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SKY GUIDE

Astronomical guide for
August 2025

The most up-to-date guide to planetary and lunar activity, comet news and space wonders.

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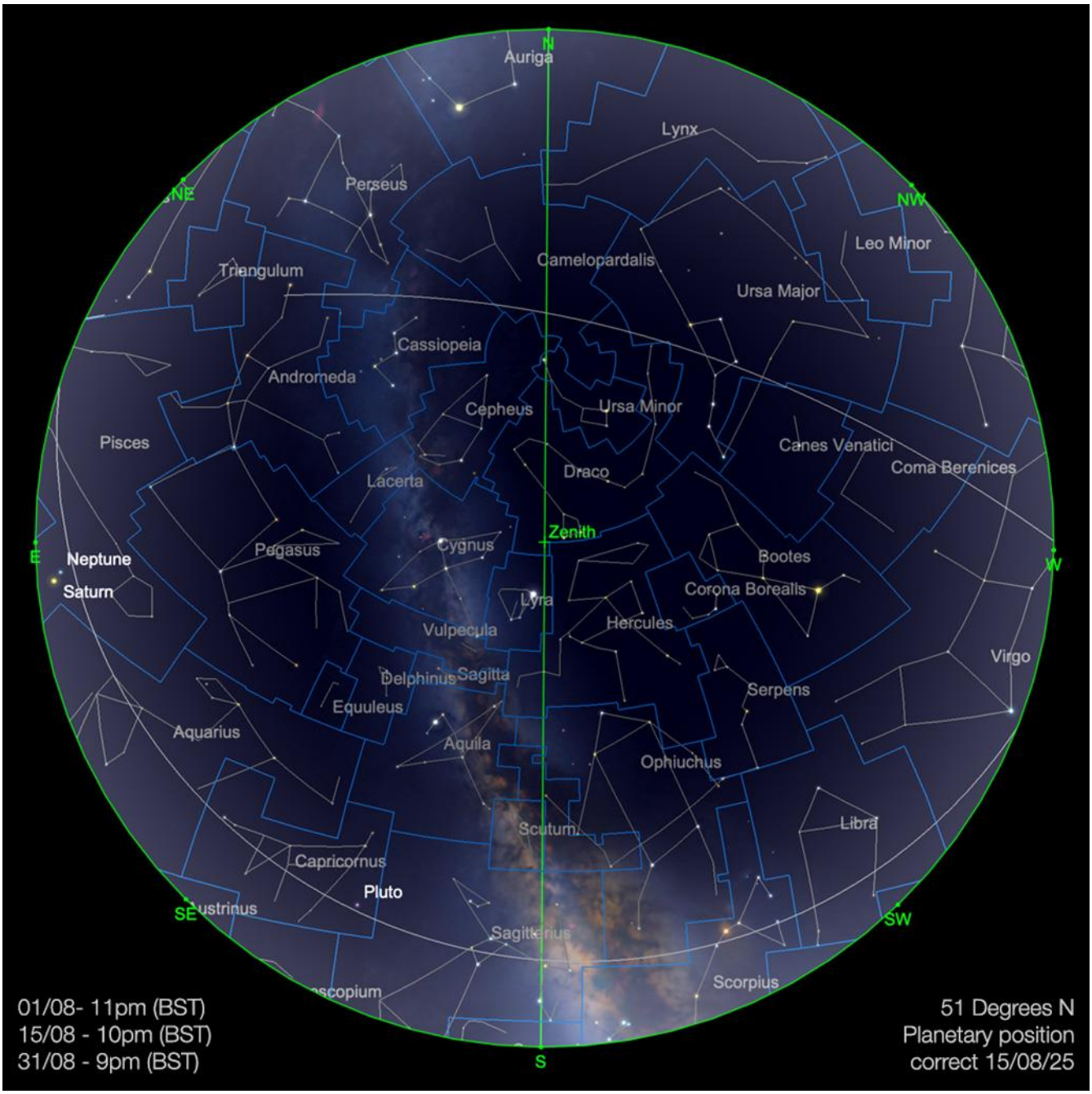
Expand your horizon



We arrive in August with steadily encroaching hours of astronomical darkness throughout the northern hemisphere for many readers. Though those in higher latitudes will have to wait a little longer for true astronomical darkness to return. For those in mid northern latitudes, around 50 degrees north, the beginning of the month will yield around 3 1/2 hours true darkness a night. By the time we get to the end of the month, this period of true darkness will increase to just under 6 1/2 hours. This increase has a significantly positive effect on the quality of observations and images taken. Those further south in the equatorial regions of the planet never have such marked extremes of darkness and sunlit hours and of course readers in the southern hemisphere, around similar latitudes will be experiencing nearly the opposite, with hours of darkness slowly decreasing.

Wherever you find yourself in the world, as ever, there's plenty to see in the skies above us this month.

The Solar System

The Sun

July’s number of recorded Sunspots was a lower than predicted (116 recorded, to the predicted 135). This is a distinct improvement on May's figures though, which were dramatically lower than expected. As previously commented upon, this is possibly be a sign that solar activity - while still pretty high - might be slowing from last Summer’s significantly higher than expected Sunspot numbers.

However, solar activity can rise and fall from month to month throughout the cycle, so (as mentioned in previous sky guides) it is often difficult to judge exactly when a peak has been reached. As mentioned in previous sky guides, peaks often show a “double peak”, so the recent couple of months may be the dip in the middle of just such a phenomenon. Activity is still high, compared to mean averages and the past couple of months have brought us some particularly impressive-sized Sunspots.

Websites such as www.spaceweather.com and Michel Deconinck’s monthly newsletter (Aquarellia Observatory Forecasts) cover various aspects of solar observations and provide valuable insights into the current state of the Sun. Signing up for the AuroraWatch app, developed by Lancaster University in the UK, is also highly recommended for those seeking advance warnings of impending auroral events.

The Moon

We start August with the Moon on the Virgo/Libra - at 7 day old First Quarter phase. The Moon will transit in the south around 7.00 (BST) on the 1st.

During the first week of August it will pass through Libra and dip down into the southerly part of the ecliptic: Scorpius and the non-zodiacal Ophiuchus and on into Sagittarius and Capricornus, where it will become Full on the evening of the 10th. Naturally, this part of the month, when viewed alongside the scant amount of astronomical twilight which many in the northern hemisphere are experiencing at

