



The Binocular Sky

September
2018

Newsletter



Introduction

Welcome to September's **Binocular Sky** Newsletter. If you've not read it before, the intention of this monthly publication is to highlight some of the binocular targets for the coming month. It is primarily written for binocular (and small telescope) observers in the UK, but should be quite useful for observers anywhere north of Latitude 30°N and not entirely useless even further south.

At last we have decent length nights in the temperate latitudes. The consequences of this is that we have more opportunity to observe the deep sky and solar system objects, and there are more observable lunar occultations.

Uranus and Neptune are readily available, but the solar system highlight is Comet 21P; it's been an easy binocular object for a month now. It makes its way close to some of the Messier open clusters in Auriga and Gemini when the Moon is out of the way, so if you can find them, you should find the comet.

The occultation highlight is another graze of ψ -1 Aqr on the 23rd. It occurs at a convenient time, but a 14-day old Moon will turn observing it into an "interesting exercise".

If you would like to receive this newsletter automatically each month, please complete and submit the [subscription form](#). You can get "between the newsletters" alerts, etc. via  and  .

The Deep Sky

(Hyperlinks will take you to finder charts and more information about the object.)

As the sky darkens at twilight, the Milky Way, always a pleasure to scan with binoculars of any size, arches overhead. In the north are [NGC 457](#) (the Owl Cluster) and [NGC 663](#) in Cassiopeia and the [Perseus Double Cluster](#), from which you can easily find [Stock 2](#) (the Muscleman Cluster). [Kemble's Cascade](#) and its "splash pool", [NGC 1502](#) are also conveniently placed. 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.

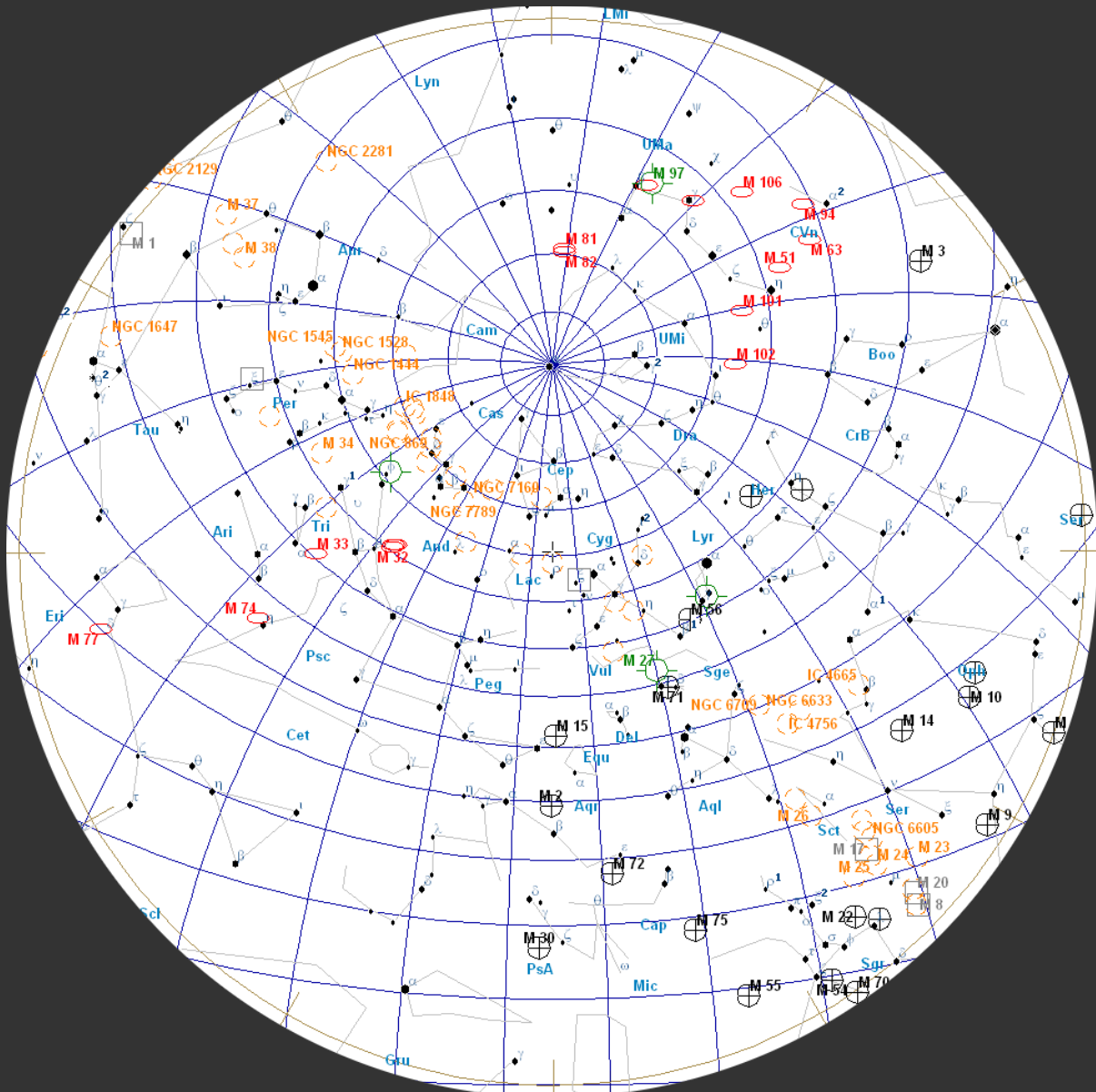
In September, we are able to look out of the plane of the Galaxy during the evening. This makes more globular clusters and galaxies available for observation. [M81](#) (Bode's Nebula) and [M82](#) (The Cigar Galaxy), both of which are visible in a 50mm binocular, are at a comfortable height in the northwest. 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

