



The Binocular Sky



September
2013

Newsletter

Introduction

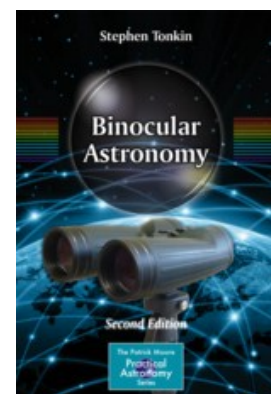
Welcome to the ***Binocular Sky*** Newsletter of September 2013. The intention of this monthly offering is to highlight some of the binocular targets for the coming month. It is primarily targeted at observers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N and 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.

As the result of a request, from this month, I am including some variable stars with a maximum of mag +8.5 or brighter; I'm not normally a variable star observer, so comments will be welcome!

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 .

Announcement

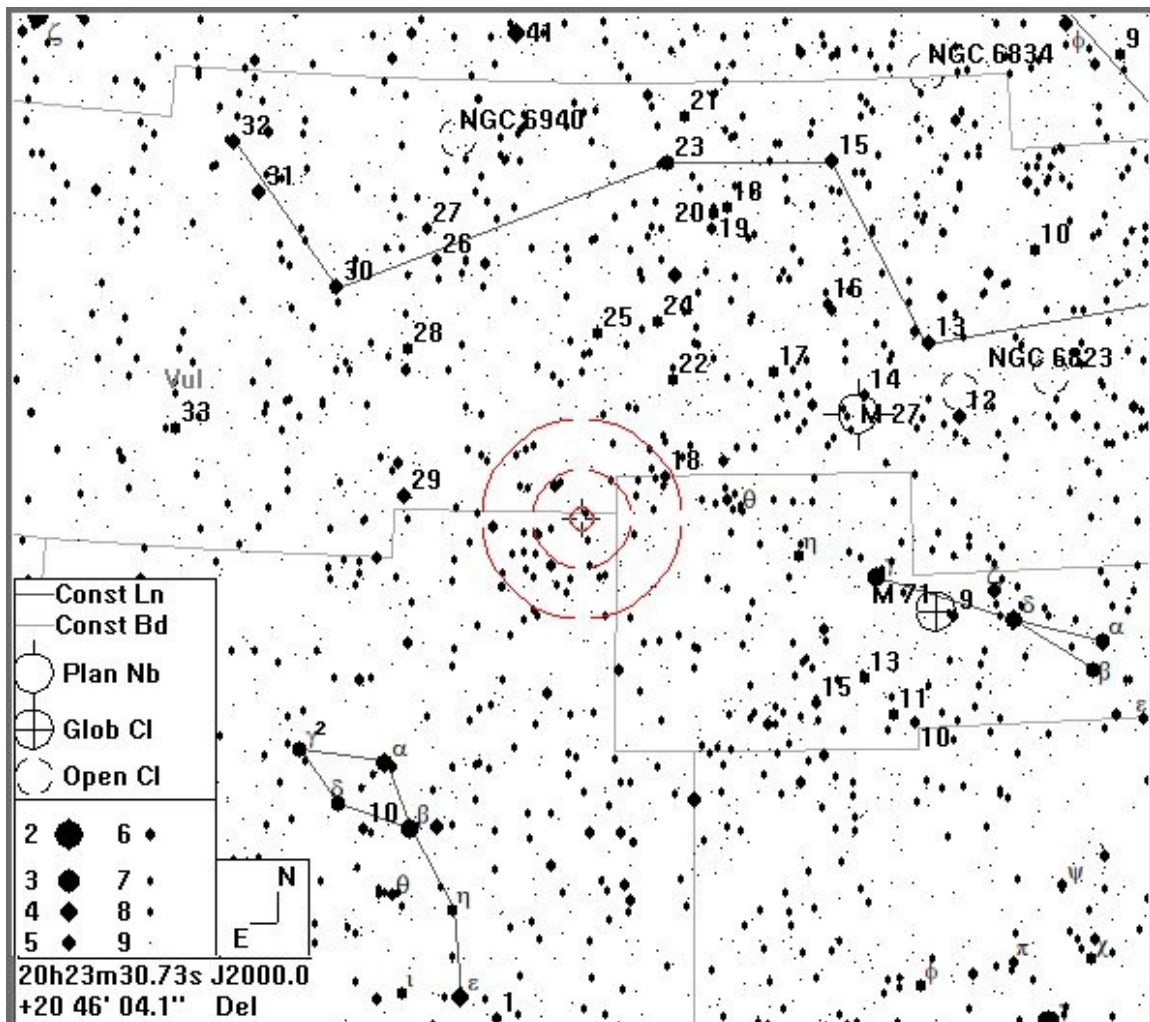
I am proud to announce that a 2nd Edition of my book ***Binocular Astronomy*** is already available on Kindle and the print version will be published on August 31st. If you are interested, you can see the publisher's extended blurb [here](#). It will also be available as an electronic edition, and I understand



that Springer intends to make individual chapters available electronically as well. If you wish, you can order it at amazon.co.uk (Kindle) or amazon.com (Kindle).