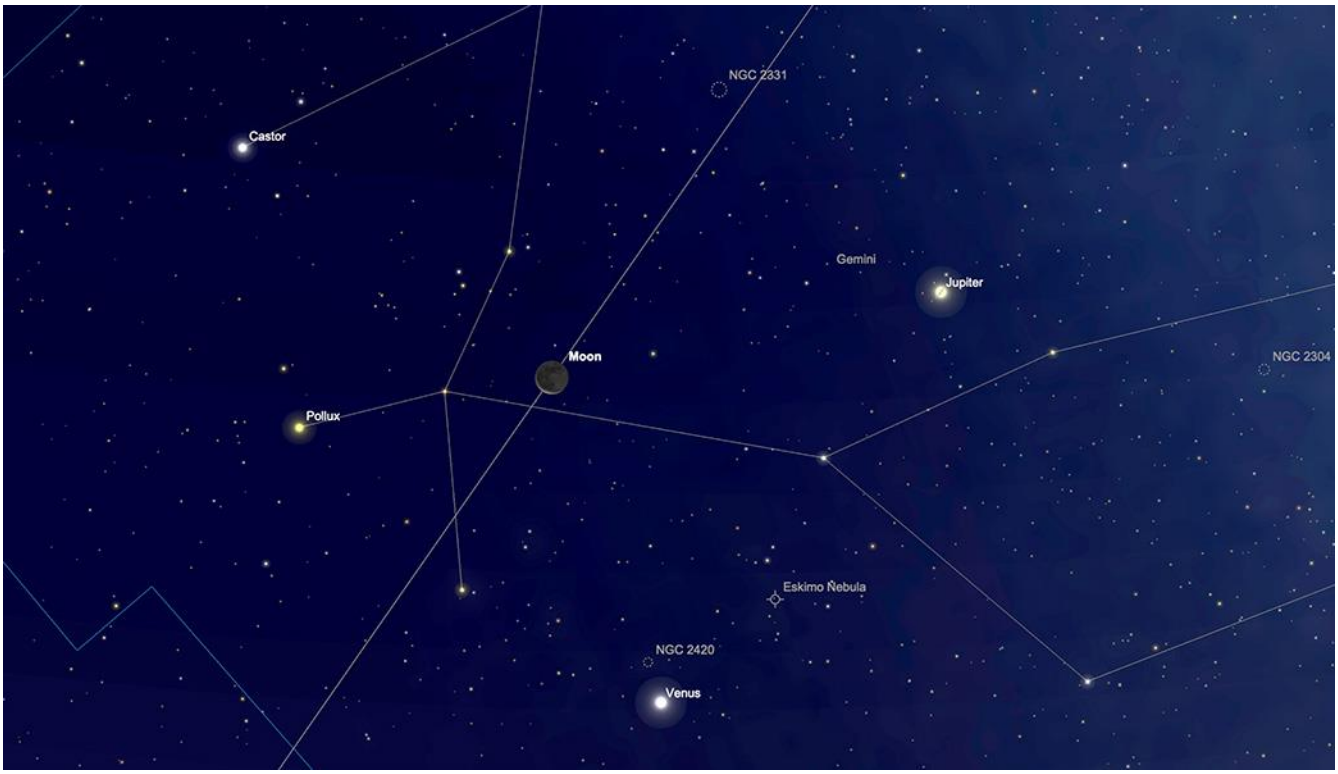
this time of year, make this time of the month a particularly difficult time for meaningful deep sky observing and imaging.

Our natural satellite then continues its path up out of the extreme south of the ecliptic, through moving into Aquarius and on into Pisces, where it will pass Neptune and Saturn on the evenings of the 12th and 13th and eventually reach last quarter phase on the 16th, while on the Aries/Taurus borders.

The Moon continues its journey sunward into Taurus and then Gemini, where it will form a loose morning pairing with Venus and Jupiter, for early risers on the morning of the 20th. The three worlds will be separated from each other in a triangular formation, by around 5-6 degrees. The following morning the tiny sliver of the very old Moon will sit around seven degrees to the north of the planet Mercury, all a resident of Cancer, by around seven degrees.

The Moon becomes new in Leo on the 23rd August. After this point, the Moon will become an evening object again, slowly rising away from the Sun during the final week of the month. The 3 day old waxing crescent Moon acts as an signpost to the whereabouts of the faint planet Mars on the evening of the 26th - the two residents of the Virgo separated from each other by around 4 degrees, both sitting low in the west after sunset.

We end the month on the 31st, with the Moon back at First Quarter phase in Scorpius, transiting at a little after 7.20pm (BST) and setting at around 10.45pm.

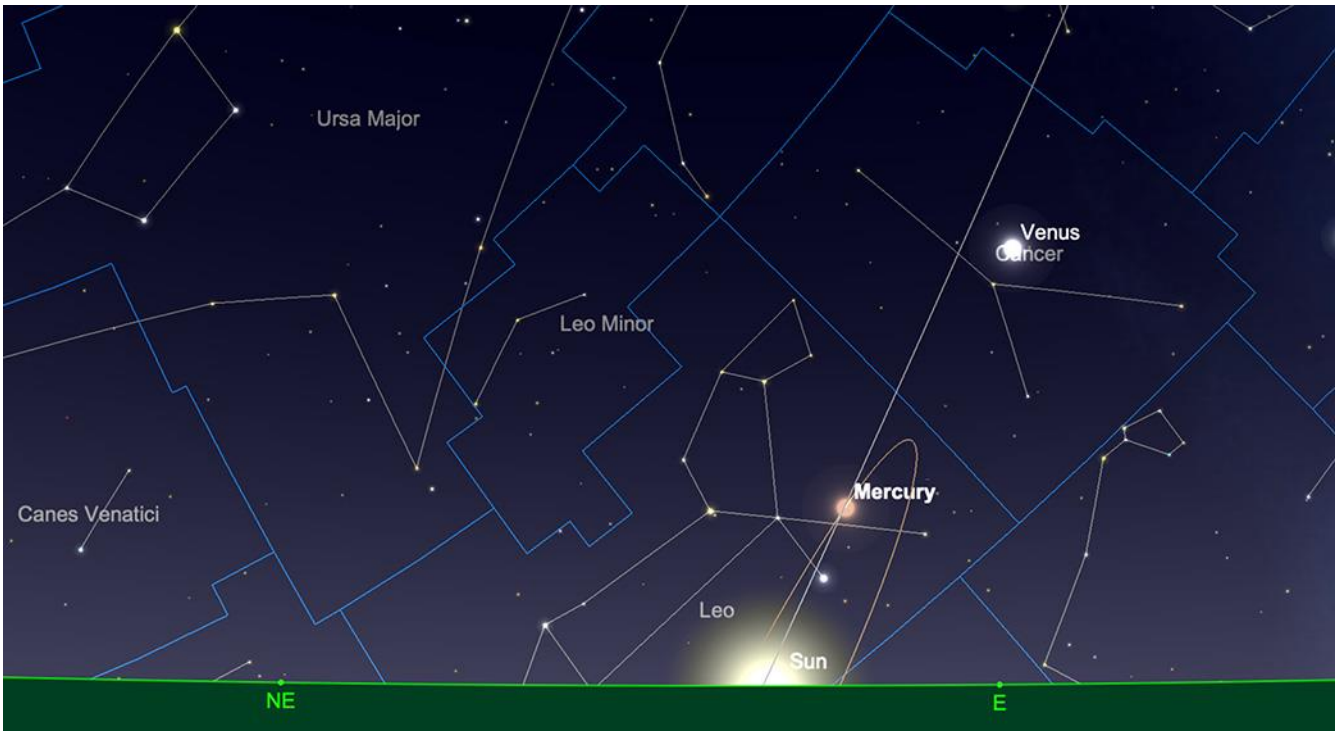


The Moon, Venus and Jupiter in Gemini, 20th August, dawn. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Mercury

We start August with Mercury at inferior conjunction - in between the Earth and the Sun and not visible to conventional observers. Mercury spends the first 2/3rds of the month climbing up out of the Sun's clutches in the morning sky, until it reaches maximum elongation on August 19th. At this point Mercury will resent a +0.0 magnitude, 7.5 air 2nd diameter disc, of around 40% illumination. Sitting around 14 degrees high in the east as the Sun rises, this will be an excellent time for northern hemisphere observers to try and find this illusive world. As previously mentioned, the slim crescent Moon joins Mercury in Cancer on the 21st, acting as a guide to the planet's location for those with clear horizons and a penchant for early rising.