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!

51°N

September 01, 23:00 UT September 15, 22:00 UT September 31, 21:00 UT

(chart is "clicky")



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 more 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 [M92](#), it is easier to resolve the outer stars of the latter. 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.

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*. September is probably the earliest in the year that the [Helix Nebula](#), [NGC 7293](#) is observable in Britain before midnight.

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.

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 ghostly planets.

For interactive maps of Deep Sky Objects visible from 51°N, please visit:

http://binocularsky.com/map_select.php

September Deep Sky Objects by Right Ascension

Object	Con	Type	Mag	RA (hhmmss)	Dec (ddmmss)
M31 (the Great Andromeda Galaxy)	And	gal	4.3	004244	411608
Eddie's Coaster	Cas	ast	7.0	010129	634005
NGC 457 (the ET Cluster, the Owl Cluster)	Cas	oc	6.4	011932	581727
NGC 663	Cas	oc	7.1	014601	611406
NGC 752	And	oc	5.7	015742	374700
Stock 2 (the Muscleman Cluster)	Cas	oc	4.4	021434	591358
NGC 884 and NGC 869 (the Perseus Double Cluster)	Per	oc	5.3	022107	570802
M34 (NGC 1039)	Per	oc	5.2	024204	424542
M81 (NGC 3031)	UMa	gal	7.8	095533	690401
M82 (NGC 3034)	UMa	gal	9.2	095554	694059
M51 (NGC 5194, the Whirlpool Galaxy)	CVn	gal	8.9	132952	471144
M101 (NGC 5457)	UMa	gal	7.7	140312	542057
M5 (NGC 5904)	Ser	gc	5.7	151833	020459
M13 (NGC 6205, the Great Hercules Globular Cluster)	Her	gc	5.8	164141	362738
M92 (NGC 6341)	Her	gc	6.4	171707	430812
IC 4665 (The Summer Beehive)	Oph	oc	4.2	174618	054300
M23 (NGC 6494)	Sgr	oc	5.5	175700	-190100
Barnard's Star	Oph	st	9.5	175749	044136
Melotte 186	Oph	oc	3.0	180030	025356
M20 (NGC 6514, the Trifid Nebula)	Sgr	en	6.3	180218	-230159
M8 (NGC 6523, the Lagoon Nebula)	Sgr	en	5.0	180348	-242259
NGC 6572	Oph	pn	9.0	181206	065113
M24	Sgr	oc	4.6	181826	-182421
M16 (NGC 6611, the Eagle Nebula)	Ser	oc	6.0	181848	-134749
M17 (NGC 6618, the Omega Nebula or Swan Nebula)	Sgr	en	6.0	182048	-161059
NGC 6633	Oph	oc	4.6	182715	063030
M25 (IC 4725)	Sgr	oc	4.6	183146	-190654
M11 (NGC 6705, Wild Duck Cluster)	Sct	oc	5.8	185106	-061600
M27 (NGC 6853, the Dumbbell Nebula, the Apple Core Nebula)	Vul	pn	7.6	195936	224318
NGC 6934	Del	gc	8.8	203411	072415
M15 (NGC 7078)	Peg	gc	6.2	212958	121003
M2 (NGC 7089)	Aqr	gc	6.5	213327	-004922
NGC 7293 (the Helix Nebula)	Aqr	pn	6.5	222938	-205013

