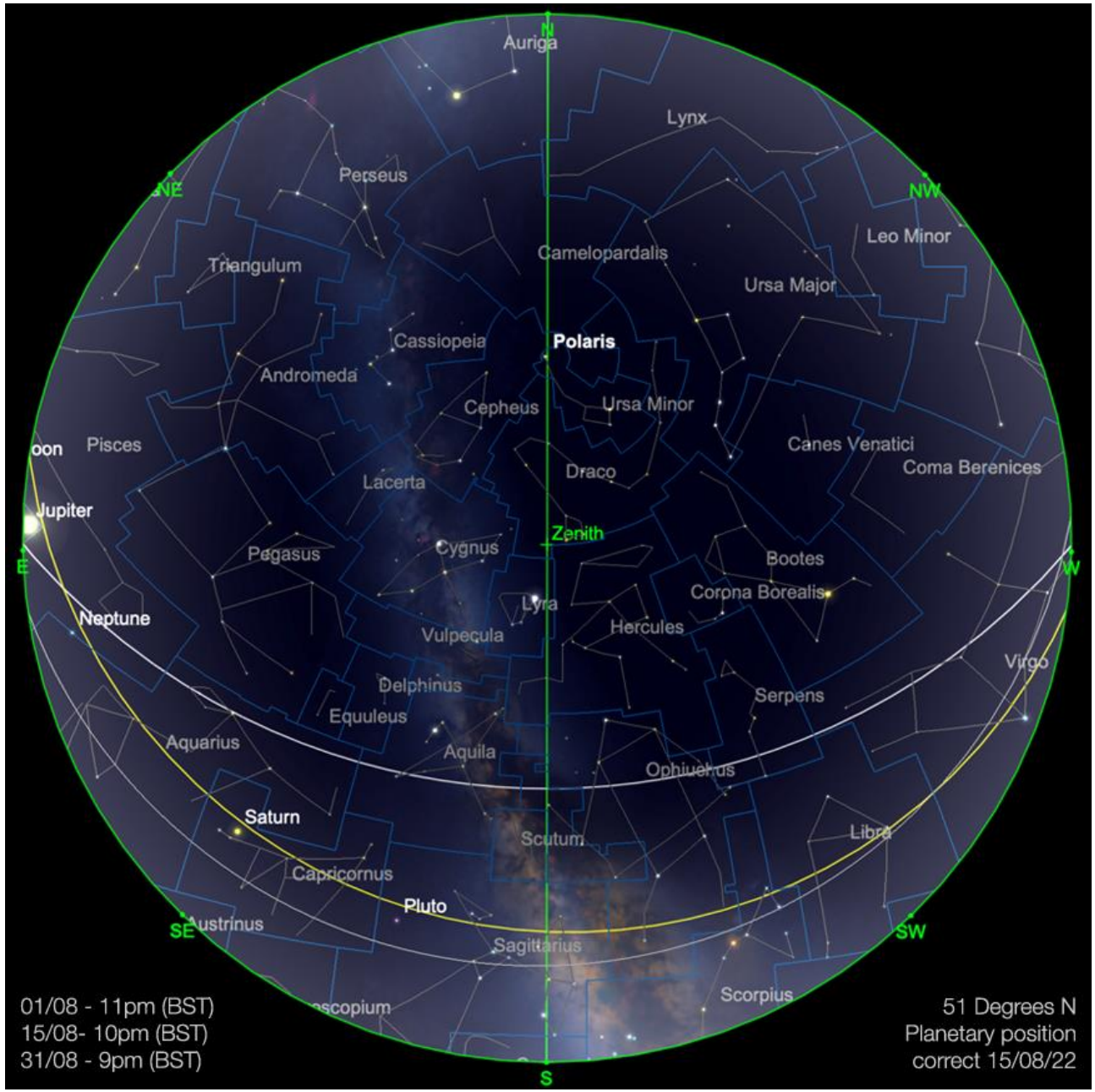

N
Auriga
Lynx
NE
Perseus
NW
Leo Minor
Camelopardalis
Triangulum
Ursa Major
Cassiopeia
Polaris
Andromeda
Cepheus
Ursa Minor
oon
Pisces
Canes Venatici
Coma Berenices
Draco
Lacerta
Jupiter
Zenith
Pegasus
Cygnus
Bootes
E
W
Corona Borealis
Lyra
Neptune
Hercules
Vulpecula
Virgo
Delphinus
Serpens
Equuleus
Aquarius
Aquila
Ophiuchus
Saturn
Scutum
Libra
Capricornus
Pluto
SE
Austrinus
SW
Sagittarius
Scorpius
scopium
S
01/08 - 11pm (BST)
15/08- 10pm (BST)
31/08 - 9pm (BST)
51 Degrees N
Planetary position
correct 15/08/22

Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Telescope House August 2022 Sky Guide

For those of us in the temperate Northern Hemisphere, true darkness begins to return during August - making deep sky observation and imagining considerably more practical than they have been during the lighter parts of May, June and July. While those inhabiting locations above 55 degrees N will have to endure permanent astronomical twilight for a little longer, the earlier parts of August for many inhabitants of Europe, North America and Asia will see true darkness returning before midnight and lasting for three hours. By the end of the month, this period of darkness will have roughly doubled to around six hours - quite a difference.

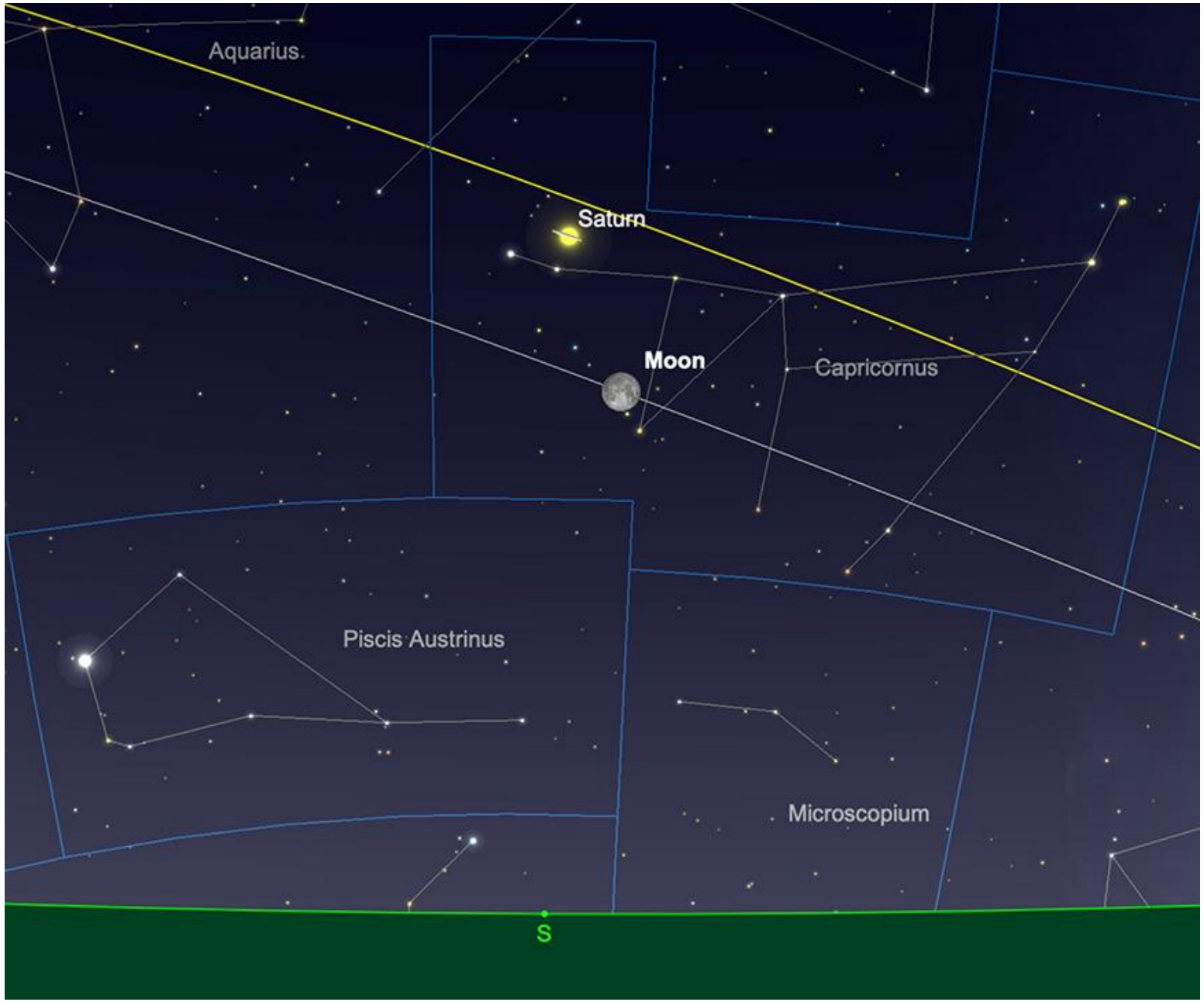
For readers in the Southern Hemisphere, the advent of August means Midwinter is long gone and darkness is slowly receding. No matter where you are on our planet, there's plenty to see in the skies above us this month…

The Solar System

The Moon

Our natural satellite starts August as an evening object, almost due west in the sky in Virgo at sunset. At around 15% illumination present thin crescent standing around 16 1/2° high (from 51° north). The Moon continues tracking through the expansive Virgo, during the next few days, into the southerly constellation of Libra, where on 5th August it is to be found at half phase.

The second week of August finds the Moon tracking through the extreme south of the Ecliptic. It moves through Scorpius, Ophiuchus, Sagittarius and on into Capricornus, where it meets Saturn, just before becoming Full on the evening of the 12th. Naturally, this point of the month will be the worst for observing and photographing deep sky objects. Unlike last month, this month's Full Moon will not be a so-called "SuperMoon". However, the low height of the Moon in the sky from the northern hemisphere, coupled with atmospheric lensing will doubtless make the Moon appear impressively large, when rising or setting. As we often point out, Full Moon is actually the worst time to observe the Moon through a telescope as the direct sunlight at lunar "noon" tends to bleach out features and lack of relief and shadow detail makes observation of common features quite difficult. Moon filters for telescopes can help a little when the Moon is Full, but it's really at Crescent or Gibbous phases when the Moon is at its best.


Aquarius
Saturn
Moon
Capricornus
Piscis Austrinus
Microscopium
S

The Full Moon and Saturn in Capricornus, early morning 12th August. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

After reaching Full, the Moon continues to climb the northerly ascent of the Ecliptic plane through Aquarius, Pisces and Cetus, where it meets the very prominent Jupiter on the Pisces/Cetus borders on the 15th.

On the 18th, the Moon occults Uranus, though sadly this event will not be seen from Europe - the Moon having set just before the event takes place.

The Moon reaches Last Quarter phase in the constellation Taurus, on the 19th. It will join the brightening Mars in reasonably close conjunction during the early morning hours, having risen just before midnight (BST). The two objects are just approaching the Meridian and the highest point in the sky, as the Sun rises on the 19th.

Cresting over the top of the Ecliptic and rapidly decreasing its phase as it does, the Moon passes through Gemini, Cancer (where it meets the prominent Venus, on the morning of August 26th) and on into Leo where it becomes New, joining the Sun on the 27th of August.

