The Binocular Sky Newsletter

January 2017

Introduction

Welcome to the first **Binocular Sky** Newsletter of 2017, with which comes wishes of sparkly skies for you all. 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.

Solar-system charts are clickable and will take you to a larger chart that may be more useful as well as being downloadable to your computer or mobile device.

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 .

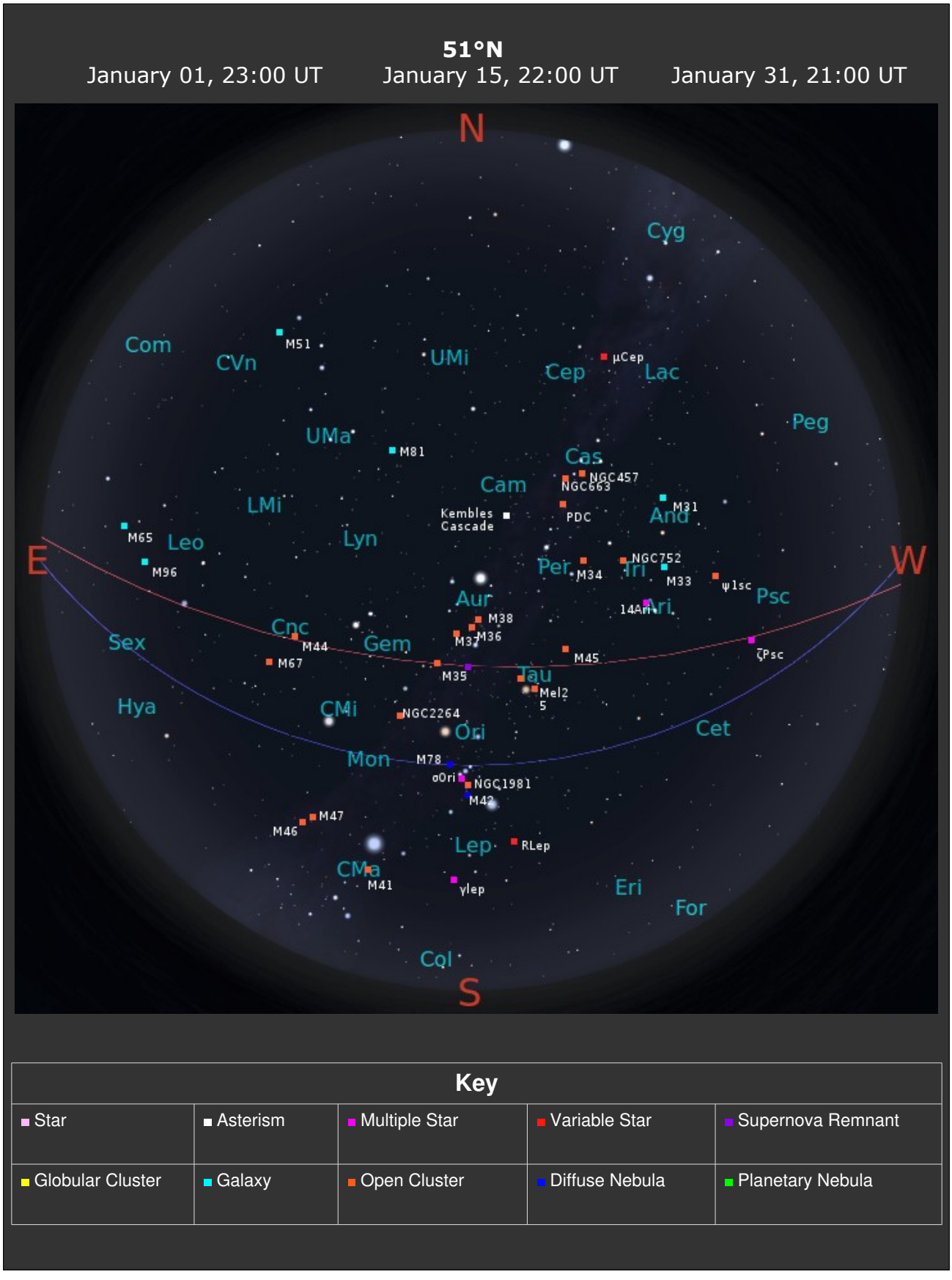
The Deep Sky

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

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. Also high enough to be comfortably observed 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.