Transient Events

There is a nova in Delphinus. By August 28th, the mag +17 progenitor star had faded to +6.4 and is fading at around 1 magnitude per week. If this continues, it should continue to be a binocular object in the first week or two of September.



The circles represent a Telrad reticle (4°, 2° and 0.5°)

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 visible in the southern 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. Even further to the south-west is a group of open clusters in Serpens and Sagittarius that includes [M16 \(the Eagle Nebula\)](#), [M17 \(the Swan or Omega Nebula\)](#), [M23](#), [M24 \(the Sagittarius Star Cloud\)](#), and [M25](#). Also worth enjoying in this region of sky is the denser part of the Milky Way that forms the *Scutum Star Cloud* as a backdrop to this cluster.

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.

While you are in this region of sky, see if you can find [Barnard's Star](#) in Ophiuchus. This has the largest known proper motion of any star. (***Proper motion*** is motion with respect to the celestial sphere.) Although it is visible in 50mm binoculars from a dark site, it is considerably easier in larger glasses and I recommend a minimum of 70mm. Given the usual brightness of UK skies near the horizon, September is probably the latest you can realistically expect to see it in binoculars.

In September, 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, 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 considerably easier at the end of the month than it is at the beginning. 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.

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 M3, it is easier to resolve the outer stars of the latter one. Also visible this month is M5 in Serpens, which is one of the largest globular clusters known, being 165 light years in diameter. Its apparent size is nearly as large as a Full Moon. At a reasonable altitude throughout the month are the very bright M15, M2 (which looks almost stellar at 10x50) and NGC 6934. This last cluster is very easy to see and is excellent for demonstrating how globular clusters respond to transparency. In apertures of around 70mm and upwards, almost all of them look larger as the sky becomes more transparent. NGC 6934 displays to the greatest extent of any globular on which I have tested the phenomenon.

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. At the other extreme, if you have binoculars of at least 100mm aperture, see if you can find and identify NGC 6572, a planetary nebula in Ophiuchus. Even in large glasses it looks stellar, but it has the distinction of being possibly the greenest object in the sky. In Aquarius, you should be able to find the magnitude +8.0 NGC 7009, the *Saturn Nebula* (see the Iris-Juno Chart on p6). September is probably the earliest in the year that the Helix Nebula, NGC 7393 is observable in Britain before midnight.

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.

The two bright emission nebulae, M20 (the Trifid) and the larger, brighter and easier M8 (the Lagoon) are now sinking into the twilight; you will need a good south-western horizon if you are to have a realistic chance of observing them. They are only about a degree and a half apart, so they will fit into the same field of view of even quite large binoculars.

Variable Stars

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

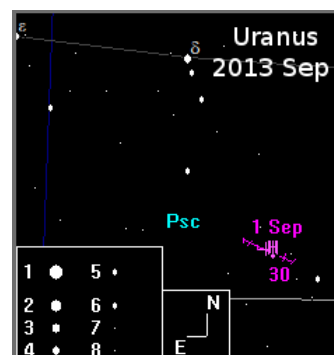
Selection of binocular variables (mag < +8.5)			
Star	Mag Range	Period	Type
XY Lyr	5.8-6.4	Irreg	Irregular
R Sge	8.0-10.4	71d	RV Tauri
U Sge	6.5-9.3	3.38d	Eclipsing binary
U Vul	6.7-7.5	7.99d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
U Del	7.0-8.0	ca. 110d	Irregular
V Aqr	7.6-9.4	ca. 244d	Semi-regular
TW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