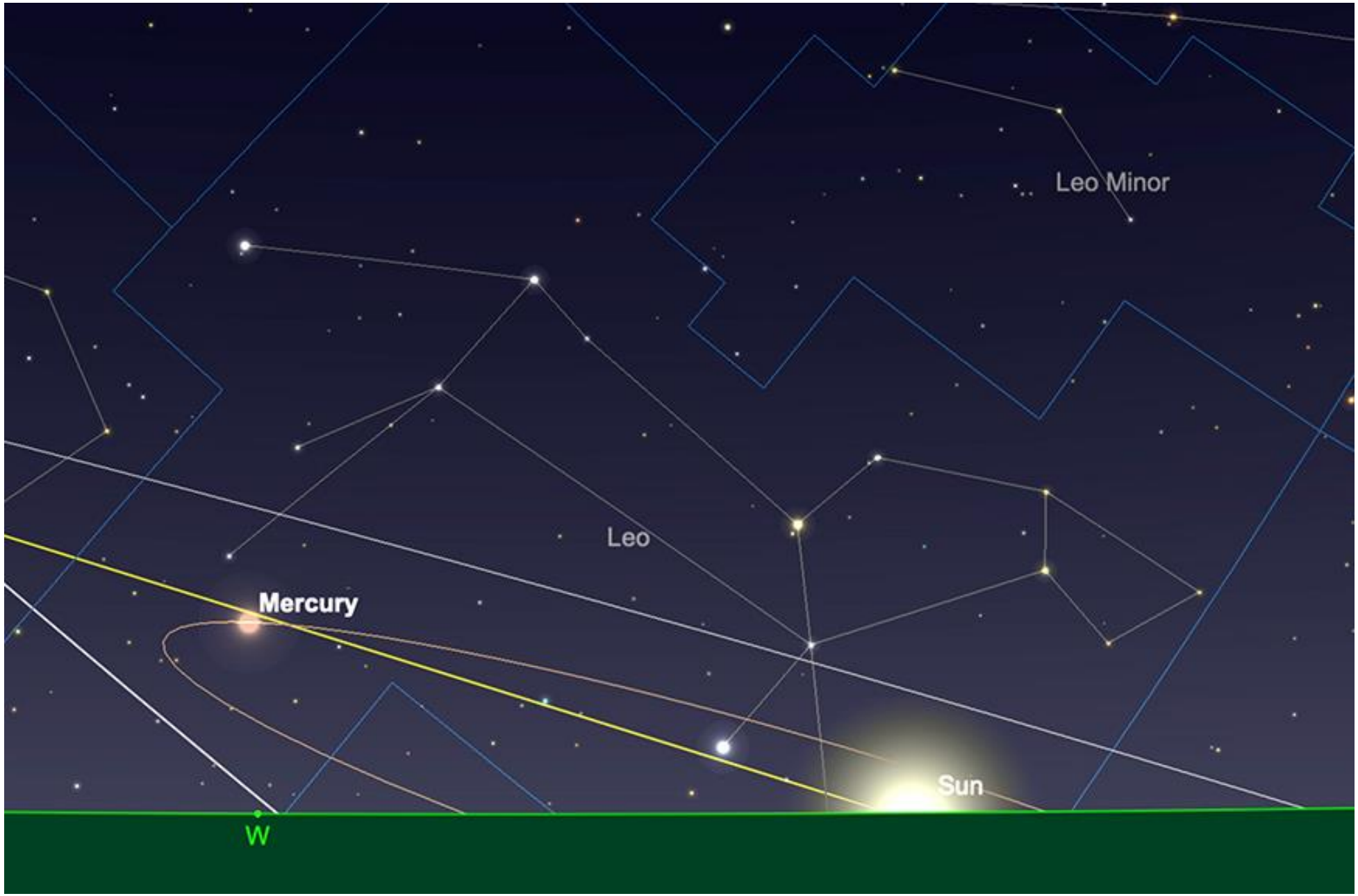
The last few days of August finds the Moon re-emerging as an evening target, passing Mercury in western Virgo on the evening of the 29th and ending the month at 19% illuminated Evening Crescent phase in the eastern reaches of the constellation.

Mercury

Mercury can be found at the beginning of the month in the constellation of Leo. Separated from the Sun by a little over 16°, the innermost planet of the solar system is not especially high in the sky from higher northern latitudes (just over 6° elevation at sunset, from 51° north), but at -0.6 magnitude should be prominent enough to find just after the Sun goes down, if you have a clear westerly horizon. The planet presents a 5.3 arc second diameter disc, 85% illuminated, at the beginning of August.

The first week of August finds Mercury gaining separation from the Sun, though this does not come with increased elevation, when viewed from temperate northern locations - the planet being in an area of the Ecliptic inclined distinctly further towards the horizontal, from these parts of the world. Those who observe Mercury from closer to the equator will fare distinctly better as far as altitude goes.

By mid-month, mercury will have faded a little too around +0.0 magnitude, now displaying a larger 6.1 arc second diameter desk, but at only 69% illumination. The planet sits no higher in the sky at sunset from midnorthern latitudes, that it did at the beginning of August. But again, those in the equatorial regions of our planet will be treated to a rather spectacular separation from the horizon, at around 24° elevation.


Leo Minor
Leo
Mercury
Sun
W

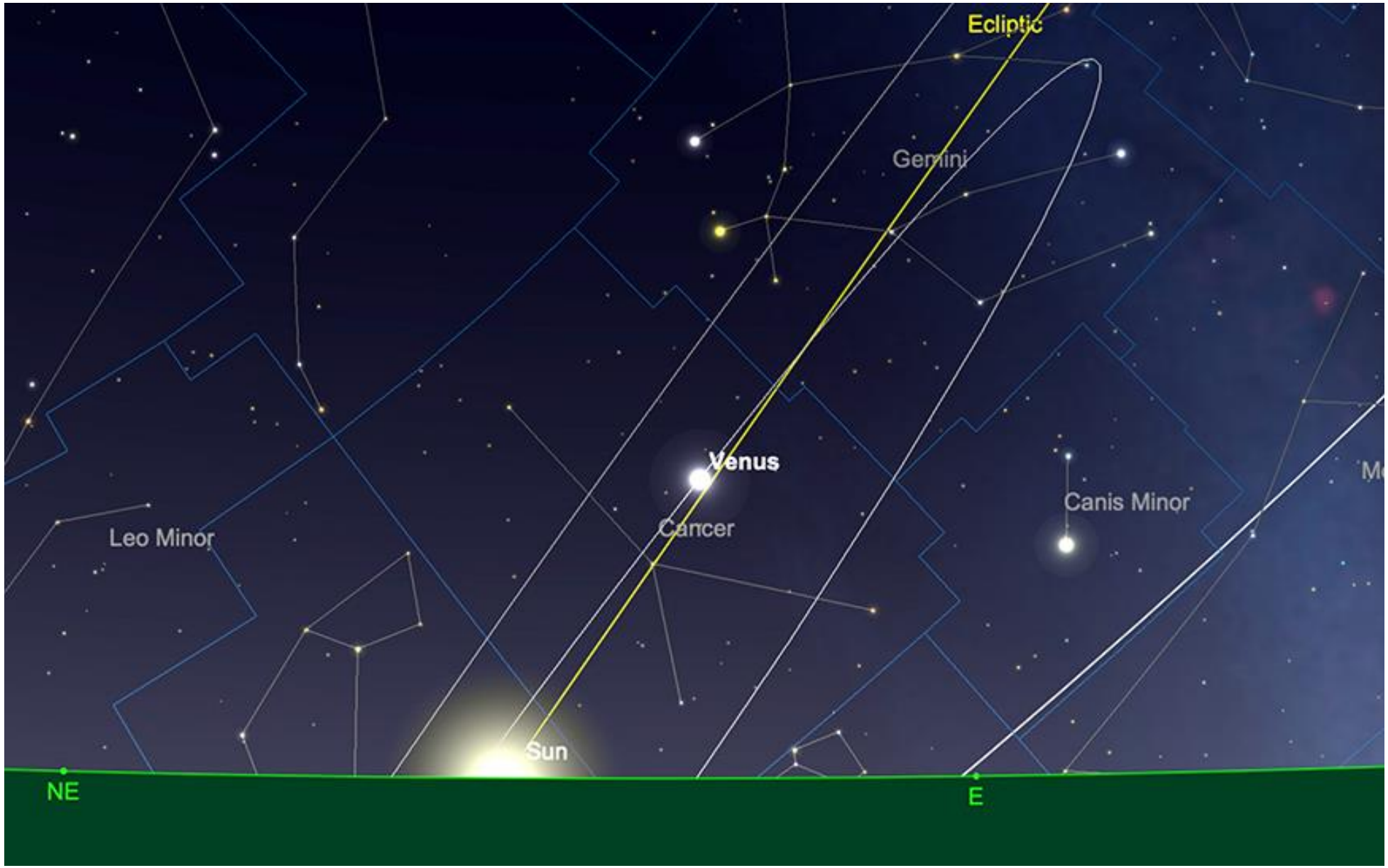
Mercury, sunset, 15th August *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

The second half of August finds mercury retaining its brightness, though fading a little towards the end of the month. The planet reaches maximum eastern elongation on August 27, when it can be found over 27° from the Sun. By this point, it will have started to drop in altitude at sunset, from northern locations - sitting just over four degrees high in the sky (from 51° north).

Venus

Venus will be very prominent at sunrise in the mornings during August. On the 1st, it can be found in the constellation of Gemini, at -3.9 magnitude, displaying a 10.7 arc second diameter disc, illuminated by just under 93%. At an altitude of just under 16° elevation (from 51° north), Venus is not ideally situated for telescopic observation, but should be rewarding enough to turn a telescope in the direction of, should you be up early enough.

By the middle of the month, not much has changed as far as Venus is concerned. Now a resident of Cancer, the planet remains static at -3.9 magnitude and now displays a 10.4 arc second diameter disc. Venus is currently heading sunward from our perspective here on Earth and at this time is separated from our parent star, by just over 18°.

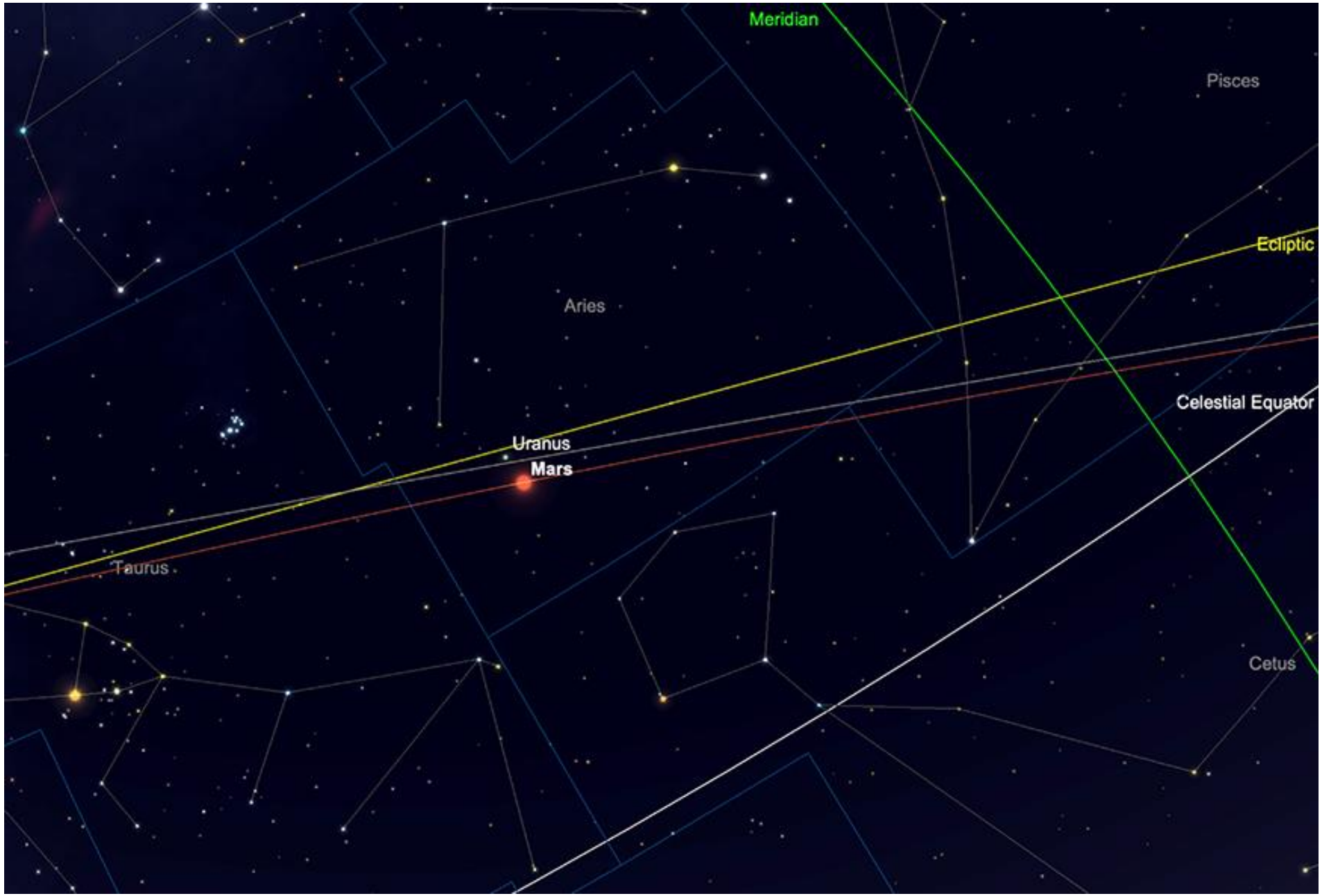


Venus, sunrise, 15th August. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

By August's end, Venus has moved into the constellation of Leo and can now be found at an altitude of just below 12° at sunrise (from 51° north). The planet is still -3.9 magnitude and has largely retained its diameter, now displaying a 10.1 arc second disk. The planet still has some way to go until late October's Superior Conjunction, but the window for easy observation of Venus is definitely closing.

