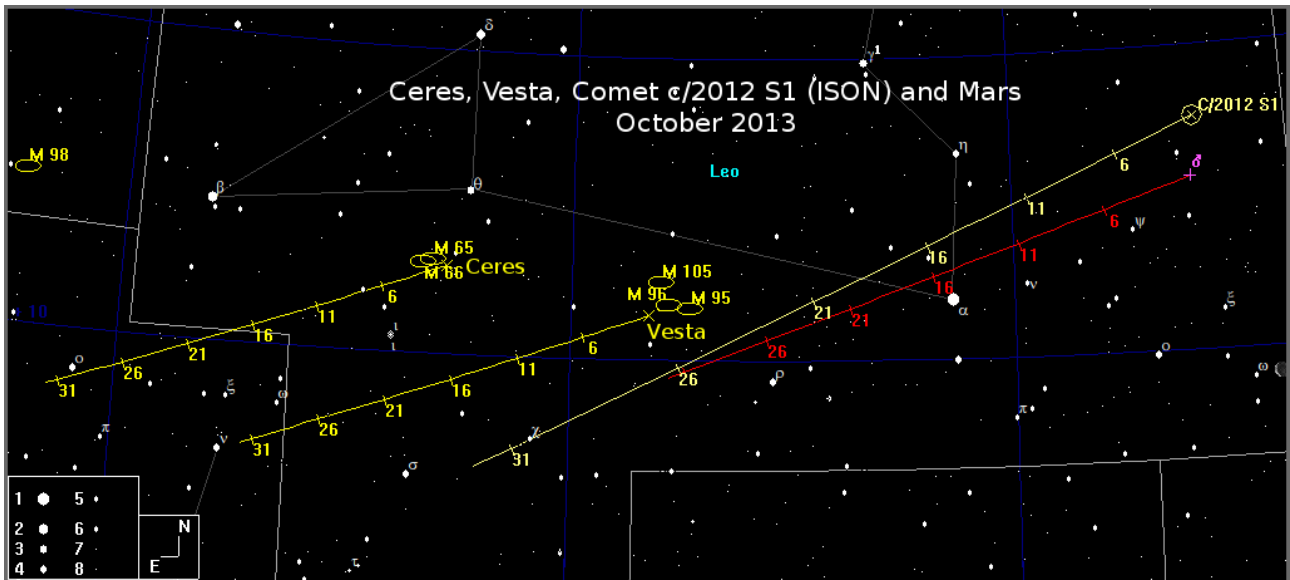


Minor Planets

Asteroid 324 Bamberga is visible from the beginning of the month at mag +8.5, about 2 degrees south of r Peg, but fades rapidly as it passes opposition.



The Leo region is the area of choice this month. **Asteroids 1 (Ceres)** and **4 (Vesta)** are now visible well before the onset of dawn twilight at magnitudes +8.7 and +8.2 respectively. They are in the same region of sky as comet C/2012 S1 ISON.