Double Stars

Binocular Double Stars for September			
Star	Magnitudes	Spectral Types	Separation (arcsec)
ζ Lyr	4.3, 5.6	A3, A3	44
β Lyr	3.6, 6.7	B8, B3	46
OΣ525 Lyr	6.0, 7.6	G0, A0	45
δ Cep	4.1, 6.1	F5, A0	41
γ Her	3.7, 9.4	F0, K	43
Σ2277 Her	6.2, 8.9	A0, K	27
8 Lac	5.7, 6.3	B3, B5	22
56 And	5.7, 5.9	K0, K2	128
ΣI 1 And	7.1, 7.3	G5, G5	47
ψ-1 Psc	5.3, 5.8	A2, A0	30

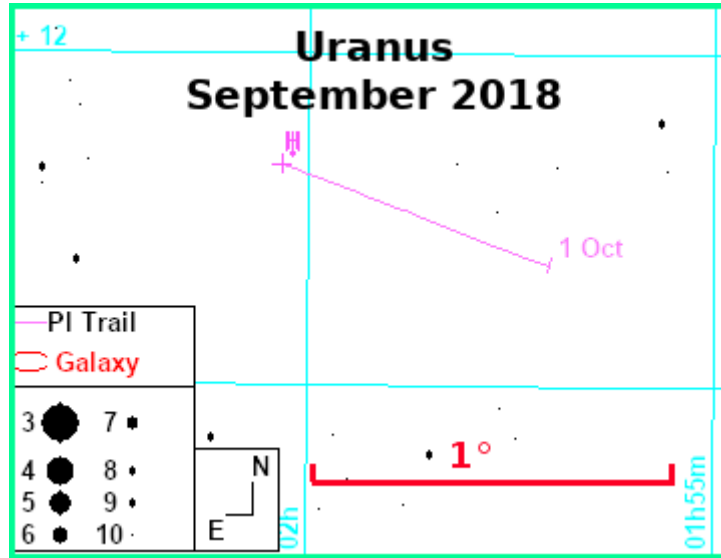
Variable Stars

Selection of Binocular Variables (mag < +7.5)			
Star	Mag Range	Period	Type
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
AR Cep	7.0-7.9	116	Semi-regular
RX Cep	7.2-8.2	55	Semi-regular
TX Psc	4.8-5.2	-	Irregular
RR Lyr	7.06-8.12	0.57d	RR Lyr
TX UMa	7.0-8.8	3.06d	Eclipsing binary
R Sge	8.0-10.4	71d, 1112 d	RV Tau
U Sge	6.5-9.3	3.38d	Eclipsing binary
DY Vul	8.4-9.7	-	Irregular
U Vul	6.7-7.5	7.99d	Cepheid
X Cyg	5.9-6.9	16.39d	Cepheid
SU Cyg	6.4-7.2	3.84d	Cepheid
AF Cyg	6.4-8.4	92.5	Semi-regular
TW Peg	7.0-9.2	90, 956	Semi-regular

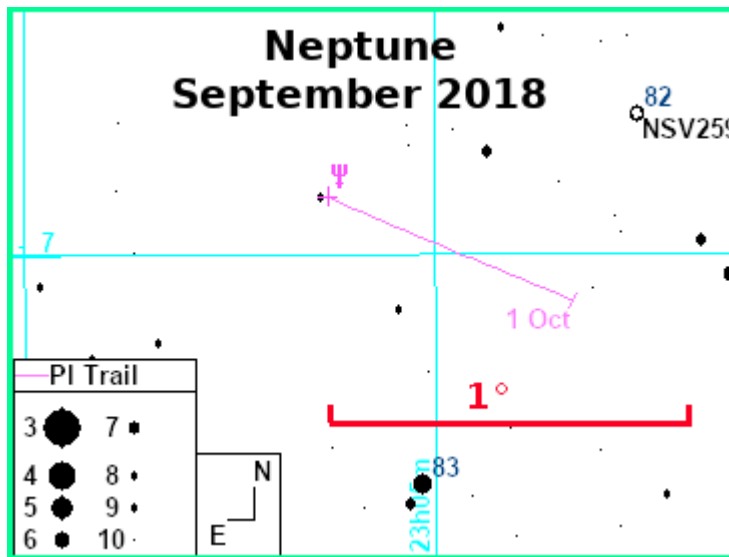
Mira-type stars near predicted maximum (mag < +7.5)		
Star	Mag Range	Period (days)
UV Aur	7.3-10.9	394