Mars

The Red Planet is to be found in Aries at the beginning of August. At +0.2 magnitude and displaying an 8.3 arc second diameter disc, it is not especially prominent, but certainly brighter than any star in its resident constellation. The 1st finds Mars in reasonably close conjunction with Uranus, with the two planets separated by just under 1 1/2° from each other. You will have to be up reasonably early in the morning to observe this, but if you do, Mars will provide convenient signpost for the match fainter outer world.


Meridian
Pisces
Ecliptic
Aries
Celestial Equator
Uranus
Mars
Taurus
Cetus

Mars and Uranus, 1st August. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

By the middle of August, Mars has moved across the border into Taurus. The 15th finds the planet at +0.1 magnitude and displaying a 8.9 arc second diameter disc. Mars will rise at a little before midnight and transits at a little after dawn the following morning.

The end of August finds Mars having broken through to minus magnitude figures - but not by much. The 31st finds Mars at -0.1 magnitude, now displaying a 9.7 arc second diameter disc. The planet at this point is found in between the Hyades and Pleiades star clusters in Taurus, with Mars appearing very similar in brightness and hue to Alpha Taurii, Aldebaran. It will be interesting for early risers to compare the two in such close proximity to each other.

As previously stated in preceding sky guides, the trend is definitely upwards as far as Mars is concerned, though we still have some way to go until early December's Opposition, when the Red Planet will be distinctly brighter and much larger. However, for observers in the northern hemisphere, Mars is now in a very reasonable area of sky for observation, being just shy of transiting as the Sun rises on the 31st.

Jupiter

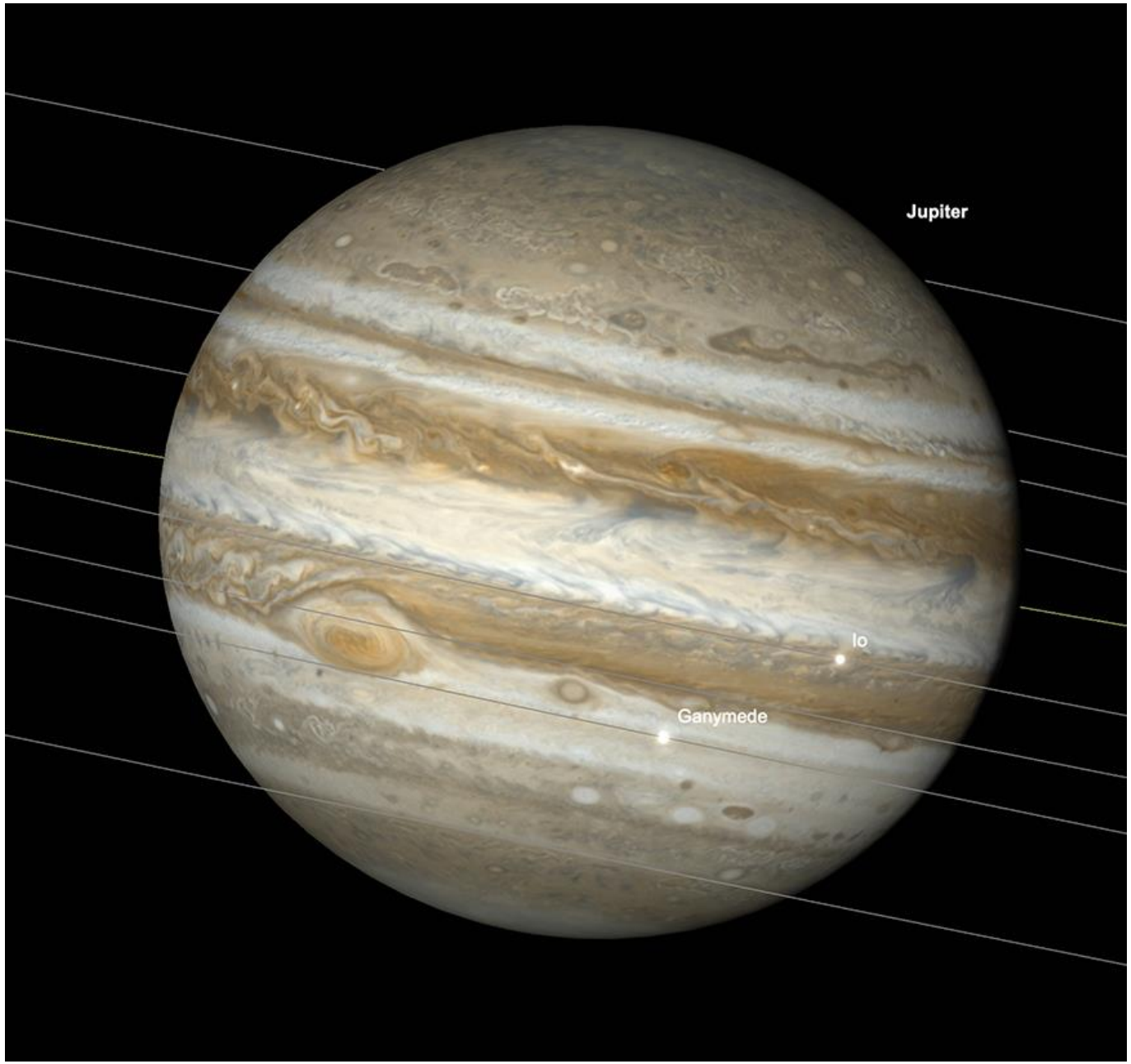
Much closer to Opposition, is the planet Jupiter, which reaches its brightest and closest to Earth, in late September. The first of the month finds Jupiter a brief resident of the non-zodiacal constellation of Cetus, shining and a bright -2.7 magnitude and displaying a disc of just over 45 arc seconds diameter. Rising at just before 11 pm on the 1st, Jupiter will be best-seen in the early morning sky, transiting at just after 5 am.

Jupiter has just started its retrograde motion in the sky, which is a certain sign of impending Opposition. The planet is (of course) not moving backwards in its orbit at all, rather we are catching it up on our faster interior orbit and Jupiter is as a consequence, appearing to move backwards in relation to background stars. This will continue until November, from which point, it will resume its "proper" motion in the sky.

Come mid-month, Jupiter will increase brightness to -2.8 magnitude, now displaying a disc just under 47 arc seconds diameter. Jupiter can still be found in Cetus, now rising at just a little before 10 pm and transiting at just after 4 am the following morning.

At the end of August, dubitable of Brighton and just a little again 2-2.9 magnitude and is now displaying a 48.7 arc second diameter disc. The planet rise a little before 9 pm and transit at just after 3 am the following morning. Still found in the non-zodiacal constellation of Cetus, Jupiter will only be a resident of this constellation for another day after this point, where after it will resume its residency of neighbouring Pisces.

There are some interesting mutual transit events to note on Jupiter this month. On the morning of August 2, there is a Great Red Spot and Ganymede and Io transit, which will be best seen a little around 4 am (BST). There is another similar event, a week later, on the morning of August 9, peaking at around 5 am. There is another Great Red Spot, Io and Ganymede double shadow transit event, at just before sunrise on 16th of August. There is a dual Great Red Spot and Europa transit at around 1.30 am on August 24. There is another dual Great Red Spot and Europa transit at around 3 am on August 31.


Jupiter
Io
Ganymede

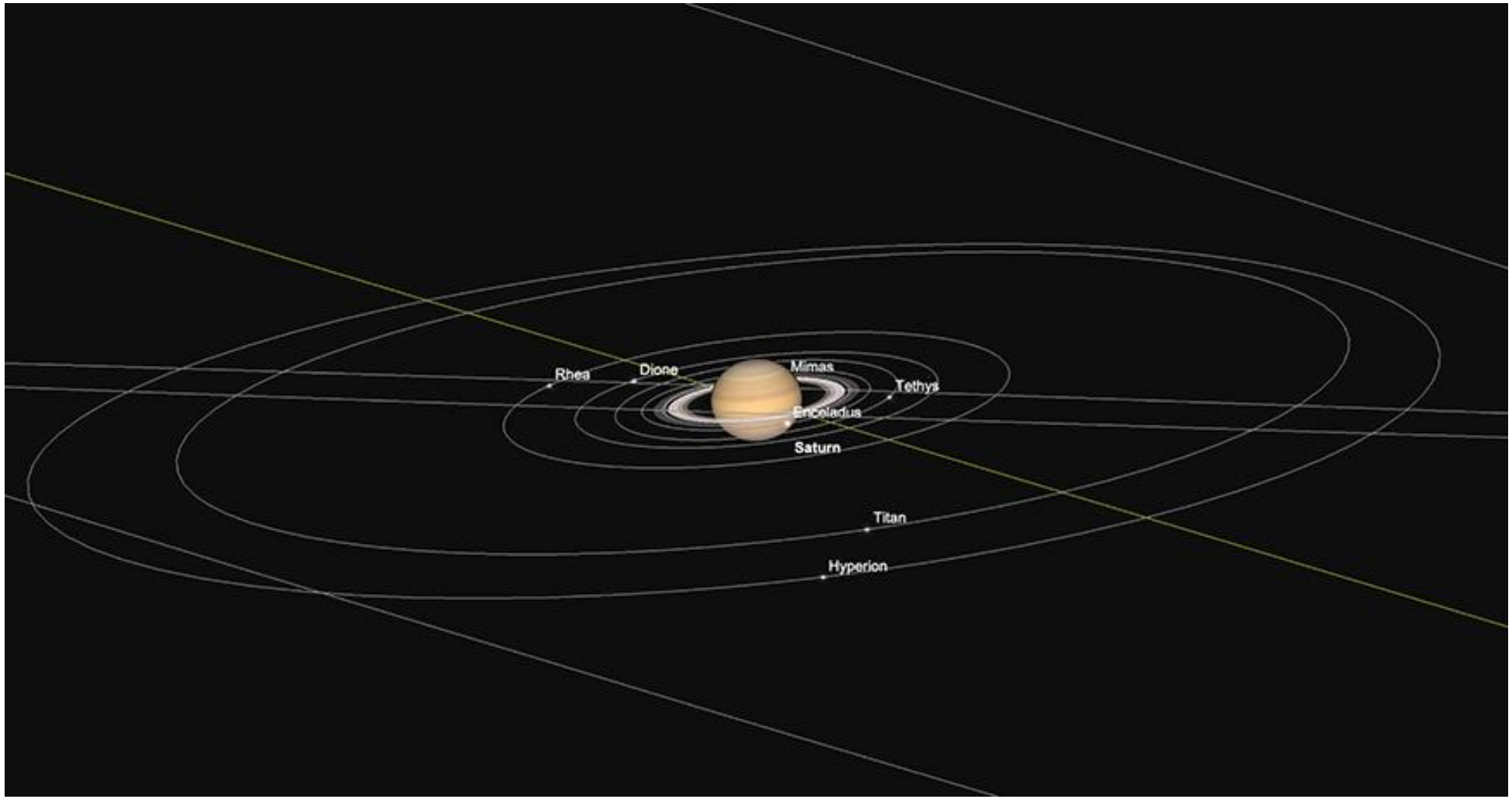
Jupiter, Great Red Spot, Ganymede and Io Transits, 4am 4th August. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

Saturn

The jewel of the solar system, Saturn, reaches Opposition on August 14th. Now a president of Capricornus, Saturn is better placed for observation for those of us in the northern hemisphere than it has been for many years. While it still hasn't broken through the magic 30° elevation for many observers above mid-northern latitudes (above which, seeing conditions improve significantly), Saturn's continuing rise in the Ecliptic, as seen from the northern hemisphere, is cause for celebration.