The rest of the month sees Mercury increase its brightness and phase, as it loops back towards the Sun. By the 31st, Mercury will be -1.2 magnitude and a 5.6 arc second diameter disc, illuminated by 85%. While the planet will be just under 11 degree in altitude, by daybreak, Mercury's increased brightness will make it easier to find in the dawn sky.



Mercury at dawn, 31st August. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Venus

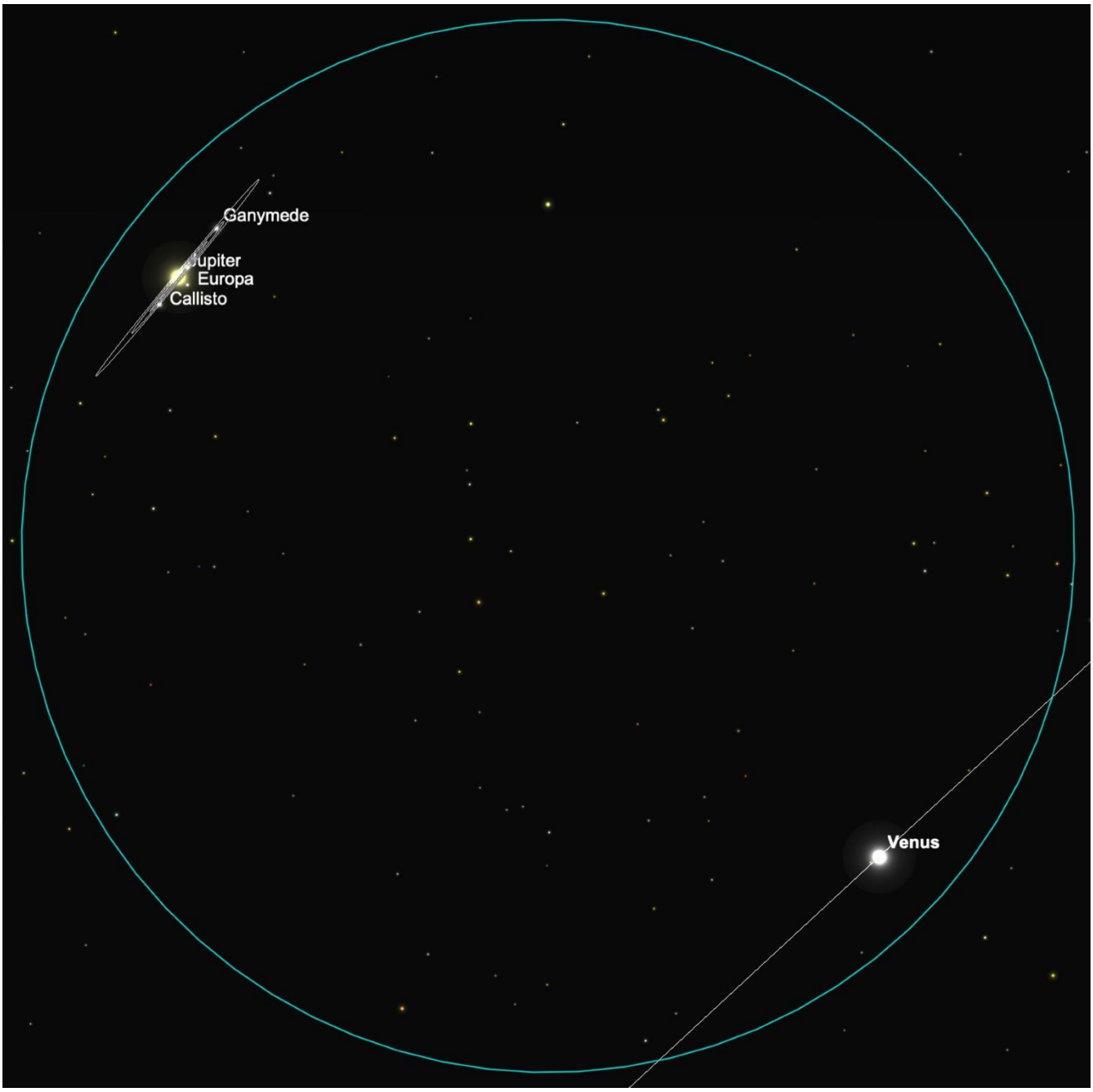
We start August with Venus on the Gemini/Orion borders, shining as brilliantly as usual at -4.0 magnitude. At this part of the month, Venus will present a 14 arc second diameter disc, illuminated by 75%. The planet will sit at around 26 degrees high, almost due east (as observed from 50 degrees N) at sunrise.

The morning of August 12th finds Venus and Jupiter in very close conjunction - the two worlds being separated by under a degree - making it easy to fit both worlds into a binocular and low-ish power telescopic field. Close conjunctions like this are always special to observe, as although they are line of sight effects, the impression they give of the scale of our solar system is palpable. The close pairing will also be a memorable sight for those without optical assistance, but those with binoculars and/or telescopes are encouraged to get up early and make the most of the event. Venus and Jupiter

will remain close throughout the month - but this is the spectacular peak of their morning encounters during August.

By mid-month, Venus will remain the same brightness, but will have diminished in diameter fractionally to 13 arc seconds across, though increased its phase to just under 80%. The planet now stands 27 degrees high at sunrise.

By the time we get to the end of the month, nothing much has changed as far as Venus is concerned - it remains at -4.0 mag brightness and while the planet has shrunk further to just over 12 arc seconds diameter, its increase in phase keeps pace with this, broadening to 84% illumination. The planet stands just over 26 degrees high in the east at dawn as observed from 50 degrees N) on the 31st.



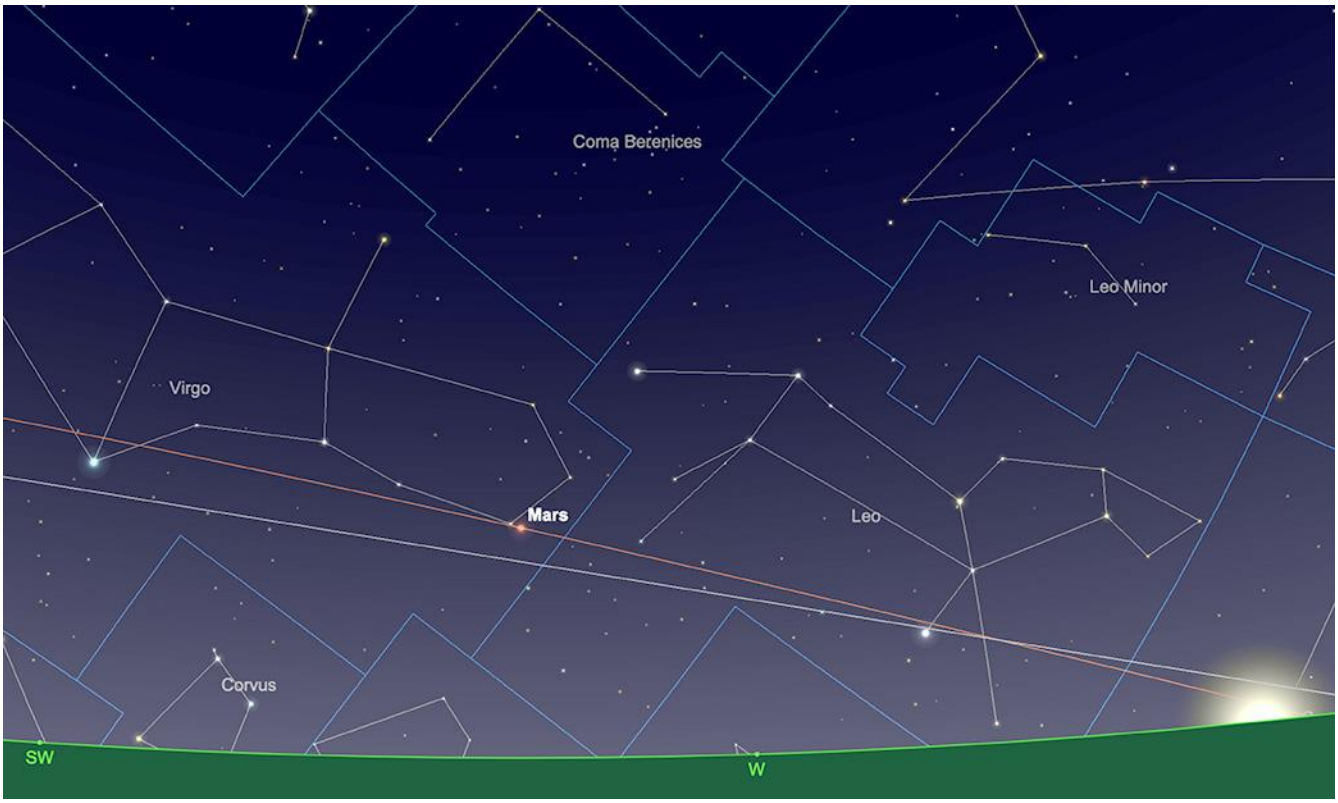
Venus and Jupiter in a 1 degree field, dawn, 12th August. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Mars