Key				
Star	Asterism	Multiple Star	Variable Star	Supernova Remnant
Globular Cluster	Galaxy	Open Cluster	Diffuse Nebula	Planetary Nebula

The rather indistinct open cluster NGC1502, is brought to prominence by an asterism 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.

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 observing in the region of the Orion Nebula, take the time to study R Leporis (*Hind's Crimson Star*), which is near maximum and 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.

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. If you are up around midnight (or later) it is worth looking out for the galaxy trios in Leo (M95/96/105 and M65/66/NGC3628) and Markarian's Chain in Coma Berenices. If you have a big binocular, also observe the edge-on NGC4565 (Berenice's Hair Clip), which is next to Melotte 111, the cluster that gives Coma its name.

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 were still Australopithecines!

Variable Stars

Selection of binocular variables (mag < +7.5)			
Star	**Mag Range**	**Period**	**Type**
AA Cam	7.5-8.8	Irreg	Irregular
RX Lep	5.4-7.4	Irreg	Irregular
U Cep	6.8-9.2	2.5d (increasing)	Eclipsing binary
SS Cep	6.7-7.8	ca. 190d	Semi-regular
RZ Cas	6.2-7.7	1.195d	Eclipsing binary

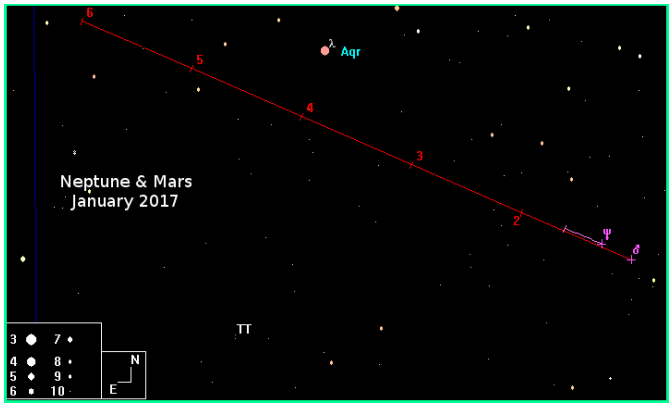
Double Stars

Binocular Double Stars for January			
Star	**Magnitudes**	**Spectral Types**	**Separation (arcsec)**
δ Cep	4.1, 6.1	F5, A0	41
56 And	5.7, 5.9	K0, K2	128
ΣI 1 And	7.1, 7.3	G5, G5	47
14 Ari	5.0, 7.9	F0, F2	106
62 Eri	5.4, 8.9	B9, B8	67
τ Tau	4.3, 7.0	B5, A0	63
ν Gem	4.1, 8.0	B5, A0	113
ζ Gem	4.0, 7.6	G0, G	101
ι Cnc	4.0, 6.0	G5, A5	31
p-1 Umi	6.6, 7.2	G5, G5	31

The Solar System (charts are "clicky")