At the beginning of August, Saturn presents 8+0.4 magnitude, 18.7 arc second diameter disc. The planet rises at a little before 9:30 pm (BST), transiting a little after 2.15 am the following morning.

By Opposition night, Saturn will have brightened fractionally to +0.3 magnitude, now displaying an 18.8 arc second diameter disk. By this point in the month, the planet will rise a little after 8:30 pm and transits just before 1:30 am the following morning.



Saturn and major Moons, Opposition night, 14th August. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

Binoculars will reveal more of Saturn's pale yellow colour and show it as elongated. Magnification of at least 20-25x will be needed see the ring. However, most observers tend to need at least 45x magnification to see Saturn as a definitely "ringed" object, with the ring distinct from the the planet itself - with good seeing naturally playing a big part in this. More magnification and greater aperture will revel the true beauty of the ring system,

which was first glimpsed by human eyes back in 1610 by Galileo. Back when he first observed Saturn, the planet was sitting in a very similar part of the sky in Capricornus and came to Opposition on the 13th of August, so conditions for observation in Europe this year are extremely similar - though the ring plane was slightly more closed in 1610 than it appears now. Galileo's telescope, which he first turned towards Saturn was very small, with very primitive lenses and a modest magnification of 20x and yet he was an astute enough observer to recognise that Saturn wasn't simply a disk. Although he was later to define what we now understand as a ring, at first he thought the planet was displaying "ears" either side of its tiny disk. Later observations showed these ears had disappeared, when the Earth crossed Saturn's ring plane and the ring later reappeared as it opened up again, by which time Galileo had a slightly more powerful instrument at his disposal and presumably better seeing conditions, with the planet climbing higher north within the Ecliptic. His sketch of 1616 shows Saturn as we would reasonably expect in a small telescope, though it was to be the best part of four decades, in 1655, until Christiaan Huygens equipped with a yet more powerful telescope observed, recorded and described Saturn's ring as such - also discovering Titan, Saturn's largest moon in the same year. We cannot blame Galileo for not recognising Saturn's ring for what it was - considering how new the telescope was as a piece of technology and how limited our then understanding of the solar system. But it was observing Saturn's rings, Jupiter's moons and the phases of Venus which showed Galileo that the planets were not immutable and unchanging as had been previously thought, but very much "living" changeable bodies. It was these first observations which started a complete revolution in science and the way human beings see their place in the universe and as such, helped to shape the modern world we live in - all from a tiny refracting telescope.

With the continuing narrowing of Saturn's ring plane to us, as seen from Earth, along with the orbital plane of many of its major Moons, we can now witness transit events of Enceladus, Mimas and Tethys - although these are much, much more challenging events to observe in the telescope than those of Jupiters Galilean family of Moons, requiring significant telescopic aperture and compliant atmospherics to do so.

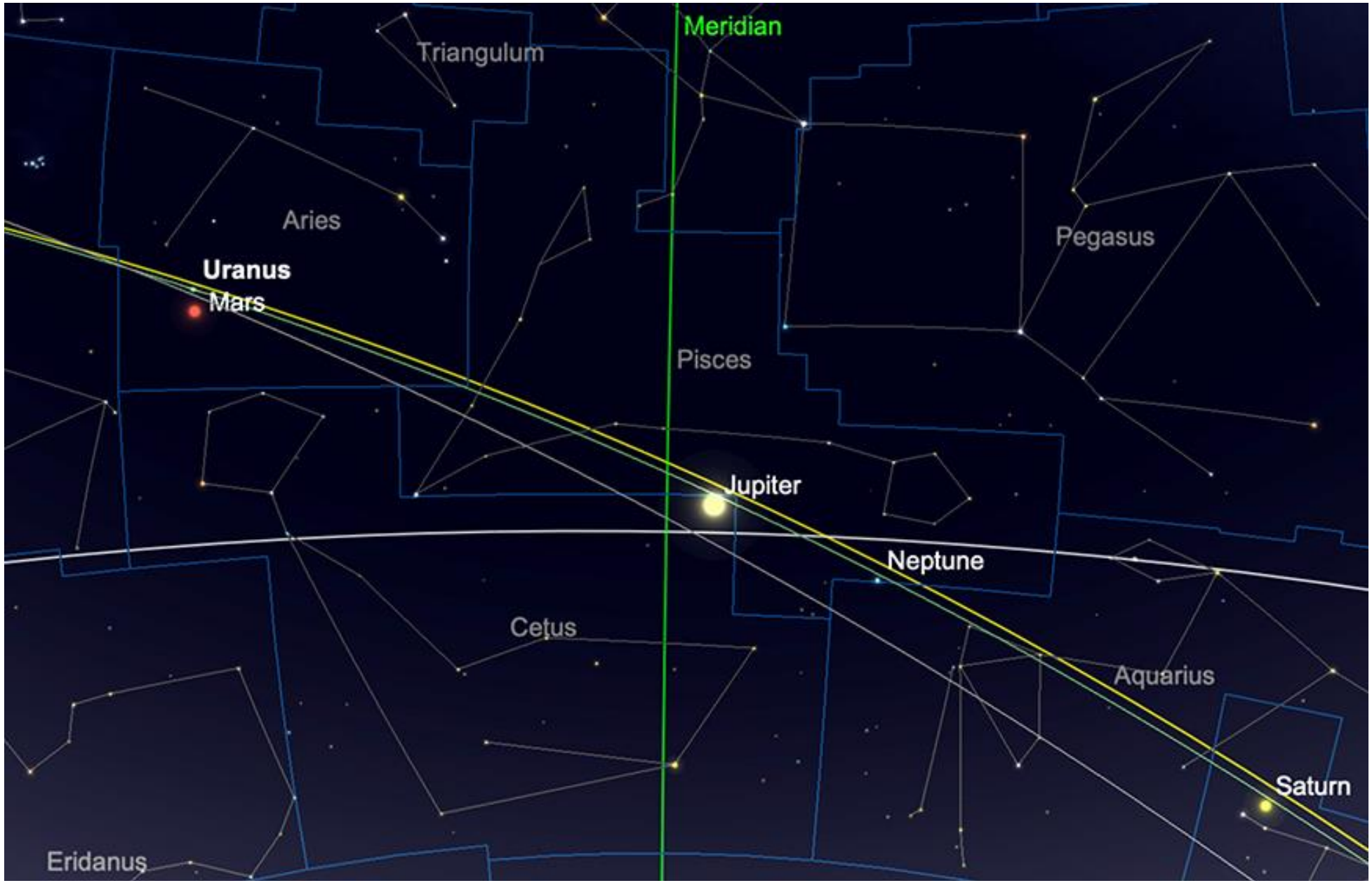
At the end of August, Saturn will still be +0.3 magnitude, though has shrunk a little from Opposition's peak, back to 18.7 arc seconds diameter.

Uranus and Neptune

As previously mentioned, probably the highlight of August for the two outer planets is Uranus 'conjunction with Mars in Aries on the 1st August. Both Uranus and Neptune, while reasonably-sized worlds are a long way away, considerably fainter and as a consequence, much more difficult to find in the sky than all of the other major planets. Having a nearby brighter planet to act as a signpost, helps finding either of the outer worlds considerably.

At magnitude +5.8, Uranus is on the boundaries of naked eye visibility, from a reasonably dark site. However, most observers will need at least binoculars to make a positive identification of it. Mars 'proximity to Uranus on the 1st of August is a real help in doing so.

Neptune is much more difficult to observe and it +7.8 magnitude is way beyond the limits of naked eye visibility. A resident of Pisces, the bright planet Jupiter in neighbouring Cetus, can be found approximately 13 1/2° to the east of Neptune and at least gives the observer a rough guide to the area of sky the outer planet can be found in. Once found, Neptune is a rich blue colour, which is evident in the eyepiece of binoculars or small telescopes. Sitting under the five stars which represents the “head” of the more southern of the two “fishes” of Pisces, Neptune presents a challenge to observe, but is relatively straightforward to find at this time.

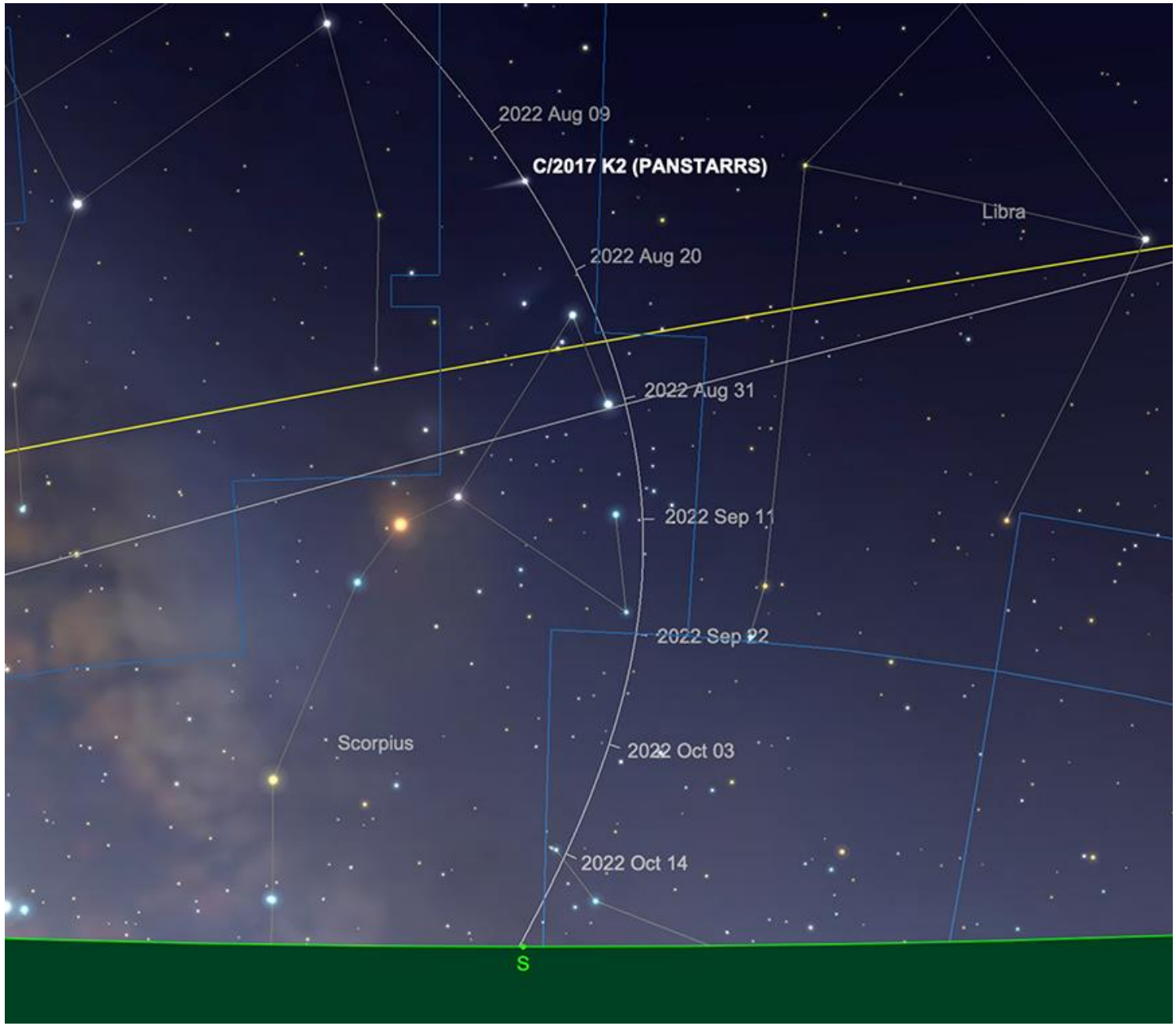

Meridian
Triangulum
Aries
Uranus
Mars
Pegasus
Pisces
Jupiter
Neptune
Cetus
Aquarius
Saturn
Eridanus

Uranus and Neptune relative sky positions, 1st August. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

Comets

Comet C/2017 K2 (PANSTARRS) Continues on its trick through the westerly reaches of Ophiuchus into the "head" of Scorpius, during August. As such, it will be visible in the early evening and will be approaching peak brightness during August (though this peak may continue for sometime). Heading south as the month progresses, for those of us in the northern hemisphere August really does represent the best time to catch this comet. Beyond the end of the month, the comet will really be the preserve of southern hemisphere observers only.