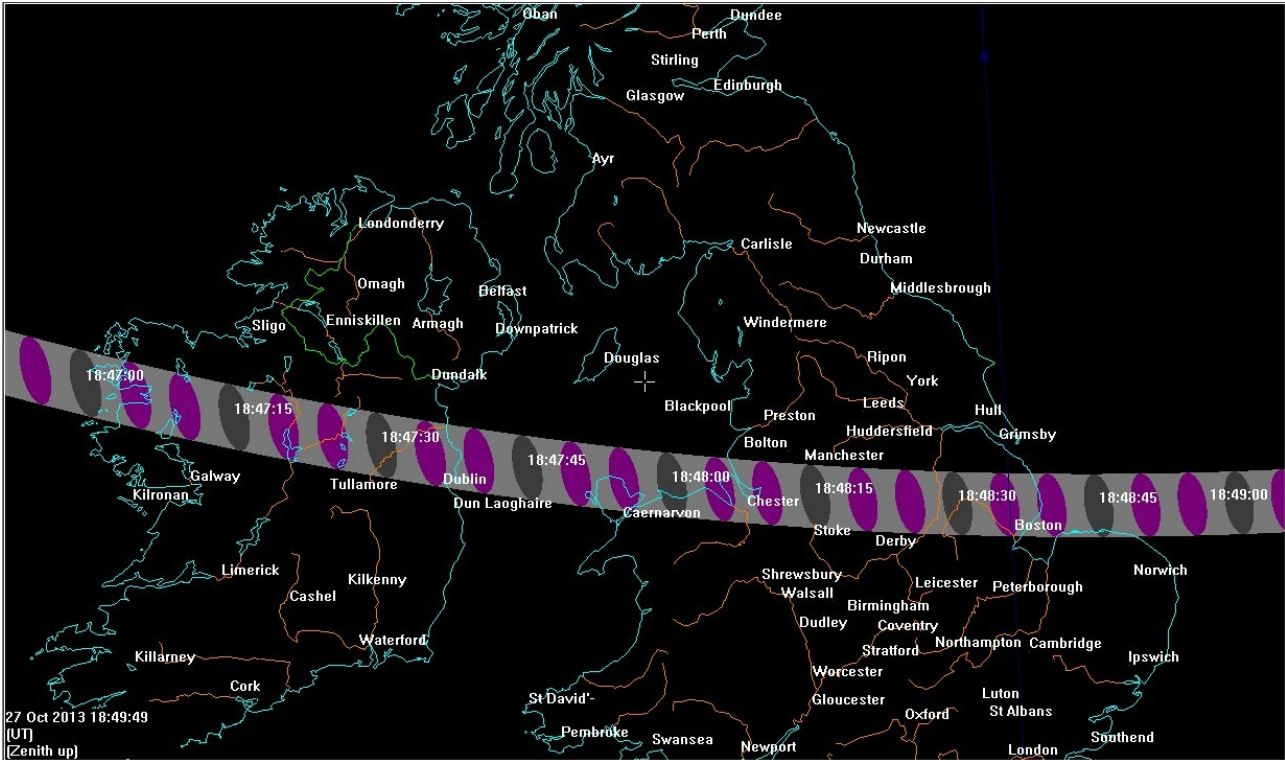
Comets

Comet C/2012 (ISON) should become visible in binoculars during the month as it brightens by 3 magnitudes from approximately mag +11. Its proximity to Mars and Regulus (α Leo) around mid-month should make it easy to locate between Moonset and dawn twilight.

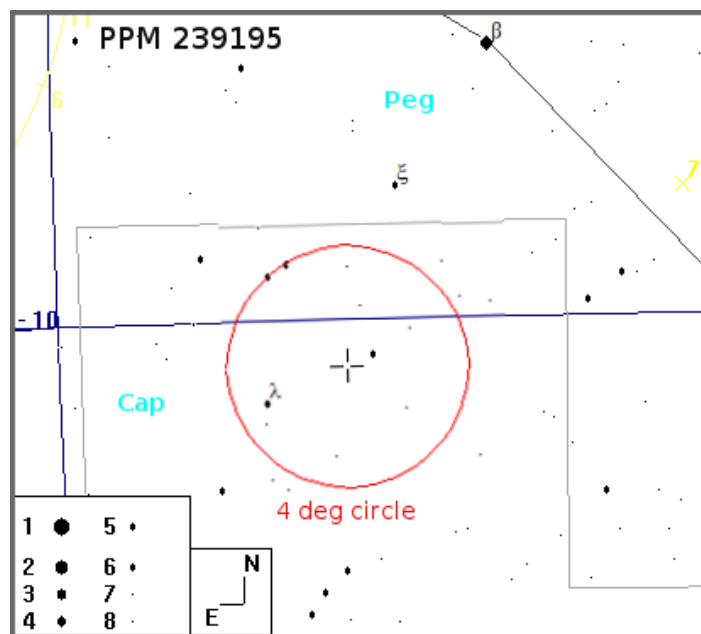
Comet 154P (Brewington) starts the month near Neptune in Aquarius and starts the month at a predicted mag +10, but is predicted to brighten by nearly a magnitude, so it may become a binocular object by the end of the month when it passes a degree to the west of *Sadalmelik* (α Aqr).

Asteroid Occultation (stars <mag 9.0)

On the evening of the 27th, Asteroid 2653 Principia (mag +16.9) will occult the mag +8.6 star, PPM 239195 for the north Midlands and the north of Eire.



Owing to the low altitude (below 30°), this will be a difficult observation unless you have a good southern horizon. The chart below shows the location of the star.



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)** disappearance, **(R)** reappearance and **(G)** graze; they are all dark-limb events unless there is a **(B)**. I have given the SAO numbers of stars on the assumption that most readers will find this more useful than ZC (Zodiac Catalogue) numbers.