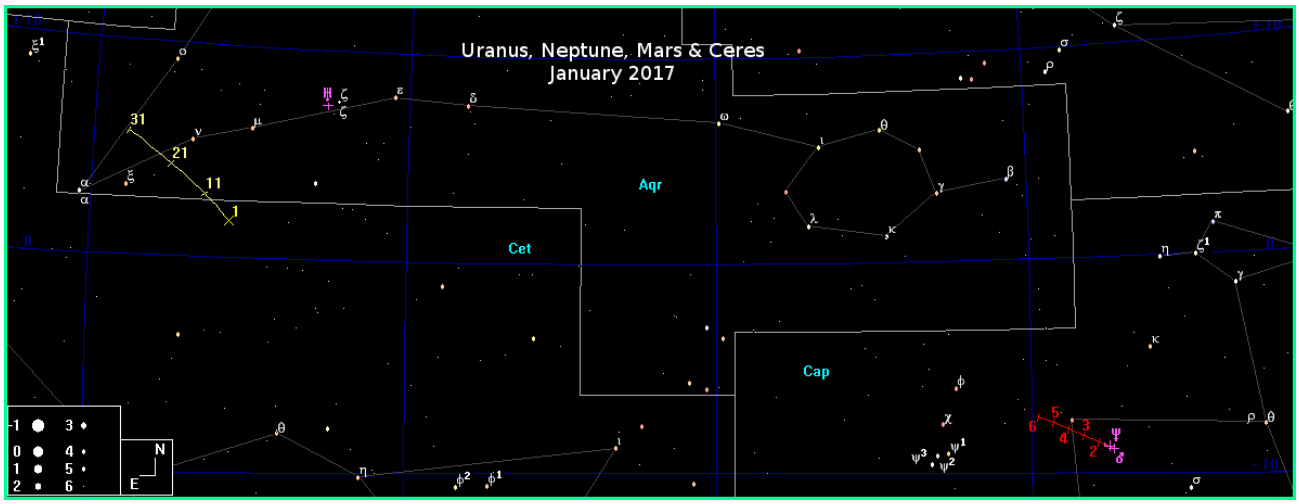
Planets

Uranus is best observed in the evening, shining at mag. +5.8 as the northeastern apex of an equilateral triangle with ζ and *88 Psc*; it sets soon after 01:15 at the beginning of the month and two hours earlier by month end, when its position will have changed by only half a degree.

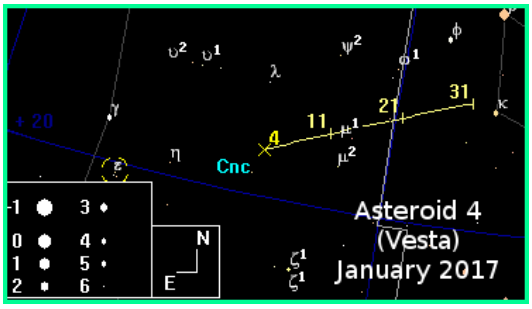


Neptune still lies 2° southwest of *λ Aqr*, but is much fainter than Uranus at mag. +7.9 and is now best observed in the evening as soon as the sky is dark, especially towards the end of the month when

it sets soon after the end of astronomical twilight. Mars will be nearby for the first few days of the month, during which it moves 3.8°, making Neptune easy to locate.



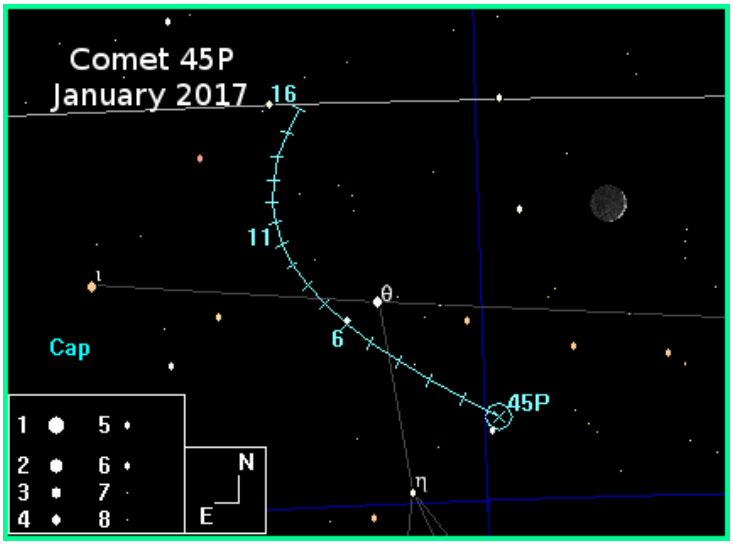
Asteroid 1 (Ceres) is a tricky object as it fades from mag. +8.6 to +8.9 during the month as it moves 6° from Cetus into Pisces.