At time of writing, the comet is hovering around 7th to 8th magnitude. This puts it in reach of binoculars, but this comet emphatically is not a naked eye object. Catch this one while you can.

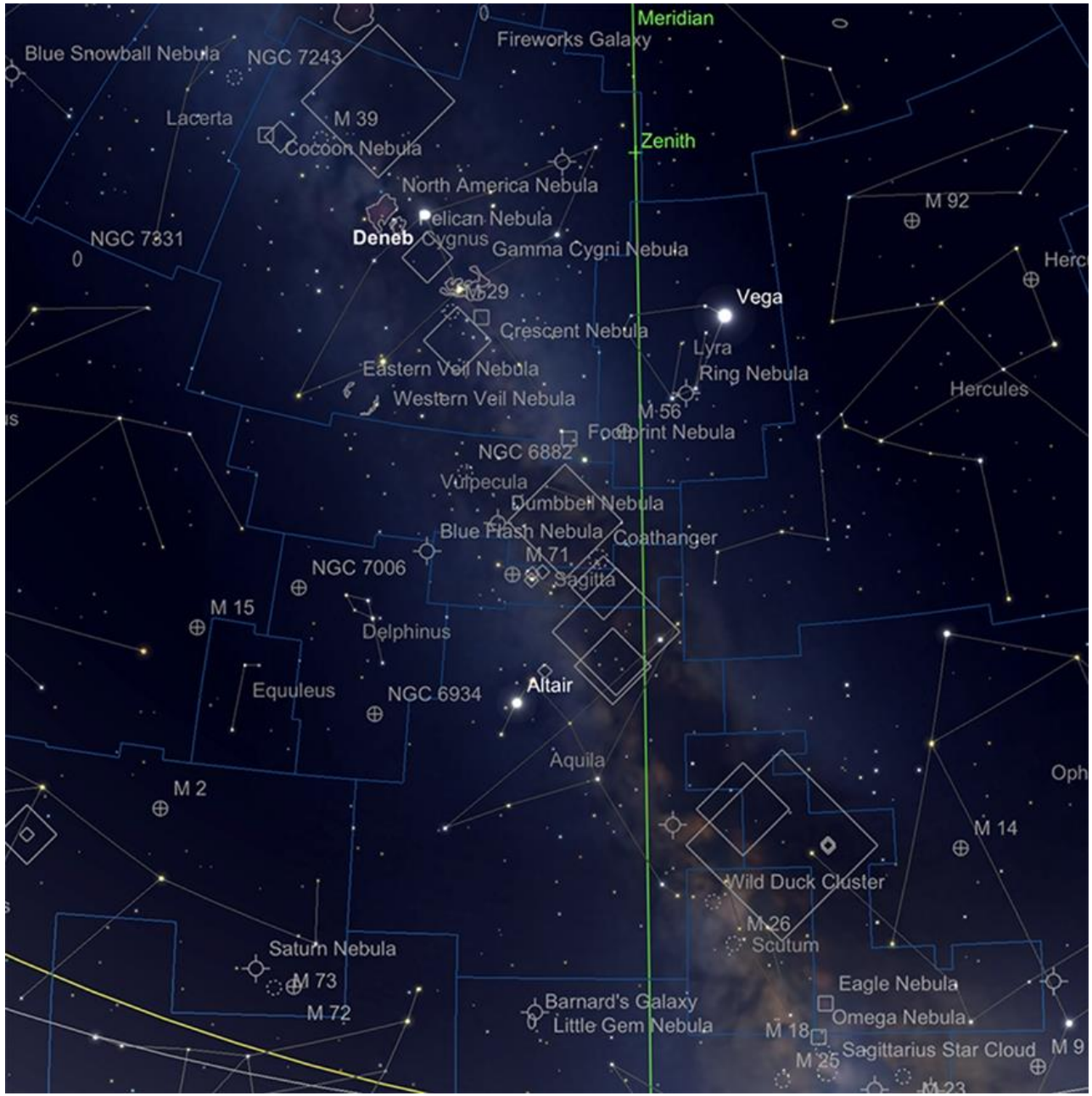

2022 Aug 09
C/2017 K2 (PANSTARRS)
Libra
2022 Aug 20
2022 Aug 31
2022 Sep 11
2022 Sep 22
Scorpius
2022 Oct 03
2022 Oct 14
S

C/2017 K2 (PANSTARRS). *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

Meteors

Vying with December's Geminid meteor shower, the Perseids of August are the year's most reliable display of meteors. Sadly, this year the Perseids will be heavily affected by the presence of the Full Moon, which will be present in the sky exactly concurrently with the shower's peak. While this is a pity, the Perseids can be seen from mid-July, until early September, so while the peak of this year's event will be washed out by the Moon, you are more than likely to see a Perseid to two, if you're out during a more Moon-free night during August.

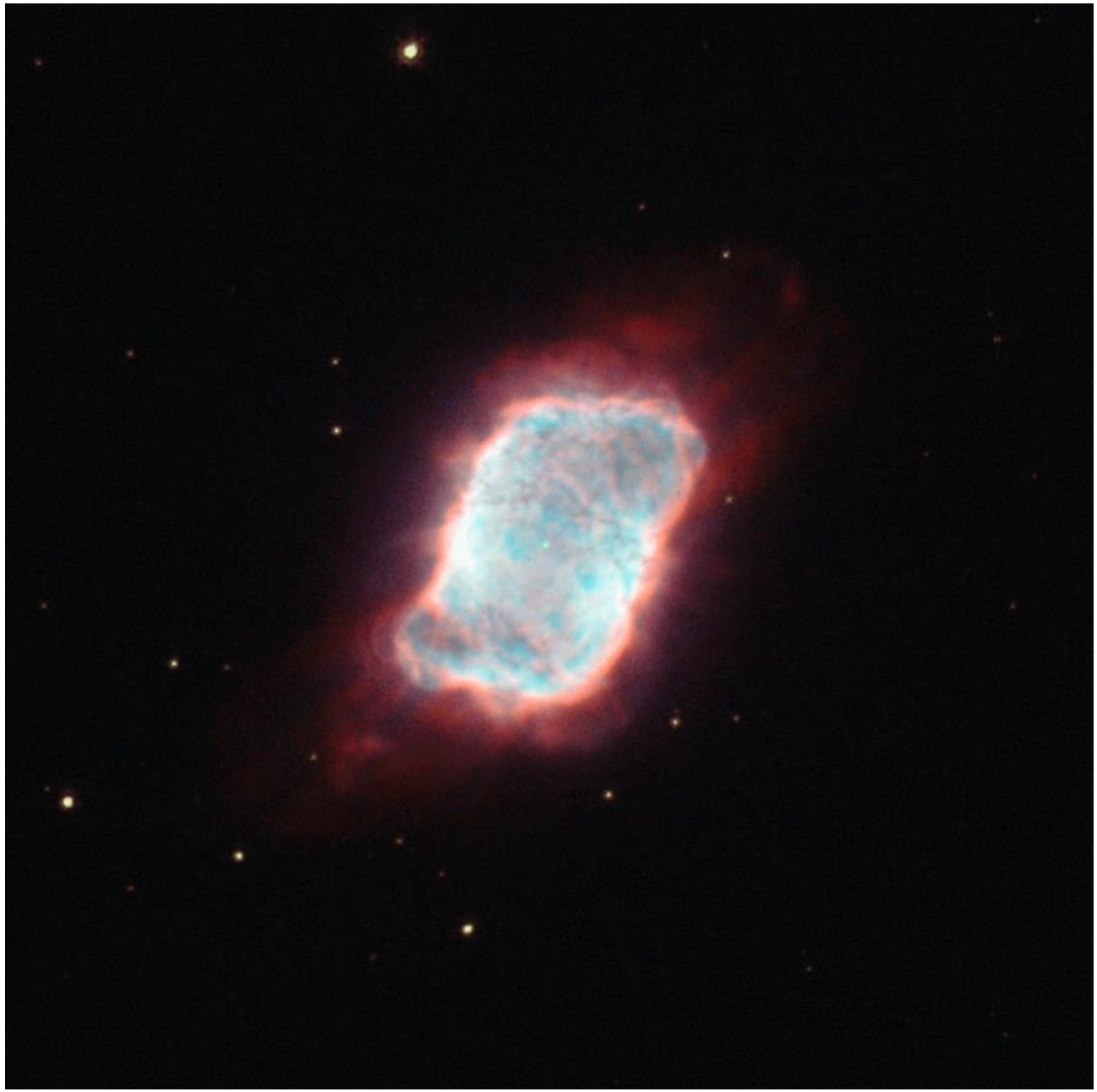
DEEP SKY DELIGHTS IN THE SUMMER TRIANGLE


Meridian
Fireworks Galaxy
Blue Snowball Nebula
NGC 7243
Lacerta
M 39
Cocoon Nebula
Zenith
North America Nebula
Pelican Nebula
Deneb
Cygnus
Gamma Cygni Nebula
NGC 7331
M 92
Vega
Crescent Nebula
Lyra
Ring Nebula
Eastern Veil Nebula
Western Veil Nebula
Hercules
M 56
Footprint Nebula
NGC 6882
Vulpecula
Dumbbell Nebula
Blue Flash Nebula
Coathanger
M 71
Sagitta
NGC 7006
M 15
Delphinus
Equuleus
NGC 6934
Altair
Aquila
M 2
M 14
Wild Duck Cluster
M 26
Scutum
Satum Nebula
M 73
M 72
Barnard's Galaxy
Little Gem Nebula
Eagle Nebula
Omega Nebula
M 18
Sagittarius Star Cloud
M 25
M 9

The Summer Triangle. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.*

The Summer Triangle is an asterism that consists of the stars Vega, Deneb and Altair and was a term first associated with these stars by the Austrian astronomer Oswald Thomas in the early-to-mid 20th century, when he referred to it as *Grosses Dreieck* (Great Triangle) in the late 1920s and *Sommerliches Dreieck* (Summerly Triangle) in 1934. This area of sky takes in the constellations of Cygnus, Lyra, Aquila, Vulpecula and Sagitta and contains some of the best deep sky objects in the whole sky.