The Solar System

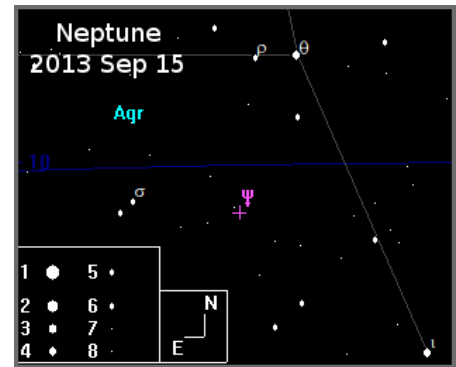
Planets

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

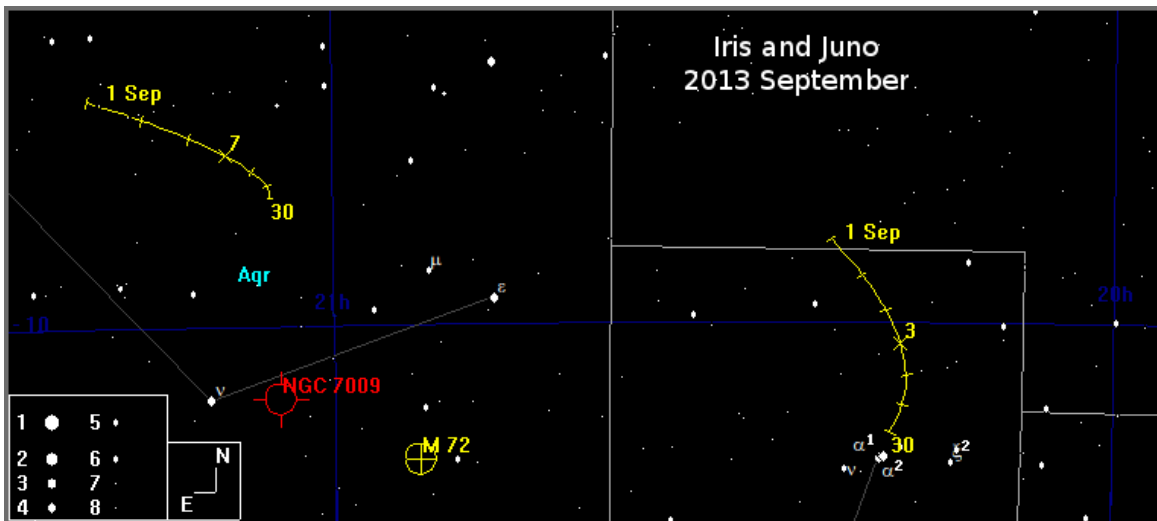
Uranus is at magnitude +5.7 and about 3.5° south of δ Psc. It moves just over a degree during the month.



Neptune is in the same field as σ Aqr, but is much fainter at magnitude +7.8, and its apparent motion is only about half as much.



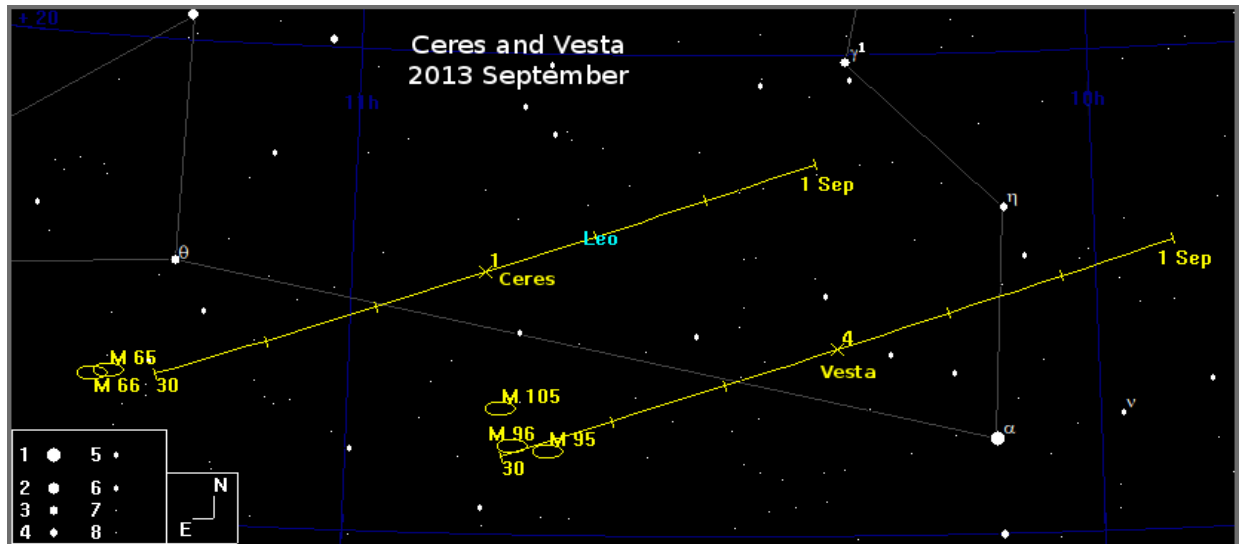
Minor Planets



Asteroid 7 (Iris) is now past its best and passes just less than 5 N of ν Aqr this month, dimming by over half a magnitude from +8.1 as it does so. **Asteroid 3 (Juno)** is nearby, but a magnitude fainter. It will be easiest to find at the end of the month when it approaches the wide double star, α Cap (*Prima* and *Secunda Giedi*).