The diminutive Mars is still hanging around doggedly in the evening sky. At +1.6 magnitude, it is now at the lowest brightness it will get until it starts to brighten up again towards the end of the year. Mars' rather eccentric outer orbit can see it reach 2nd magnitude, at its faintest, depending on how far away

from Earth it gets. This particular cycle is not as extreme as this and as a result of orbital eccentricity, the planet will begin to brighten up again before superior conjunction, which it will reach in January. This is certainly not the norm for most of the outer worlds - Jupiter and Saturn especially, being much more regular in their orbits.

Mars is found equidistant from Spica in Virgo and Regulus in neighbouring Leo and roughly similar to Regulus in brightness. At 4.4 arc seconds diameter, it is hardly expansive in terms of an observing target and would require high magnification to be able to resolve any albedo features. However, the low elevation in the sky will make this completely impractical - with atmospheric seeing conditions reducing a high power telescopic view to mush. We must bide our time until Mars is in a better position to view, which will be towards the latter part of 2026.



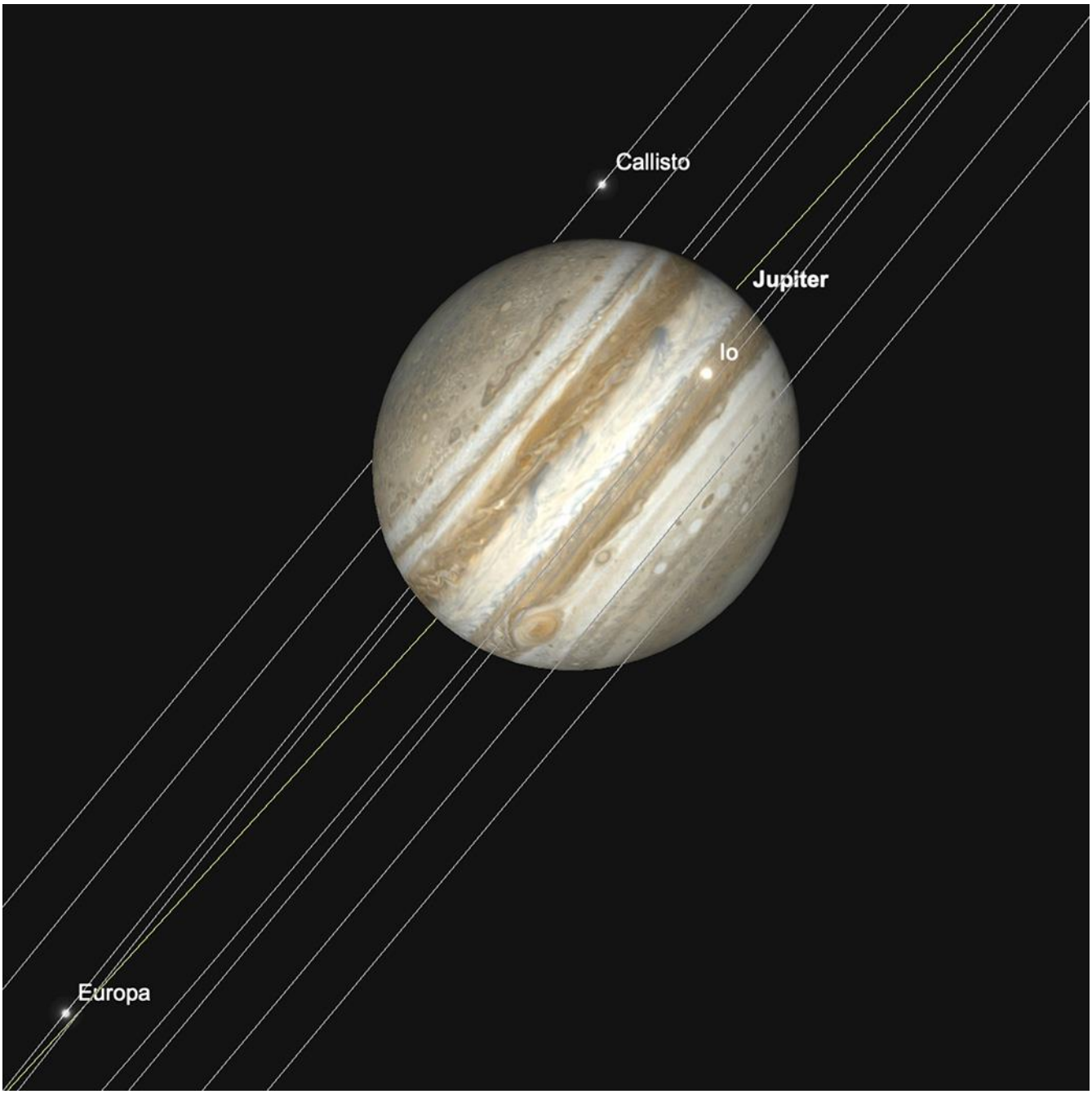
Mars, sunset, 1st August. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Jupiter

Jupiter is improving in the morning sky, as it draws further away from the Sun. We find the planet in Gemini at the month's beginning, shining at -1.9 magnitude and displaying a disc, just under 33 arc seconds in diameter. Jupiter will stand at around 20 degrees high in the east at sunrise (as observed from 50 degrees N), so is not ideally placed for mid northern hemisphere observations, but will still reward observing telescopically with modest magnifications.

By mid-month, not much has changed in terms of brightness and size of Jupiter. The planet will have just passed its close approach to neighbouring Venus, as previously described - but the two worlds will remain close throughout the month. Jupiter will now stand nearly 30 degrees high in the sky (as observed from 50 degrees N) - close to the point where seeing tends to improve significantly.

By the end of August, Jupiter has brightened very slightly to -2.0 magnitude and now shows a 34 arc second diameter disc. What has significantly improved is its altitude - the planet now stands at over 41 degrees high in Gemini as the Sun rises. Jupiter will continue to improve both in brightness and elevation as we move forward, though its next opposition is not until January 2026.