The Solar System

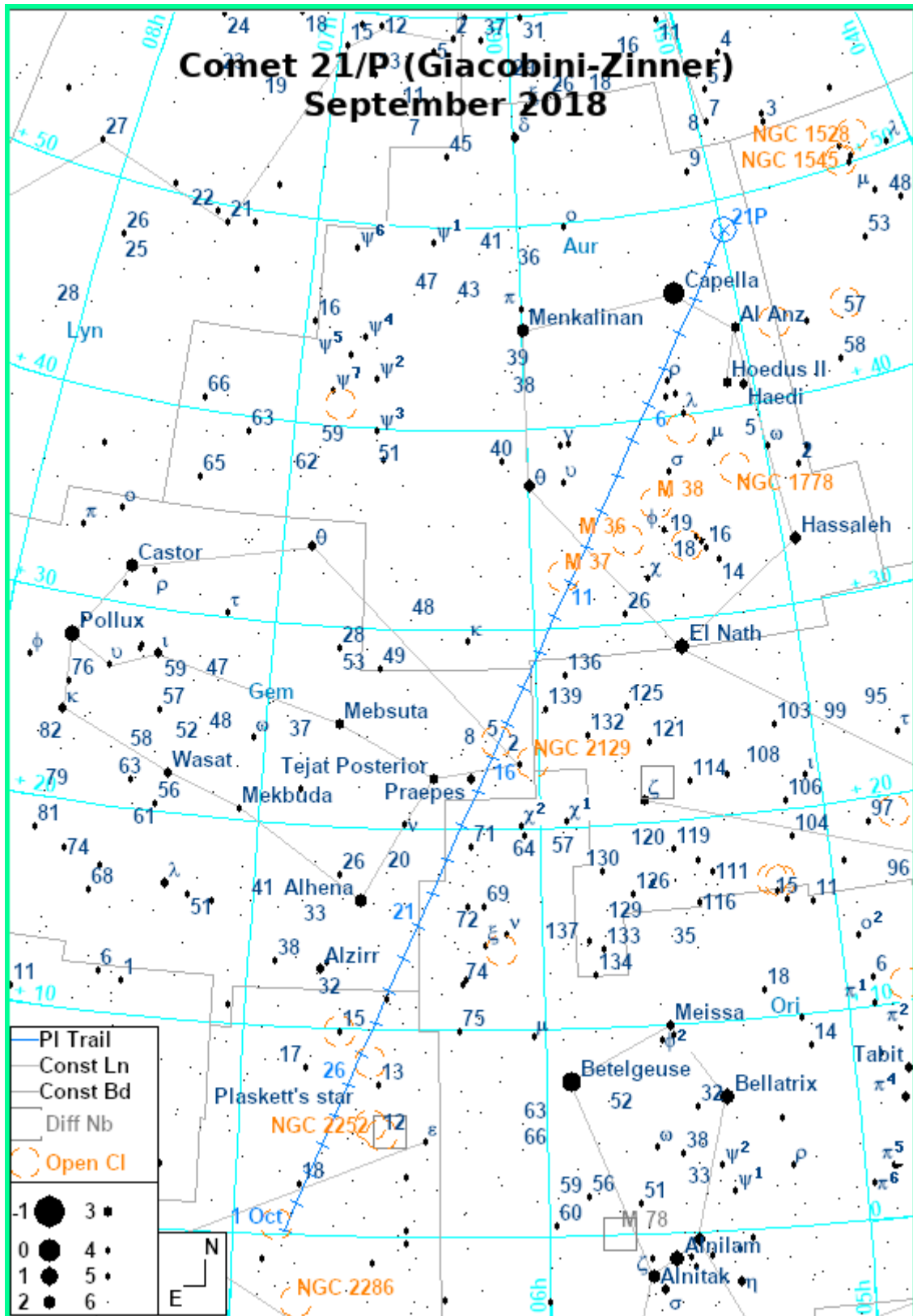
Uranus is visible throughout the hours of darkness in southern Aries, shining at mag +5.7 throughout September. It's the brightest thing you'll find almost exactly midway between Sheratan (β Ari) and Alrisha (α Psc).