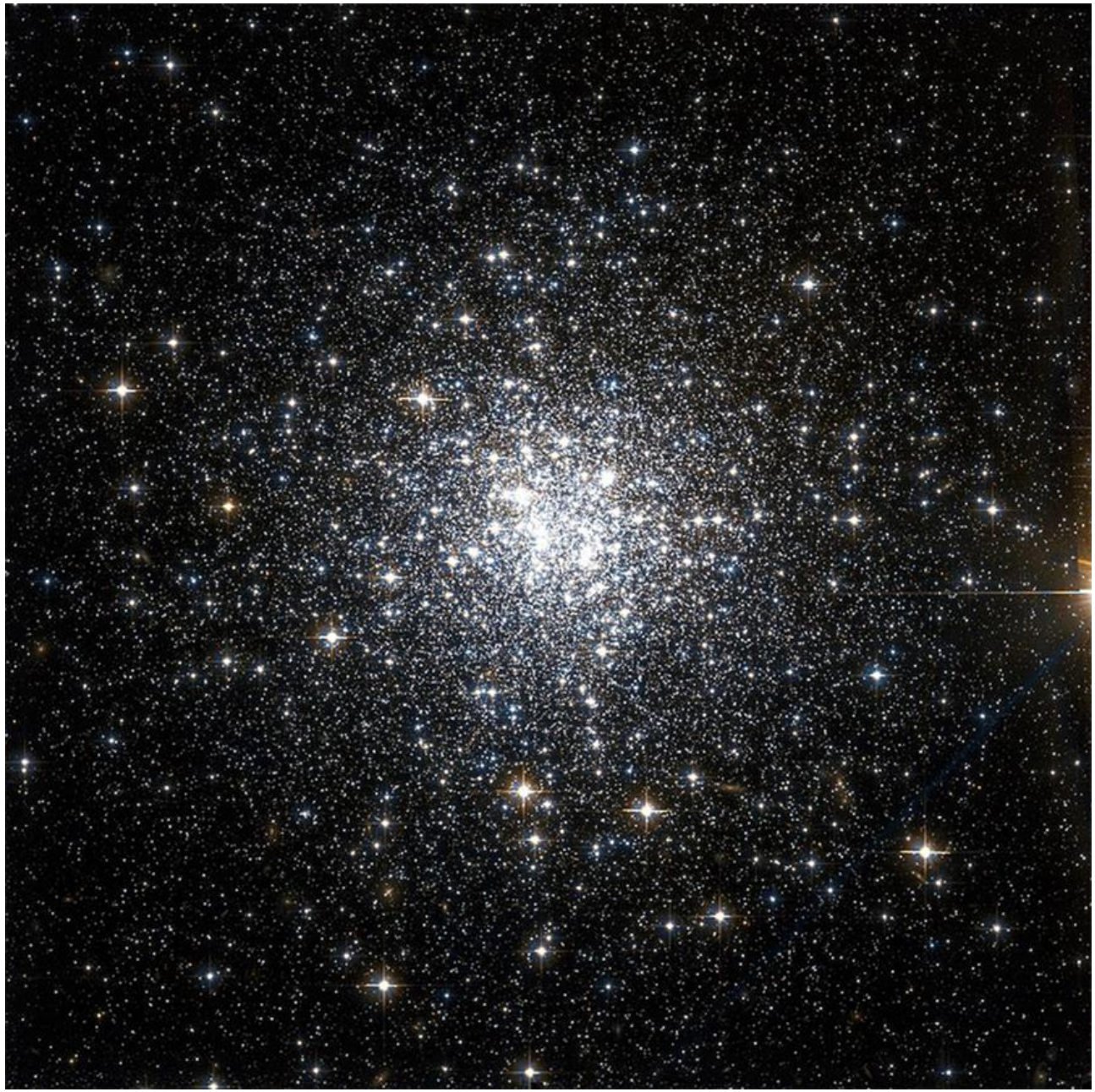
Starting from the most southerly tip of the Summer Triangle, we come to the major constellation of Aquila, The Eagle. Despite its size and prominent position along the plane of there Milky Way, this constellation is curiously lacking in major Deep Sky objects. The only one of great note is the interesting NGC 6741, otherwise known as The Phantom Streak. This object is a planetary nebula of +11.69 mag and diminutive in size (as many planetaries are), at just 0.1 arc minutes across. Looking like a ghostly parallelogram, the Phantom Streak is not an easy object, but its cocoon-like structure can be discerned by those with access to larger telescopes. It is a rewarding find for those with the ability to find it. The distance of NGC 6741 is not certain. Some sources list it as lying 7000 light years distant, though others think it a closer object at around 5000 light years from us. The Phantom Streak is notable for the possibility that its central star, a white dwarf remnant of a star much like the Sun, may be running out of hydrogen fuel and its dropping in luminosity. This means the Phantom Streak may not be visible in its present form for much longer - a sign we live in a dynamic Universe. Catch it while you can!



NGC 6741, The Phantom Streak. Image Credit - NASA/ESA Hubble Space Telescope, Creative Commons

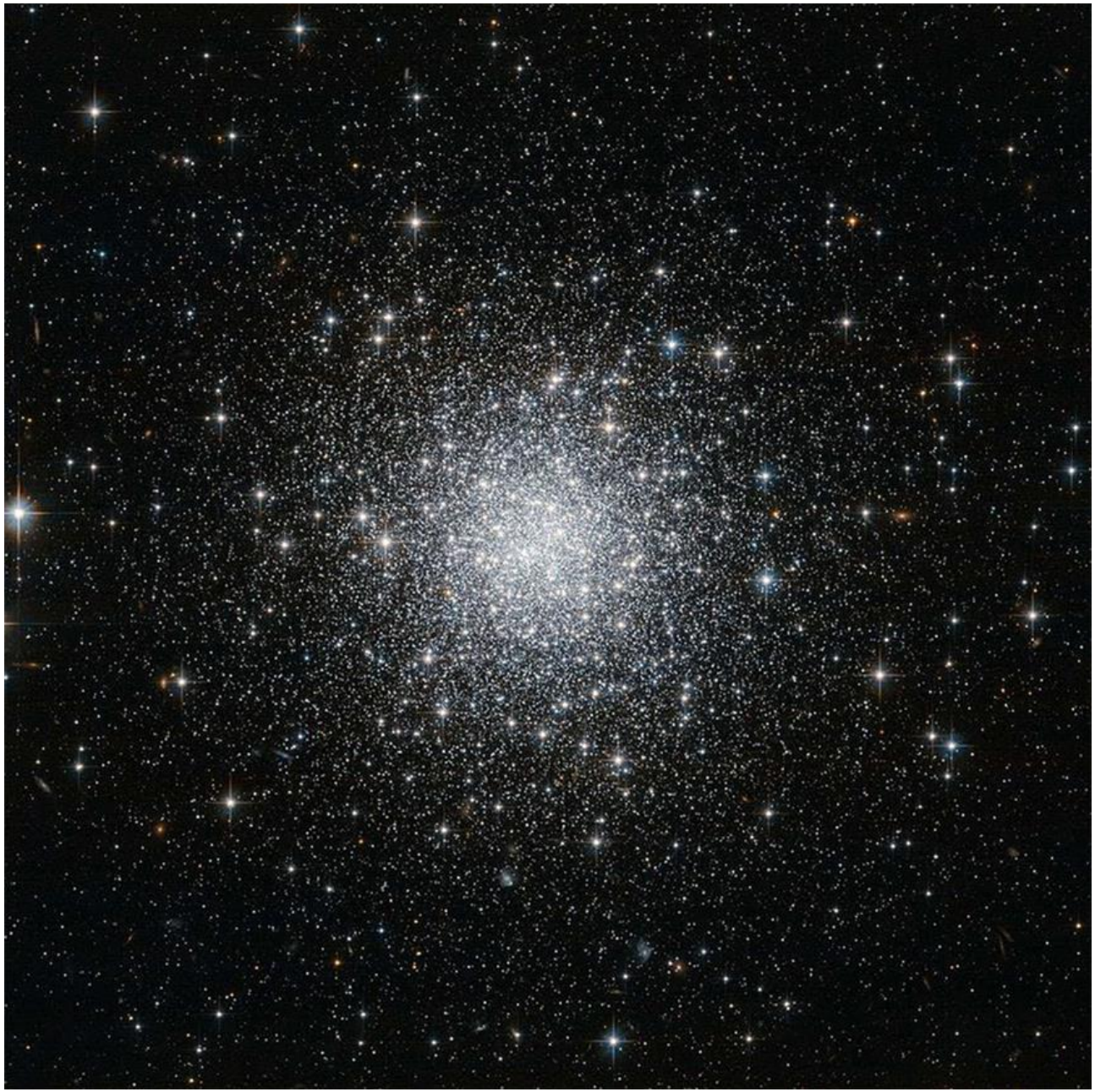
Moving up past Altair, we take a brief dog leg East into the tiny constellation of Delphinus, The Dolphin. This lovely little collection of stars, though not especially bright, can easily be made out under dark conditions. Delphinus' kite-shaped arrangement of four stars and the Dolphin's tail marked by the prominently blue Epsilon Delphini is unmistakable.

Delphinus contains two globular clusters - nether particularly bright, but worth seeking out nonetheless. NGC 6934 is the more Southerly and is found just under 11 degrees almost due east of Altair. At +8.8 mag and 1.4 arc minutes in diameter it is hardly prominent, but is location in the rich star fields of the Milky Way go someway to explaining this. Small telescopes show the cluster as a soft, rather indistinct ball of light, but larger instruments will be needed to show the scant detail it offers up to observers. Lying over 50000 light years away, NGC 6934 was one of William Herschel's many discoveries - he first catalogued it in 1785.



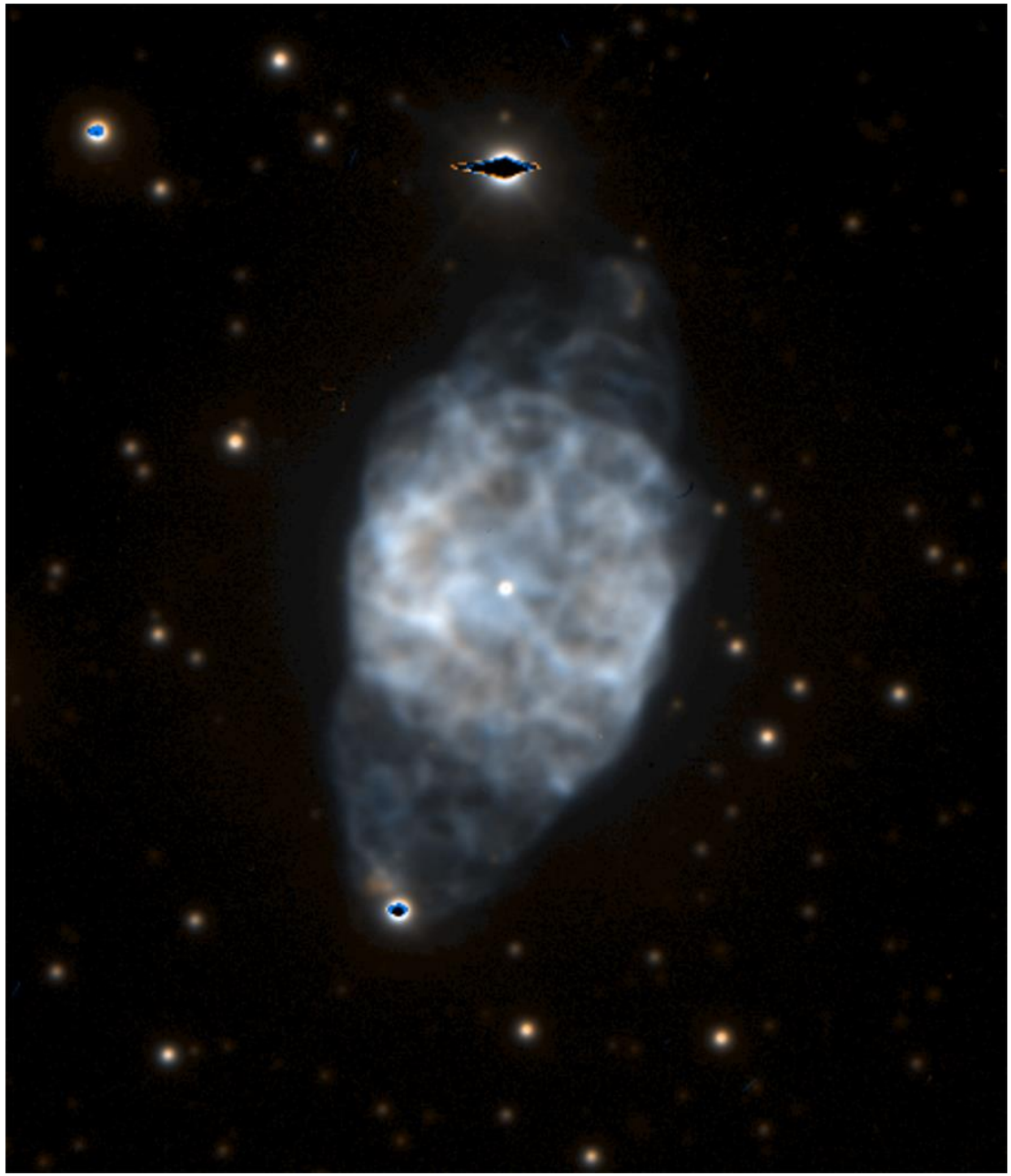
NGC 6934. Image Credit: Hubble Image NASA/ESA, Public Domain.