Jupiter, displaying a mutual GRS and Io transit, dawn 21st August. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Saturn

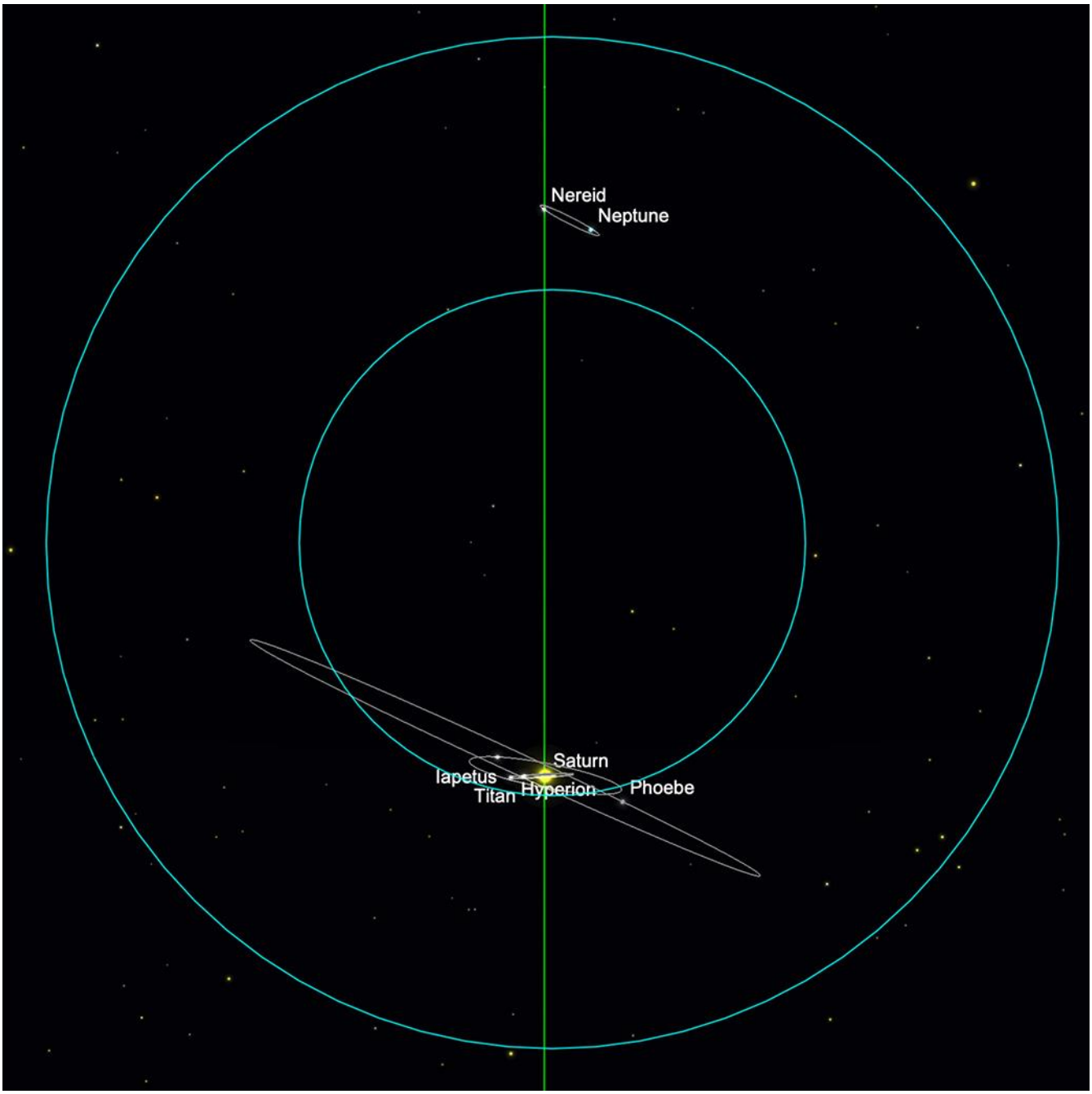
Saturn is found in Pisces during August and at +0.8 and just under 19 arc seconds diameter, is a reasonable target, despite its current thin ring aspect. Saturn rises a little before 11pm and transits at

a little before 5am the following morning at the beginning of the month. Subsequently, although its evening apparition is starting, the majority of the best conditions for observing Saturn at present fall in the very early morning.

Saturn is to be found very close to Neptune, as reported in last month's sky guide. At the beginning of the month the two worlds will be separated by about a degree - putting them easily in the same binocular field and that of lower power telescope eyepieces, in all but the longest focal length instruments. While Saturn is never outstandingly bright, it is easily the brightest of all the objects in its current part of the sky and as such, should not be too much of a challenge to find. Neptune is sitting to the north of its brighter neighbour.

By mid month, Saturn is static in terms of brightness and size and Neptune is still sitting nearby. Saturn will rise a little after 9.30pm and transit at just after 3.30am, standing over 36 degrees high in the south (as observed from 50 degrees N), when doing so.

Towards the end of the month, the Ringed Planet will have increased brightness very fractionally to +0.7 magnitude and will now display a 19.3 arc second diameter. Rising at just after 8.30pm, it will transit at 2.30am, attaining a height above the horizon of 36 1/2 degrees (as observed from 50 degrees N).



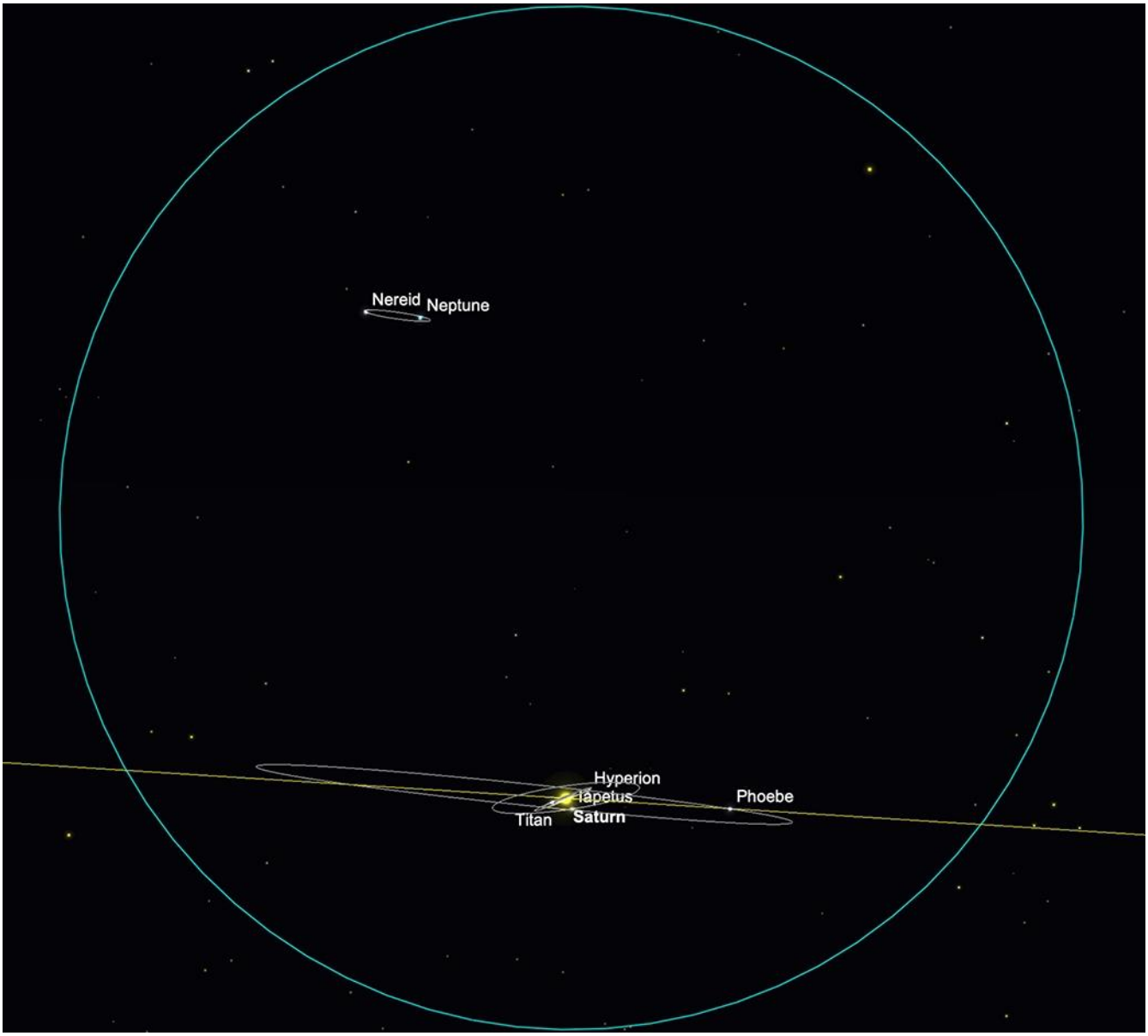
Saturn and Neptune in 1 and 2 degree rings, early morning, 1st August. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Uranus and Neptune