Lunar Occultations, October 2013, 50.9°N, 1.8°W

Date	Time	Const	SAO	Mag	Type	PA (°)
Oct 10	19:13:25	Sgr	161099	8.3	D	53
Oct 10	19:14:22	Sgr	(HIP 88879)	7.8	D	102
Oct 10	19:30:17	Sgr	161110	8.1	D	60
Oct 11	18:34:45	Sgr	162204	6.3	D	134
Oct 12	18:36:01	Sgr	163258	8.4	D	53
Oct 12	20:03:49	Cap	163287	8.1	D	92
Oct 12	20:32:26	Cap	163293	8.3	D	29
Oct 13	18:27:12	Aqu	164080	7.1	D	94
Oct 13	20:55:45	Aqu	164137	8.5	D	75
Oct 13	23:05:57	Aqu	164182	4.5	D	18
Oct 13	23:28:05	Aqu	164196	8	D	130
Oct 14	22:25:18	Aqu	145840	8.4	D	70
Oct 16	00:28:15	Cet	146434	7.8	D	52
Oct 17	00:21:21	Cet	128417	7	D	14
Oct 17	01:04:10	Cet	128436	6.3	D	95
Oct 17	01:15:40	Cet	128437	8	D	47
Oct 17	02:00:17	Cet	128456	7.6	D	48
Oct 20	20:13:12	Ari	93318	7.9	R	298
Oct 20	20:45:53	Ari	93331	7.5	R	329
Oct 20	22:48:25	Ari	93358	8.4	R	281
Oct 21	03:50:31	Ari	93407	8.3	R	249
Oct 21	03:57:23	Ari	93408	7.9	R	245
Oct 21	04:20:49	Tau	93410	8.5	R	276
Oct 22	05:28:49	Tau	93849	7.5	R	254
Oct 23	05:03:12	Tau	94351	7.9	R	265
Oct 23	21:22:50	Tau	94857	7.8	R	274
Oct 23	22:15:42	Tau	94883	7.8	R	242
Oct 23	22:33:08	Ori	94899	8.1	R	324
Oct 23	22:56:19	Ori	94920	6.8	R	216
Oct 24	00:08:49	Ori	94956	8.4	R	314
Oct 24	00:08:52	Ori	94957	8.5	R	321
Oct 24	02:59:33	Ori	95049	8.1	R	314
Oct 24	03:41:32	Ori	95071	8.5	R	327
Oct 24	03:58:15	Ori	95070	7.1	R	283
Oct 24	04:20:44	Ori	95090	7.6	R	294
Oct 24	22:40:01	Gem	95985	7.9	R	228
Oct 24	23:18:23	Gem	96002	8.1	R	252
Oct 24	23:36:52	Gem	96015	5.2	R	233
Oct 24	23:57:55	Gem	96034	7.9	R	314
Oct 25	00:05:03	Gem	96032	8.4	R	285
Oct 25	00:26:49	Gem	96054	8.2	R	208
Oct 25	04:30:10	Gem	96167	7.9	R	261
Oct 25	05:34:23	Gem	96203	7.9	R	298
Oct 26	00:31:45	Gem	97008	7.9	R	271
Oct 26	00:42:08	Gem	97016	5.3	R	235
Oct 26	01:49:35	Gem	97057	8.5	R	235
Oct 26	02:16:29	Gem	97074	8.3	R	323
Oct 27	00:41:49	Cnc	97761	7.3	R	314
Oct 27	05:27:49	Cnc	97850	7.9	R	307
Oct 28	02:48:44	Cnc	98440	7.8	R	332
Oct 29	02:43:36	Sex	118045	7.6	R	227
Oct 30	03:41:37	Sex	118521	8.4	R	355
Oct 30	05:33:39	Leo	118558	7.4	R	327

Meteor Showers

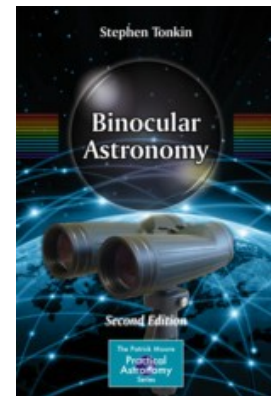
The Moon will severely interfere with the only major shower this month is the Orionids, which last all month and peak on the 21st with a ZHR of 25.

The Moon

Oct 05	New Moon
Oct 11	First Quarter
Oct 18	Full Moon (Hunters' Moon)
Oct 26	Last Quarter

The Book

The 2nd Edition of my book **Binocular Astronomy** is now available in Kindle and print versions.



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](#)

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