Herschel also Discovered NGC 7006 which is located some 11 degrees to the NE of NGC 6934. At +10.56, it is one of the fainter of our galaxy's globular clusters. This faintness is understandable when one considers NGC 7006's distance - an amazing 135,000 light years hence. This cluster is described by various observers as quite comet like in appearance - a condensed central region and a halo of stars are not as distinct as they are in its neighbour. A very large telescope of 16+ inches aperture will be needed to resolve individual stars in this challenging target.



NGC 7006. Image Credit: Hubble Image NASA/ESA, Public Domain.

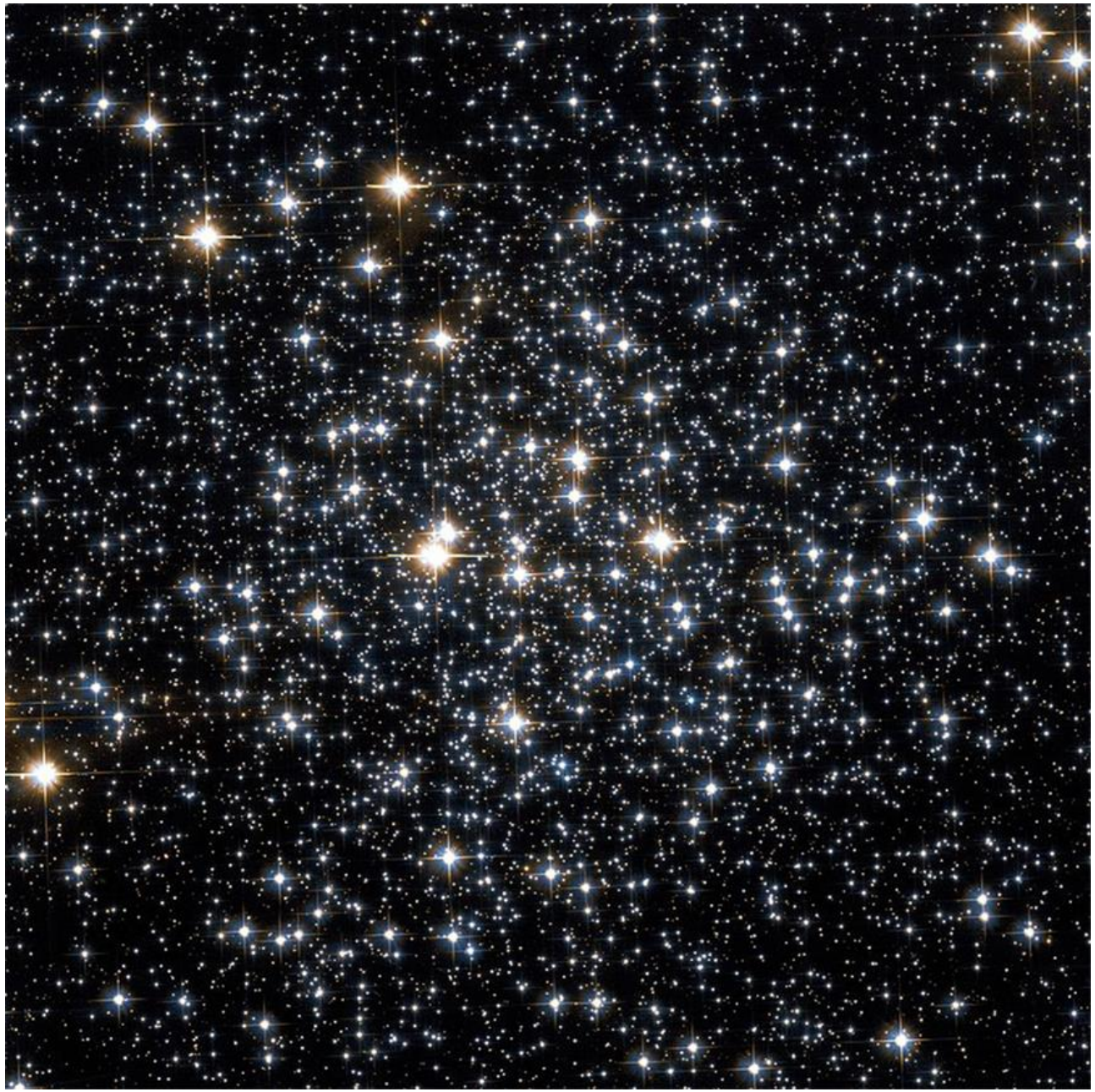
Delphinus also contains a good planetary nebula: the Blue Flash, or NGC 6905. This is more easily seen in small telescopes than either of the globular clusters previously mentioned. Indeed, it is often overlooked, due to its proximity to the nearby M27 (more of which later), but the Blue Flash deserves more observation. A blue-white ball of light, with extending lobes either side, NGC 6905 is +10.89 mag and 0.8 x 0.6 arcminutes in dimension and lies 2200 light years away. Larger telescopes will start to pick up more of the object's uneven shape and central star. It seems decidedly egg-shaped to some.



NGC 6905, The Blue Flash Nebula. Image Credit - European Southern Observatory - Creative Commons

Just under 7 degrees to the west of The Blue Flash, over the border into Sagitta, The Arrow, sits another globular cluster - M71.

Discovered in 1746 by Philippe Loys de Cheseaux, M71 is a very loose globular, which was perhaps understandably classed as an open cluster for a considerable amount of time. Binoculars show it well, but smaller telescopes will start to resolve it into stars. At 3.3 arcminutes diameter and +8.18 mag, M71 is a curious beast: its spectral makeup and spread of differing star types is much more suggestive of an open cluster, though observations of the radial velocities of its constituent stars have pointed to its globular nature. It is thought to be particularly young for a globular cluster, being "only" 9 billion years of age.



M71. Image Credit: Hubble Image NASA/ESA, Public Domain.

Moving further Westward, over the border into Vulpecula, The Fox, we come to one of the most celebrated clusters in the whole sky - Collinder 399, otherwise known as The Coathanger, for obvious reasons! The asterism of The Coathanger contains ten bright stars, one of which is an orange-yellow colour, which contrasts nicely with the blue-white of the other nine. A perennial binocular favourite, The Coathanger is a large object at 89 arc minutes diameter is best seen in widefield instruments at low powers. Its unlikely appearance always raises a wry smile, as it is one of the sky's greatest practical jokes.


Coathanger

Chart showing the location of The Coathanger Asterism. *Image created with SkySafari for Mac OS X, ©2010-2012 by Southern Stars, www.southernstars.com.*

From the ridiculous to the sublime, the next object is one of the best examples of its type in the entire firmament - M27, The Dumbell Nebula. This planetary nebula is to be found 8 1/3 degrees to the east of The Coathanger and is a richly rewarding object to observe in any telescope. Small telescopes show it as an elongated glowing box. Larger apertures show more and more of the distinctive "apple core" shape. Long duration exposure images show the whole object, including its ghostly outer layers, beautiful colours and complex internal structure. The Dumbell is a true Messier object, as it was discovered by Charles Messier in 1764 and at about half the diameter of the Moon and +7.09 is easily one of the most prominent examples of its kind in the sky.


M27 Dumbbell Nebula
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M27, The Dumbell Nubula. Image Credit - Mark Blundell

We see M27 from the side on - hence its less-than-planetary shape. Were we observing it from a polar viewpoint, it would appear ring-like. But we are fortunate that the inner structure of the nebula is so well-defined from our perspective. M27's distance is heavily debated, but now appears to be around 1200-1700 light years away. Its age is thought to be relatively young - 3-4000 years-or-so. It is an easy object to locate and should not be missed by any observer.

NGC 6885 is another inhabitant of Vulpecula and lies 4 2/3 degrees NE of the Dumbell. It is a +8.10 open cluster, around 20 arc minutes in size. Although not exceptionally bright, NGC 6885 is easily located in binoculars and is probably best-seen in a large pair. This cluster contains over fifty member stars and has distance of around 1900 light years.

Eight and a half degrees NE of NGC 6885, across the border into Cygnus is the enchanting target of the Veil Nebula. The Veil Complex – NGCs 6960, 6974, 6979, 6992 and 6995 in Cygnus is a famous Supernova remnant, spread out over six times the diameter of the Full Moon. At combined brightness of +5 mag, The Veil can supposedly be glimpsed with the naked eye under truly exceptional conditions, but is much more likely to be seen (and better observed) in large binoculars and telescopes. The veil lies underneath the wing of Cygnus, close to Gienah (Epsilon Cygni). The brightest section this nebula is NGC6960, otherwise known as The Witches ’Broom, due to its obvious broom-like shape, which reveals itself best in long duration exposures. NGC6960 has the star 52 Cygni apparently buried within it (it is in fact at least 10 times nearer to us), making this part of the nebula an easier target to find with non-Goto scopes. The Veil responds terrifically well to the OIII filter – indeed, it is almost the best-responding nebula to this particular narrowband wavelength. This beautiful structure can be seen in all manner of telescopes, but large instruments with low power, widefield eyepieces present it spectacularly well.


NGC 6960 Western Veil Nebula
© 2011 Mark L Blundell

NGC 6960 - Western Veil Nebula, or Witches Broom. Image Credit - Mark Blundell.

Drifting Westwards, past one of the finest double stars in the entire sky, the Creamy Yellow and Electric Blue of Albireo (Beta Cygnii), just across the border into Lyra, The Lyre, sit two notable objects, the first of whichis M56, which lies roughly equidistant between Albireo and Sulafat (Gamma Lyrae). At +8.27, it is of similar brightness to the aforementioned M71, though at 2.2 Arcminutes diameter – when compared to the larger M71 at 3.3 Arcminutes in size – is slightly more condensed and appears brighter. Indeed, both objects would possibly appear more prominent were they not lying so close to the axis of our Galaxy and therefore obscured by parts of the Milky Way.

Roughly halfway between Sulafat and the neighbouring naked eye variable star, Sheliak (Beta Lyrae) sits one of the showpieces of the sky, the wonderful M57, the Ring Nebula. M57's enduring popularity as a Deep Sky target may be partially down to the ease with which its location is to be found. Looking like an elongated smoke ring drifting through space, the Ring Nebula is perhaps the archetype of all planetary nebulae. Discovered in 1779 by the astronomer Antoine Darquier de Pellepoix, Messier was hot on his heels and independently discovered it a matter of days afterwards. Rather disappointing in binoculars, yet easily spotted in most telescopes due to its comparatively high surface brightness, M57 takes magnification and filtration (especially the OIII filter) extremely well. Naturally, the larger the telescope you point at it, the more the keen observer is likely to see, but those with smaller telescopes will not be disappointed as long as you keep magnification up.