The two outer gas giants are a mixed bag this month. Uranus is gaining distance from the Sun in Taurus and will have attained a reasonable altitude from the horizon before dawn in early August. At

+5.8 magnitude and 3.5 arc second diameter disk, it is technically visible to the naked eye, but will be better positioned for observation by the early riser towards the end of the month.

Neptune, as previously mentioned is shadowing the much brighter Saturn in Pisces. Though at +7.8 magnitude and just 2.3 arc second diameter is only ever the preserve of binoculars or telescopes to observe. Its proximity to Saturn makes it much easier to find and identify than usual, so if you fancy braving the small hours (which in August in the northern hemisphere can be quite clement, depending on your location), then finding Neptune and its much easier neighbour should be relatively straightforward.



Neptune and Saturn in 2 degree field of view, sunrise, 1st July. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

Comets

There are no significantly bright comets observable at present. C/2024 E1 (Wierzchos) is generating some interest, as it a present shows a distinctively brighter showing than that predicted by light curve calculations. But this comet will not be at its best until the very early part of next year, so plenty can change between now and then. Even at its best, the comet will be fortunate to make 3rd magnitude.

Also making headlines is the comet 31 (ATLAS). This object appears to be a truly interstellar visitor, on a significantly hyperbolic orbit. This is the third such object to be positively identified and seems to be coming from the direction of the centre of our galaxy, in Sagittarius. This comet will make its closest approach to Earth after October's perihelion, in December 2025. At nearly 1.8 AU distance, at closest approach, the comet will not be especially close and is not expected to be higher than the 11th magnitude.

Meteors

The annual delight that is the Perseid meteor shower is upon us. This and the arguably even more spectacular winter Geminids are the two most reliable showers of the year. The Perseids are probably the better known and observed of the "top two", falling as they do in the northern hemisphere's summer, which makes them more enjoyable to be outside to observe.

The Perseids run from late July to later in August (occasionally commented to still be minimally active in early September) , which gives us a great window of opportunity to see them. The peak this year is on the 12th, which sadly co-incidences with a 90% illuminated gibbous Moon, which will be hanging around for much of the night. There's no getting around the fact that the Moon's presence will put a dent in observing the Perseids, but the best meteors will cut through moonlight and even harsh light pollution. Still, a better strategy may be to wait for a few days after the peak, when a window of

opportunity will open between sunset and moonrise when the sky will generally be darker and conditions better suited to meteor observations.

Despite the Moon’s spoiling circumstances somewhat, if you are out and witness a meteor in August it is likely to be a Perseid.

The Perseids are typically swift, bright meteors, some which leave persistent trails and are formed by debris released from the comet 109P/Swift-Tuttle, during its recurrent passages through the inner solar system. The shower earned the name "Perseids" due to the location radiant, the apparent point in the sky from which they appear to originate, being situated within the prominent northern hemisphere constellation of Perseus. However, as those who observe the Perseids can attest to - the meteors of this shower can be seen in any point of the sky.

A Perseid Meteor streaks through the Andromeda-Pisces borders. Image credit, Kerin Smith.