Asteroids 1 (Ceres) and **4 (Vesta)** are tricky (but possible in 70mm binoculars) dawn twilight observations for most of the month at around magnitudes +8.6 and +8.2 respectively but, by month-end, **Vesta** is up before the onset of twilight and a good southern horizon should enable you to see its appulse with the Leo galaxy trio (M95, M96 and M105). **Ceres** is approaching the other Leo trio (M65, M66 and NGC3628). Unfortunately, at the end of twilight from the latitude

of southern Britain, this appulse is only just half the altitude of the Vesta event and will therefore require exceptionally good conditions to be observable. Observers at more southerly latitudes should fare better.



Asteroid Occultations

There are no asteroid occultations of stars visible from the UK and suitable for binoculars this month.

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 **(G)**raze; 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. **Events in turquoise** are daylight events of first magnitude stars.

Lunar Occultations (51°N)

Date	Time	Const	SAO	Mag	Type	PA (°)
Sep 01	02:58:40	Gem	96825	8.1	R	286
Sep 01	03:49:27	Gem	96848	7.1	R	278
Sep 08	13:52:44	Vir	157923	1	D	97
Sep 08	15:06:20	Vir	157923	1	R (B)	309
Sep 11	20:00:00	Oph	159892	4.5	D	102
Sep 13	19:45:42	Sgr	161428	8.5	D	62
Sep 13	20:02:38	Sgr	161436	7.5	D	47
Sep 13	21:56:02	Sgr		8.3	D	93
Sep 15	20:39:40	Cap	163551	8.4	D	62
Sep 15	21:03:50	Cap	163564	7.3	D	110
Sep 15	21:36:03	Cap	163584	7.9	D	86
Sep 16	19:34:58	Aqr	164323	8.1	D	113
Sep 17	22:30:10	Aqr	146041	7.5	D	87
Sep 17	22:44:17	Aqr	146045	7.7	D	84
Sep 20	22:05:36	Psc	109560	7.9	R	292
Sep 20	23:56:39	Psc	109603	8.1	R	313
Sep 21	00:42:48	Psc	109614	7.6	R	259
Sep 21	01:06:34	Psc	109627	4.3	R	231
Sep 21	02:51:23	Psc	109661	7.9	R	266
Sep 21	03:34:01	Psc	109677	6.9	R	247
Sep 21	20:24:06	Ari	92628	7.1	R	206
Sep 22	04:06:18	Ari	92739	6.1	R	272
Sep 22	04:37:38	Ari	92745	8.2	R	275
Sep 23	00:42:56	Ari	93094	7.9	R	292
Sep 23	01:28:11	Ari	93111	8.5	R	220
Sep 23	03:54:00	Ari	93144	5.5	R	220
Sep 23	21:41:16	Tau	93484	7	R	208
Sep 24	03:27:57	Tau	93561	7.1	R	238
Sep 24	23:03:18	Tau	93942	6.9	R	217
Sep 26	01:00:16	Tau	94488	7.9	R	245
Sep 26	01:40:11	Tau	94501	7.6	R	264
Sep 27	00:09:37	Ori	95332	8.2	R	309
Sep 27	01:41:20	Ori	95397	6.6	R	298
Sep 27	03:41:31	Ori	95484	8.2	R	225
Sep 27	03:52:05	Ori	95487	8	R	301
Sep 28	04:20:20	Gem	96529	8.5	R	324
Sep 28	04:30:26	Gem	96541	8.3	R	335
Sep 28	04:40:04	Gem	96547	8.4	R	212
Sep 29	01:43:49	Gem	97330	8	R	350
Sep 29	02:06:09	Gem	97335	7.9	R	220
Sep 29	04:19:45	Cnc	97397	8.4	R	273

Meteor Showers

There are no major meteor showers this month.

The Moon

- Sep 05 New Moon
- Sep 12 First Quarter
- Sep 19 Full Moon (Harvest Moon)
- Sep 27 Last Quarter

Wishing you Clear Dark Skies,

Steve Tonkin for The Binocular Sky



Acknowledgments:

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

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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