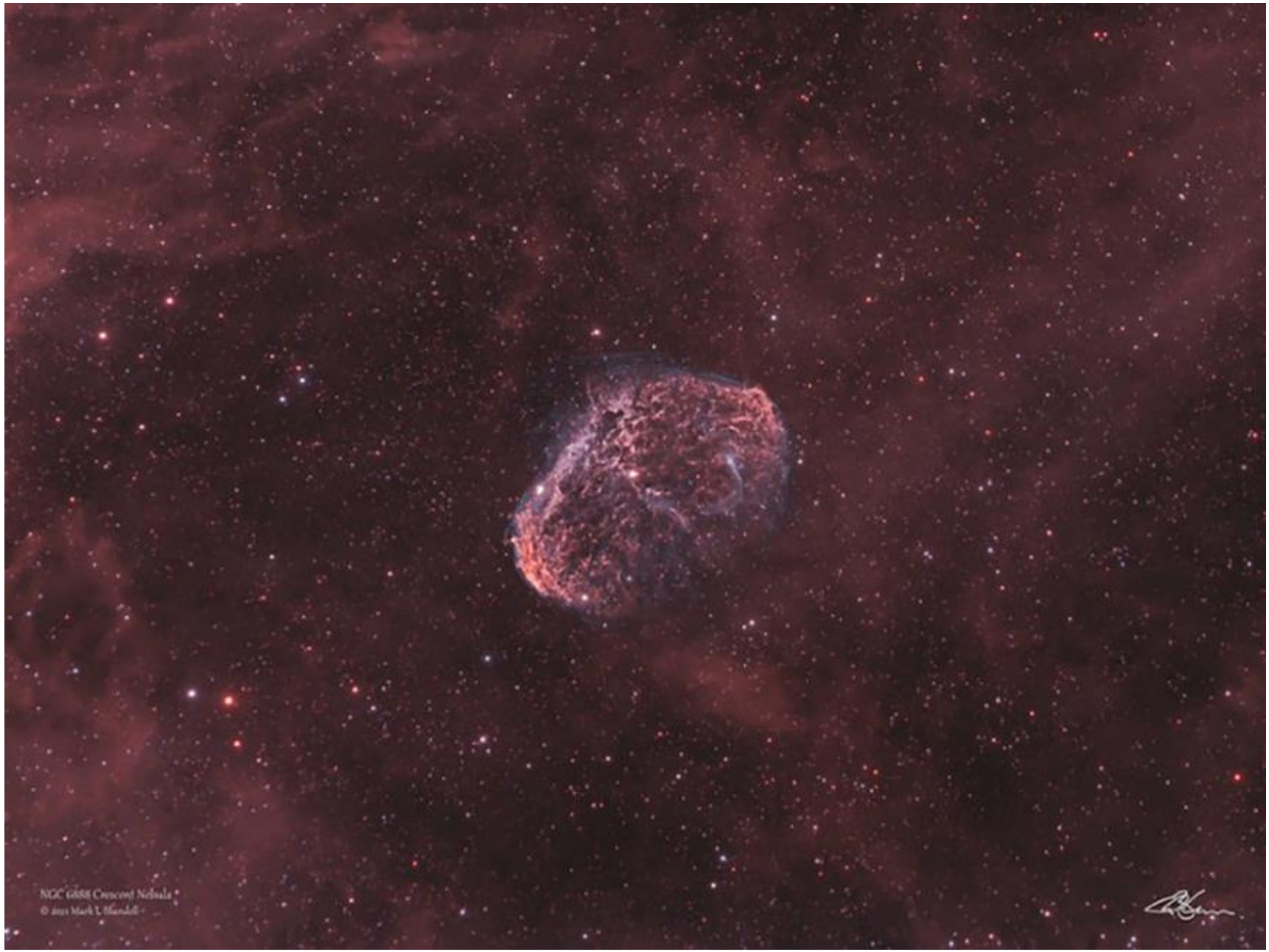

M57 Ring Nebula
By Mark Blundell
19th August 2014

M57, The Ring Nebula, in detail. Image Credit: Hubble Image NASA/ESA, Public Domain.

The Ring Nebula in an amateur telescope. Image Credit, Mark Blundell.

M57's distance is still up for debate, modern estimates of the central star put it at about 1400-4000+ light years away - quite a variation! It is thought is the former figure is the more correct, M57 is about a light year across from widest point to widest point and is a cylinder shape which we see from the end - quite the opposite, in fact, to M27's aspect. It is thought that The Ring Nebula is around 5-8000 years old.

Back into Cygnus, climbing higher North up the spine of the Milky Way, we come to a reasonably diminutive, but nonetheless fascinating object: NGC 6888, The Crescent Nebula. a bright, compact nebula, which is the expanding shell of a Wolf-Rayet Star (HD 192163), which is steadily shedding its outer layers. The nebula glows due to the fact that it is gas is superheated by the collision of the boundary layer of a faster-moving inner solar wind, meeting a less energetic layer of solar wind formed when the gaseous layer of HD192163's former outer atmosphere was ejected in its previous red giant phase. This bow shock is about 25 light years across and appears to us as a crescent shape, glowing at +7.40 mag. The "surface" of this crescent is incredibly detailed and its complicated texture can be noted in larger telescopes using OIII and UHC filtration. Much beloved of Astrophotographers, the Crescent Nebula is a rewarding target for imagers.


NGC 6888 Crescent Nebula
© 2022 Mark L. Blundell

NGC 6888, The Crescent Nebula. Image Credit - Mark Blundell.

Right next door to the Crescent, clustered around the star Sadr (Gamma Cygni) is the vast expanse of the Gamma Cygni Nebula. Glimpsed in large binoculars and telescopes from an appropriately dark locale, IC 1318, or the Butterfly Nebula, as it is otherwise known, is a huge patch of red nebulosity, slightly larger in dimensions than the Veil. However, this nebula is very spread out, so its surface brightness is inherently low. It is best visually isolated with H-Alpha Filters, but is more easily captured in long duration astrophotography. The Gamma Cygni Nebula reaches out behind the Crescent and the star that is takes its name from. Sadr is around 750 light years away, whereas estimates for the distance of the nebula vary wildly from 2000-5000 light years distance.


IC 1318 Butterfly Nebula
Const; Cyghus
By Mark Blundell
29th August 2016

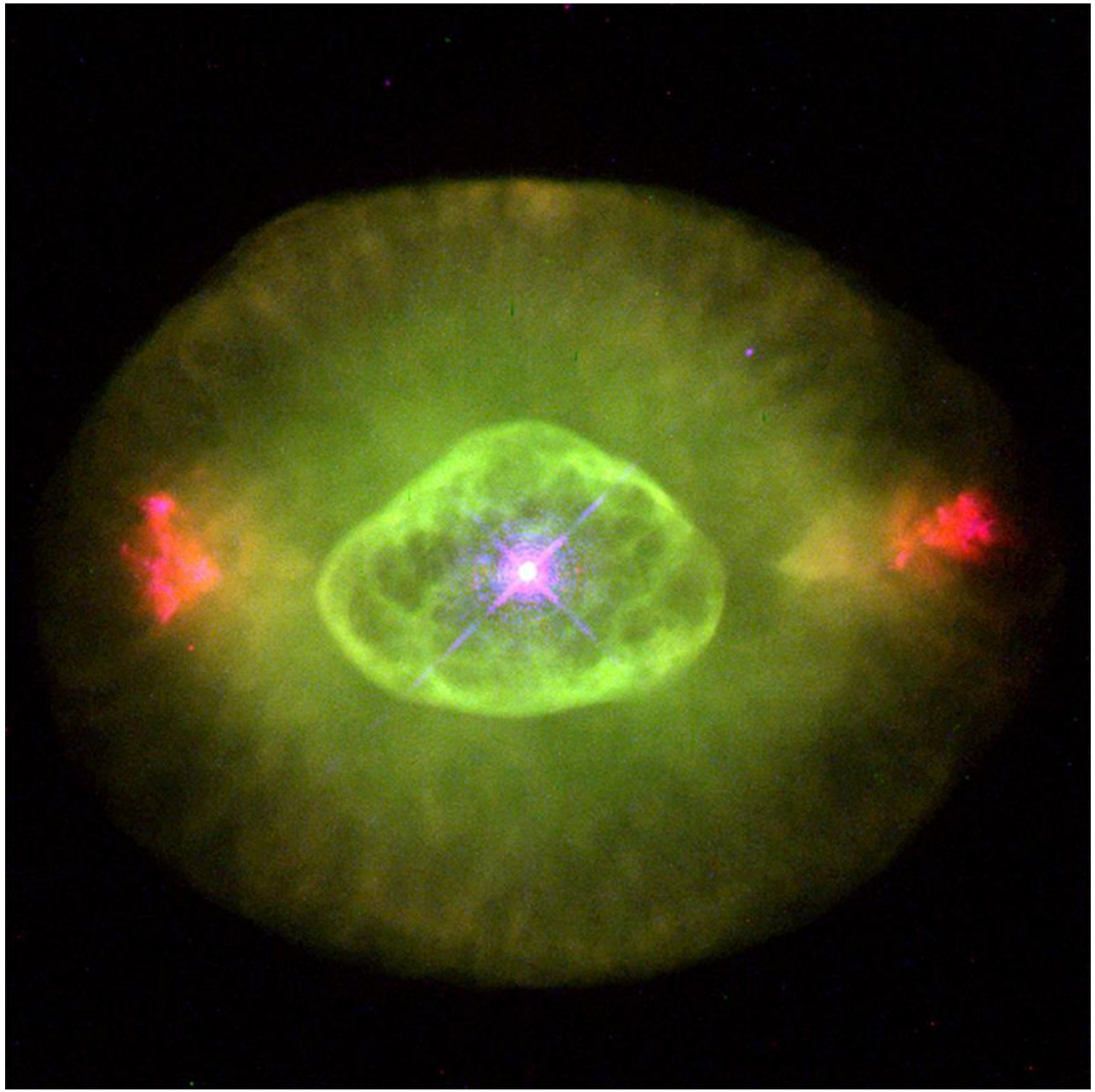
The Butterfly or Sadr Nebula in detail. Image Credit: Mark Blundell.

Further up the spine of Cygnus, just beyond its principal star, Deneb, is another vast nebula system: the North America Nebula (NGC7000) and tucked underneath it, the Pelican Nebula (IC5070). Of the two, the North America is undoubtedly brighter (at +4 mag, compared to the Pelican's +8 mag) and can be seen very well in large binoculars from a dark site. An OIII or H-Beta filter can be used successfully to enhance NGC7000 in widefield telescopes, but the complex does not respond well to magnification. Both nebulae are part of the same gas cloud, which may be ionised by emissions from nearby Deneb. If this is the case, their distance would be in the region of 1800+ light years away from our Solar System.


NGC 7000 North American Nebula
©2008 Mark L. Blundell

NGC 7000, The North America Nebula. Image Credit - Mark Blundell.

Last, but not least, is a much smaller object, the Blinking Planetary or NGC 6826. This nebula is 2.1 arc minutes in diameter and located towards Iota Cygni. Dimensionally, NGC6826 is fractionally larger than the Ring Nebula and about the same brightness. The "blinking" nature of this planetary is caused when an observer stares at the nebula's central star, at medium to high power, this overwhelms the eye and the nebula fades from view. When you look away to the nearby +8.5 magnitude star in the same field, the nebula reappears. This is not a unique phenomenon and is noted in other compact planetary nebulae with prominent central stars, but is best seen in the Blinking Planetary. Visually, the NGC6826 present two brighter regions on either side of its disc. These regions are Fast Low-Ionization Emission Regions or FLIERs for short. These FLIERs are parts of the planetary formation which are expanding at extreme speeds in comparison to the surrounding nebula. It is postulated that these areas are so dense that the ionising effect of the ultraviolet radiation emitted from the parent star cannot penetrate them. The Blinking Planetary and the Saturn Nebula are two of the best known examples of planetaries that exhibit these FLIERs.



NGC 6826, The Blinking Planetary. Image Credit: Hubble Image NASA/ESA, Public Domain.