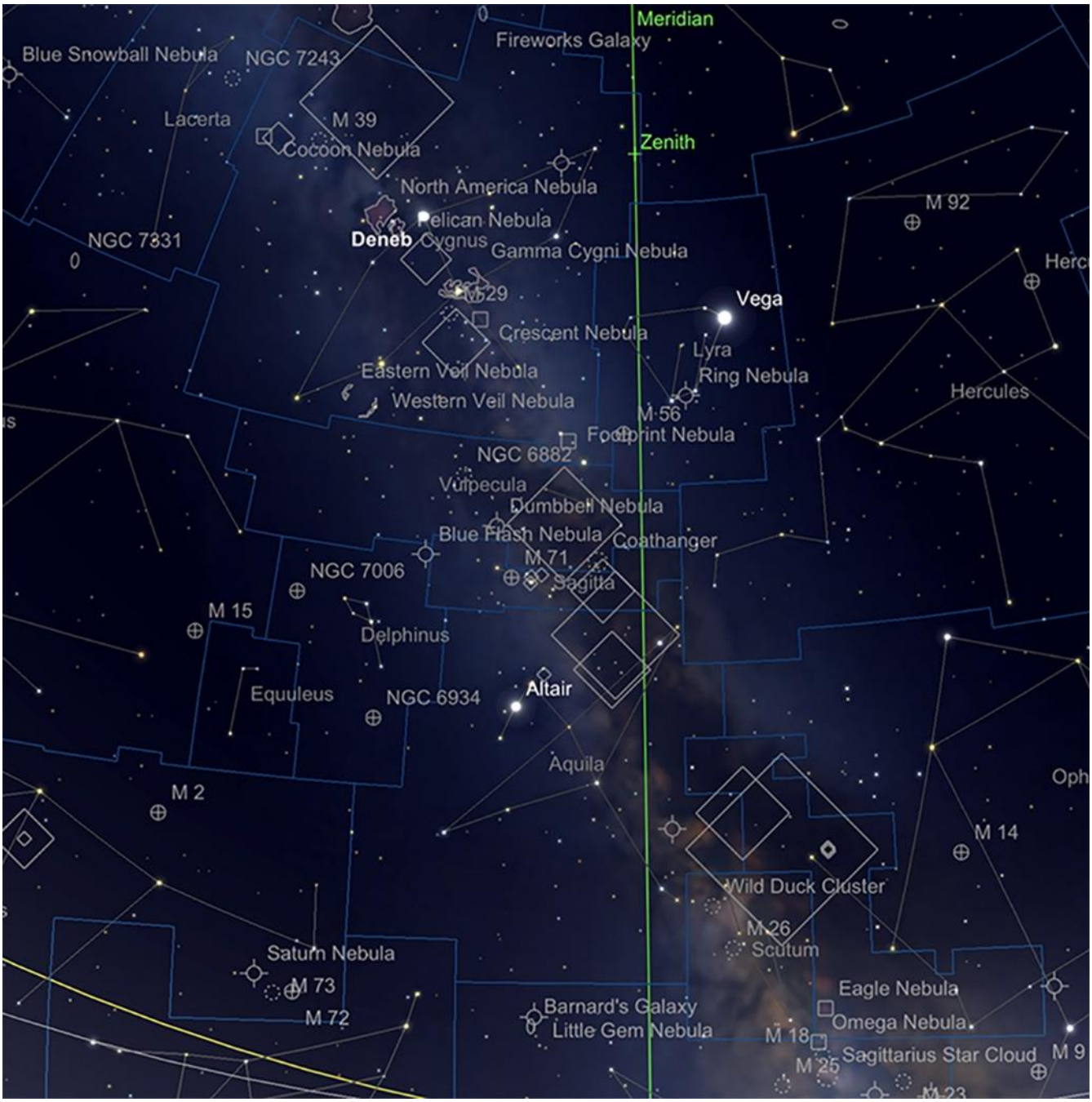
Noctilucent Clouds

Noctilucent Clouds are often seen in the summertime - their bright gossamer/web-like structures can normally be seen low on the northerly horizon, between latitudes of 50-65 degrees, when the Sun is between 6 and 16 degrees below the horizon. These clouds are mysterious - there were no recorded sightings of them before 1885. Some researchers believe they are formed as a result of volcanism, human-induced atmospheric pollution, or even the condensation of water vapour along the trails of meteors. Interestingly, a significant link between the power of the Northern Polar Stratospheric Vortex and the production of NLCs in the Southern Polar Mesosphere (the atmospheric layer above the Stratosphere) has been found by analysis of ground based data and that gleaned from NASA climate satellites. It would appear that when the Northern Polar Vortex is particularly strong, this negatively affects the production of NLCs over the Southern pole over 12,000 miles away. These interconnections are a sure sign of how little we truly understand the mechanics of the atmosphere of our home planet and how much is still potentially to be uncovered.

Whatever their origins, now is the best time to see NLCs from Northern latitudes. Interestingly, whilst Noctilucent Clouds have been observed in the Southern Hemisphere, their incidence appears much fewer than their Northern Hemispherical counterparts.

DEEP SKY DELIGHTS - THE SUMMER TRIANGLE, PART 1: AQUILA, VULPECULA, SAGITTA AND DELPHINUS

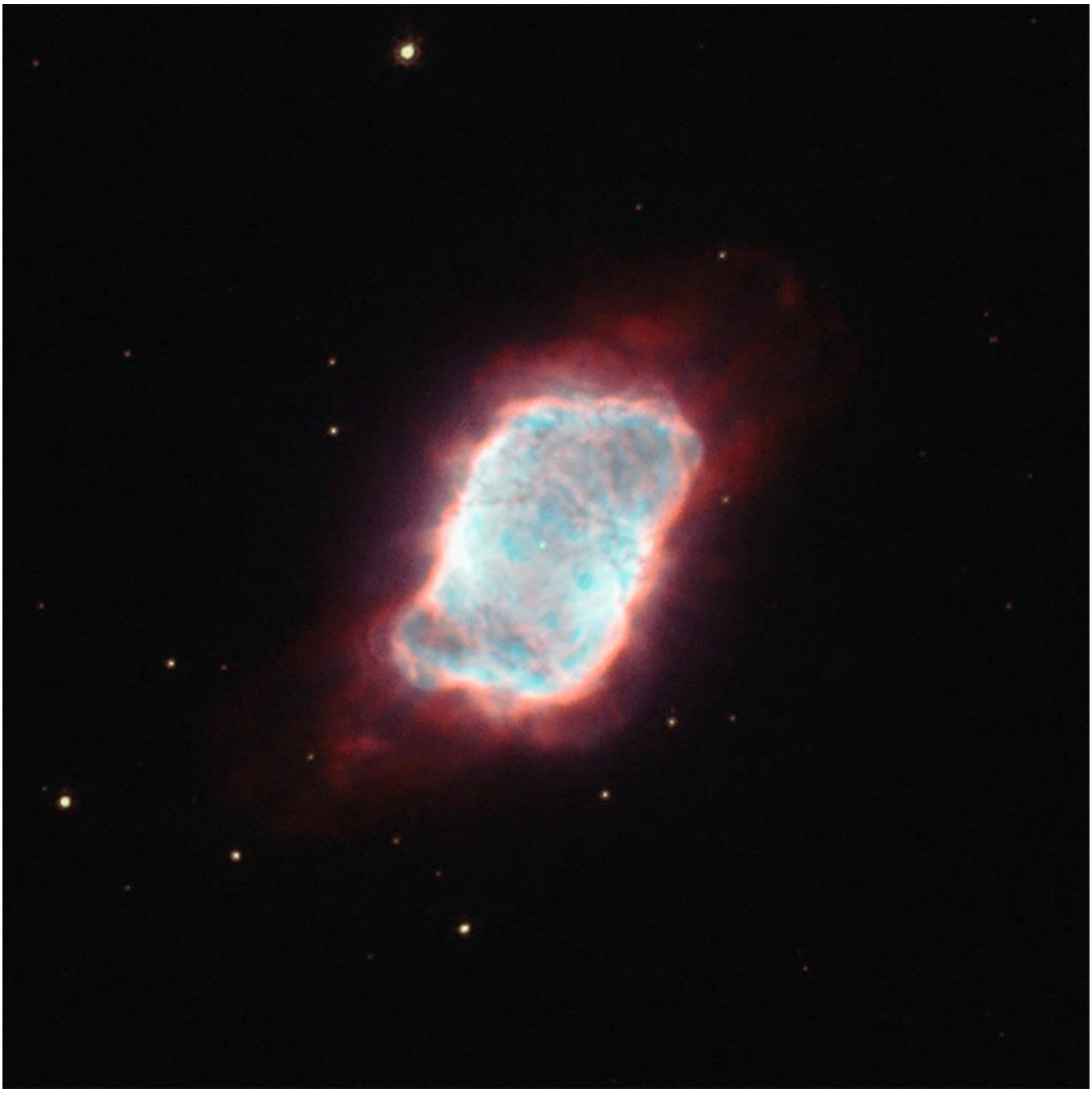
The Summer Triangle is an asterism that consists of the stars Vega, Deneb and Altair and was a term first associated with these stars by the Austrian astronomer Oswald Thomas in the early-to-mid 20th century, when he referred to it as Grosses Dreieck (Great Triangle) in the late 1920s and Sommerliches Dreieck (Summerly Triangle) in 1934. This area of sky takes in a huge swathe of sky: the constellations of Cygnus, Lyra, Aquila, Vulpecula and Sagitta. In part one of our coverage of this area of the heavens, we will take in the objects contained within the latter three of these constellations, plus some objects in the neighbouring adjacent constellation of Delphinus. This rich area of the Milky Way and its surroundings contains some of the best deep sky objects in the whole sky.



The Summer Triangle. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.com.