Asteroid 4 (Vesta) brightens slightly from mag. +6.7 to +6.5 during the month as it moves 8° retrograde from Cancer into Gemini.

Comets

Comet 45P (Honda-Mrkos-Pajdusakova) is an extremely difficult evening twilight object and, as it brightens, it sinks deeper into the twilight. But it's all we have, so we must be grateful for the challenge. The waxing crescent Moon is shown for the 1st.



Meteor Showers

The Moon is favourable for the **Quadrantids**, which has its narrow peak predicted for 14:00 on the 3rd, with a ZHR of 80 to 120. This is favourable for

western North American observers; less so for European observers. Most meteors are due to debris left by comets, but the Quadrantid shower is one of two (the other is the Geminids shower, which peaked on December 13) that originates from an asteroid, in this case asteroid **2003 EH1**. You can use binoculars to examine the persistence of any ionisation trails from these slow-moving, often colourful, meteors.

Asteroid Occultations

There are no predicted 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 +7.0 visible from the UK this month. Data are for my location and may vary by several minutes for other UK locations. The types are (**D**)isappearance, (**R**)eappearance and (**Gr**)raze; they are all dark-limb events.

Lunar Occultations, Jan 2017, 50.9°N, 1.8°W

Date	Time	Phase	Star	Spectrum	Magnitude	Cusp Angle	Position Angle
Jan 01	17:03:57	D	HIP 106115	K4	6.9	32N	13
Jan 01	17:10:52	D	HIP 106199	K2	6.6	64S	97
Jan 04	18:35:40	D	HIP 635	B8	6.4	53S	104
Jan 04	18:52:28	D	AP Psc	K2	6.2	64S	94
Jan 05	16:58:53	D	HIP 4500	G5	7	87S	70
Jan 09	22:50:10	D	HIP 23043	K1	5.5	74N	59
Jan 11	04:02:00	D	HIP 29326	K1	6.4	58S	108
Jan 13	04:33:06	R	HIP 40231	G8	6	88S	301
Jan 20	02:23:23	R	HIP 68888	A0	6.5	22S	222
Jan 21	03:07:21	R	ξ-1 Lib	G7	5.8	32N	345
Jan 22	04:34:09	R	HIP 77007	K0	6.3	76N	299
Jan 29	18:27:56	D	38 Aqr	B5	5.4	83N	63
Jan 30	19:38:15	D	83 Aqr	F2	5.5	61S	99

The Moon

Jan 05 First Quarter
Jan 12 Full Moon
Jan 19 Last Quarter
Jan 28 New Moon

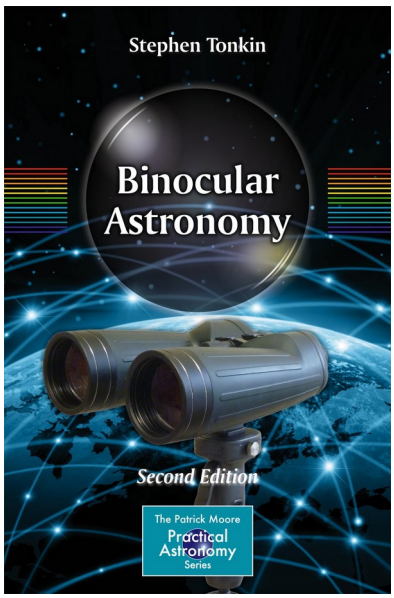
Public Outreach & Talks

During January I will be active at the following events, where I would be delighted to meet any readers of this newsletter who attend:

3rd: *Subject TBA*; 19:30, one of several short talks at the Wessex Astronomical Society.

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

Acknowledgments:

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Variable star data based on David Levy's *Observing Variable Stars*

Occultation data derived with Dave Herald's *Occult*

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