Neptune is also available throughout astro darkness, about 3.5° E of λ Aqr. It's a tad trickier than Uranus as it's both lower and fainter (mag +7.8)



Comets



Comet 21/P (Giacobini-Zinner) has been within the range of small binoculars for a month. After perihelion on the 10th it will begin to fade, but should still be an easy binocular object well into October. It passes close to Capella on the 3rd and passes near several open clusters during the month.

Asteroid Occultations

There are no predicted asteroid occultations of stars mag +7.5 or brighter, visible from mainland UK, this month.

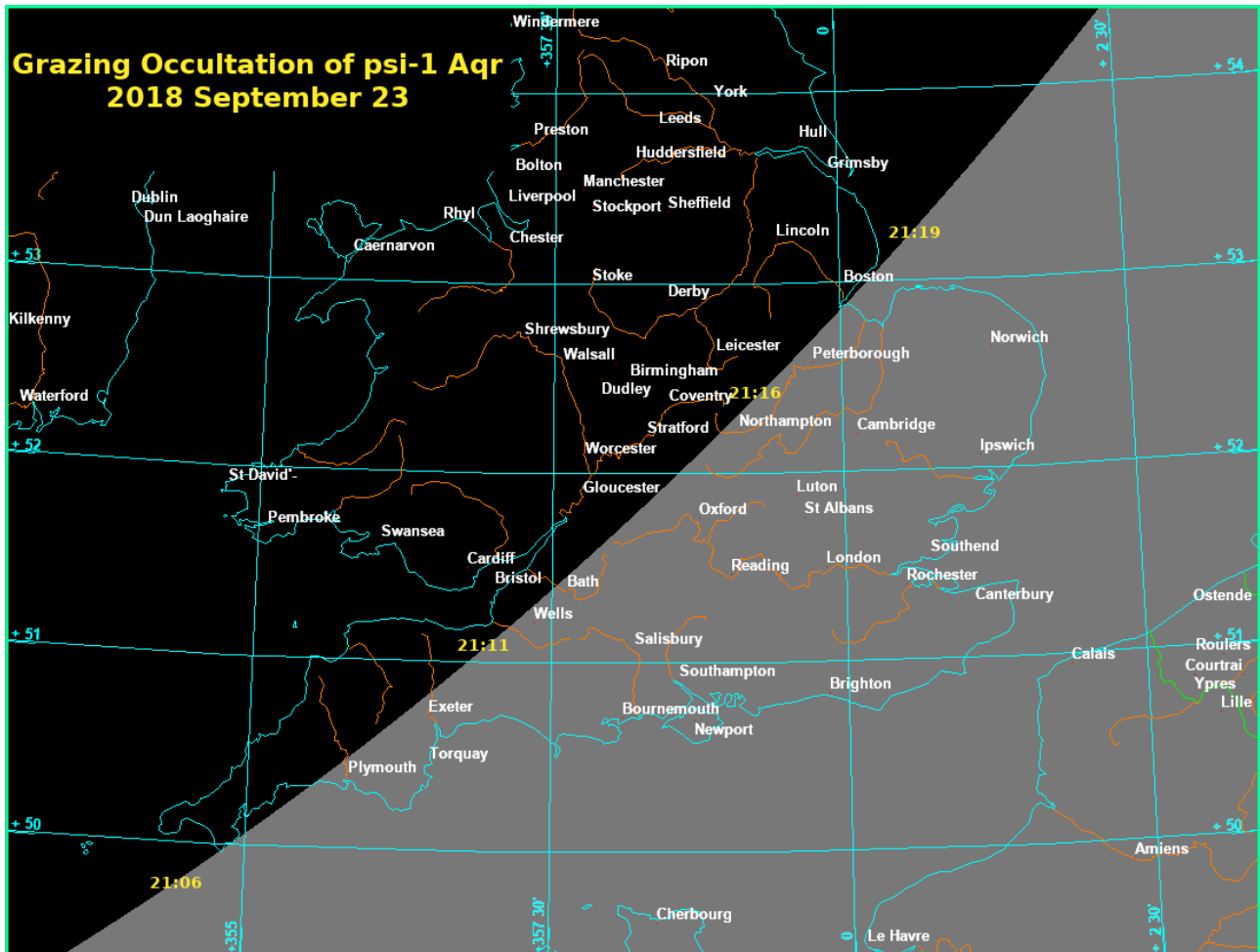
Lunar Occultations

Data are for my location and may vary by 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**). The highlight is the graze of ψ -1 Aqr on the 23rd, which will be visible to observers in the Midlands and the West Country, although the 98% illuminated Moon will make it a challenge!

Lunar Occultations, Sep 2018, 50.9°N, 1.8°W							
Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
02 Sep	00:41:20	R	HIP 17049	G5	6.7	49N	299
14 Sep	20:28:35	D	eta Lib	A6	5.4	64N	75
21 Sep	20:23:18	D	gam Cap	A7	3.7	36S	122
22 Sep	21:40:19	D	HIP 111066	F2	6.4	72N	43
23 Sep	21:05:26	D	psi-1 Aqr	K0	4.2	26N	347
23 Sep	21:13:41	Gr	psi-1 Aqr	K0	4.2	15.4N	
23 Sep	21:38:06	D	psi-2 Aqr	B5	4.4	65S	75
27 Sep	21:16:12	R	xi-2 Cet	B9	4.3	88N	263
28 Sep	23:06:29	R	HIP 15850	K0	6	24S	194
29 Sep	05:07:43	R	HIP 16572	G5	6.9	82S	253
29 Sep	22:43:40	R	HIP 19960	K1	6.6	79N	275
30 Sep	00:13:25	R	55 Tau	F7	7	65N	288
30 Sep	02:09:50	R	63 Tau	A1	5.6	74N	280
30 Sep	04:12:06	R	HIP 20756	K5	6.9	76N	277

The Moon

September 03	Last Quarter
September 09	New Moon
September 16	First Quarter
September 25	Full Moon



(“Clicky” for higher resolution chart)

Public Outreach & Talks

This month I will be at the following events. I do like to meet the “real people” behind the names on a subscription list, so please do come and introduce yourself if you are there.

1st: End of the Road Festival

15th: [Horncastle Astronomy Weekend](#)

16th: [Horncastle Astronomy Weekend](#)

28th: [Vectis AS](#)

Public Stargazing

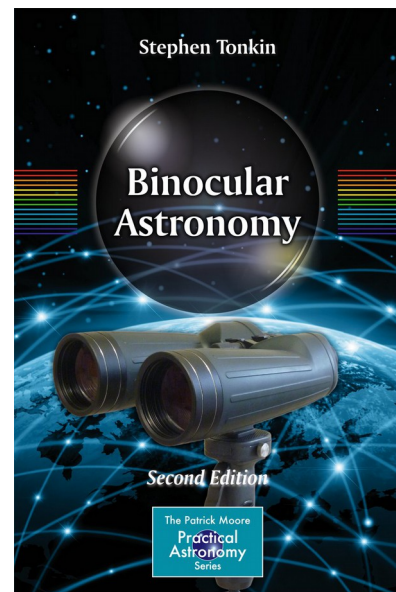
Pseudoastronomy: Planet X, Zetans and Lost Civilisations (Talk)

Pseudoastronomy: Hollow Moon and Flat Earth (Talk)

How Old is the Universe? (Talk)

The **Binocular Sky Newsletter** will always be free to anyone who wants it, but if you would like to support it, there are a number of options:

- Purchase my book, [Binocular Astronomy](#):
Click on the image for more information
- Make a purchase via the affiliate links in the [Binocular Sky shopfront](#)
- Make a small [PayPal](#) donation to newsletter@binocularsky.com



Wishing you Clear Dark Skies,

Steve Tonkin

for

[The Binocular Sky](#)

Acknowledgements:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com> or [Stellarium](#) under [GNU Public License](#), incorporating Milky Way panorama ©Axel Mellinger

Variable star data based on *The International Variable Star Index*
Occultation data derived with Dave Herald's *Occult*

Disclosure: Links to *Amazon* or *First Light Optics* may be affiliate links

© 2018 Stephen Tonkin under a [Creative Commons BY-NC-SA License](#)