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

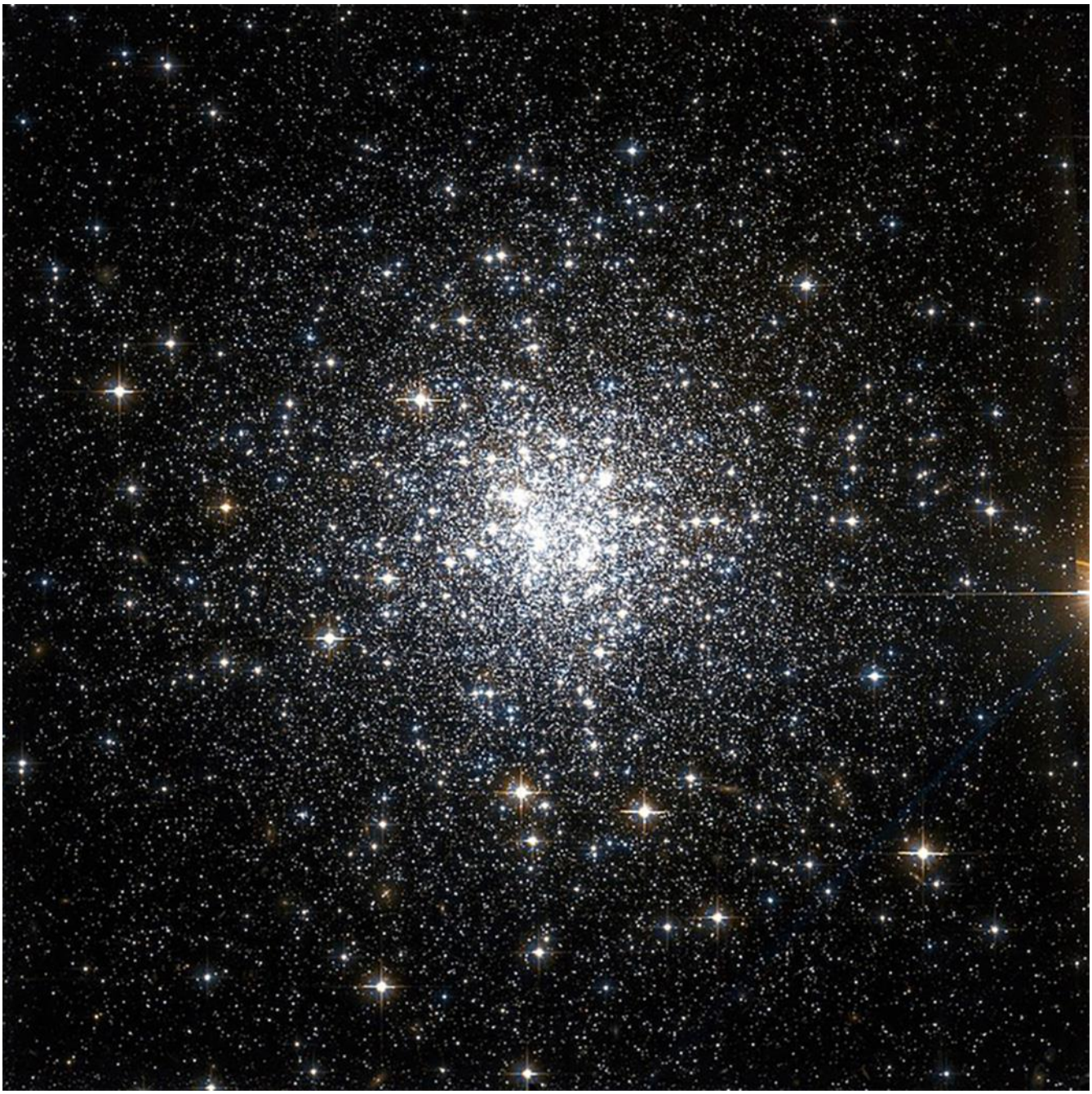
years distant, though others think it a closer object at around 5000 light years from us. The Phantom Streak is notable for the possibility that its central star, a white dwarf remnant of a star much like the Sun, may be running out of hydrogen fuel and its dropping in luminosity. This means the Phantom 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.



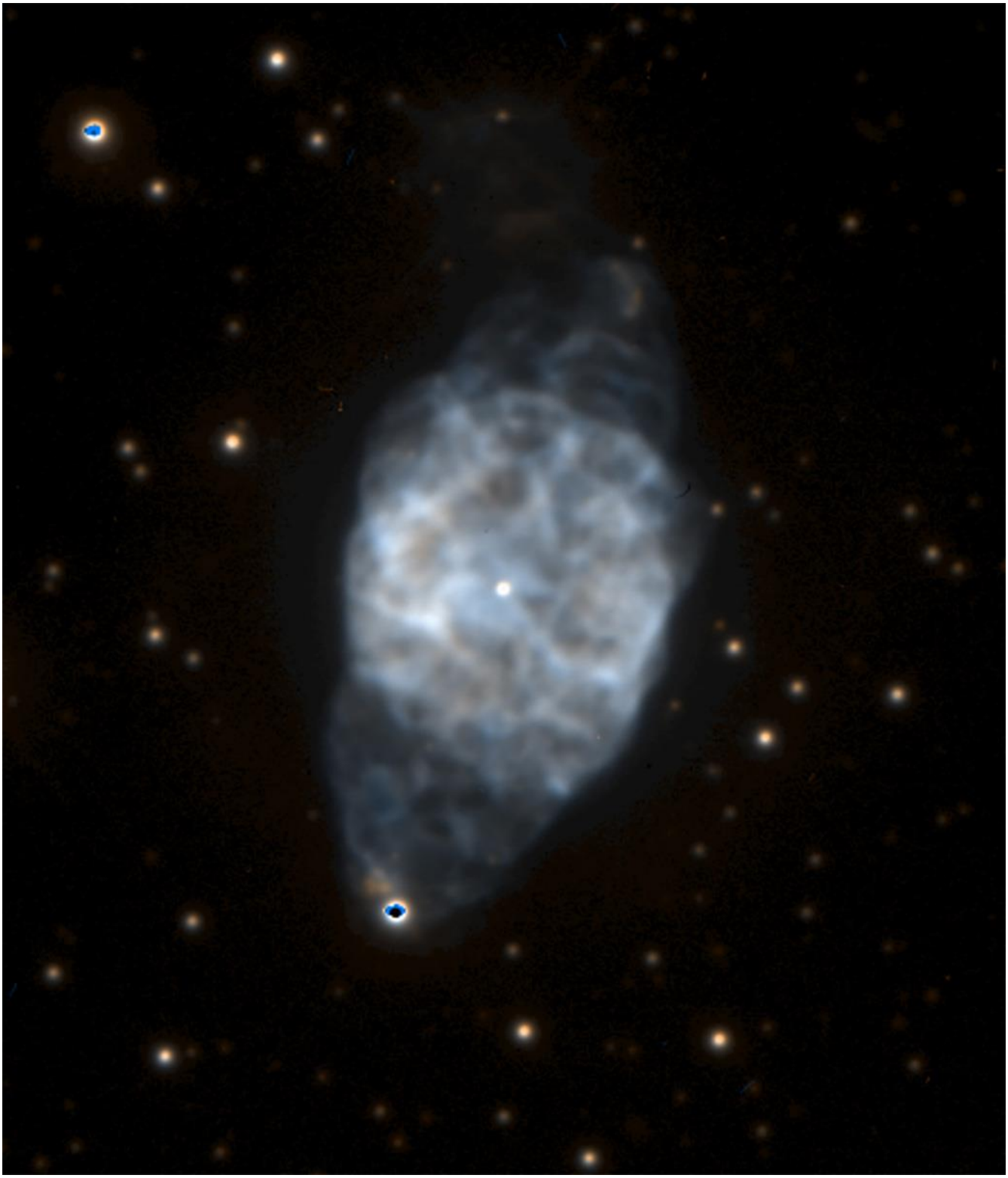
NGC 6934. Image Credit: Hubble Image NASA/ESA, Public Domain.

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.

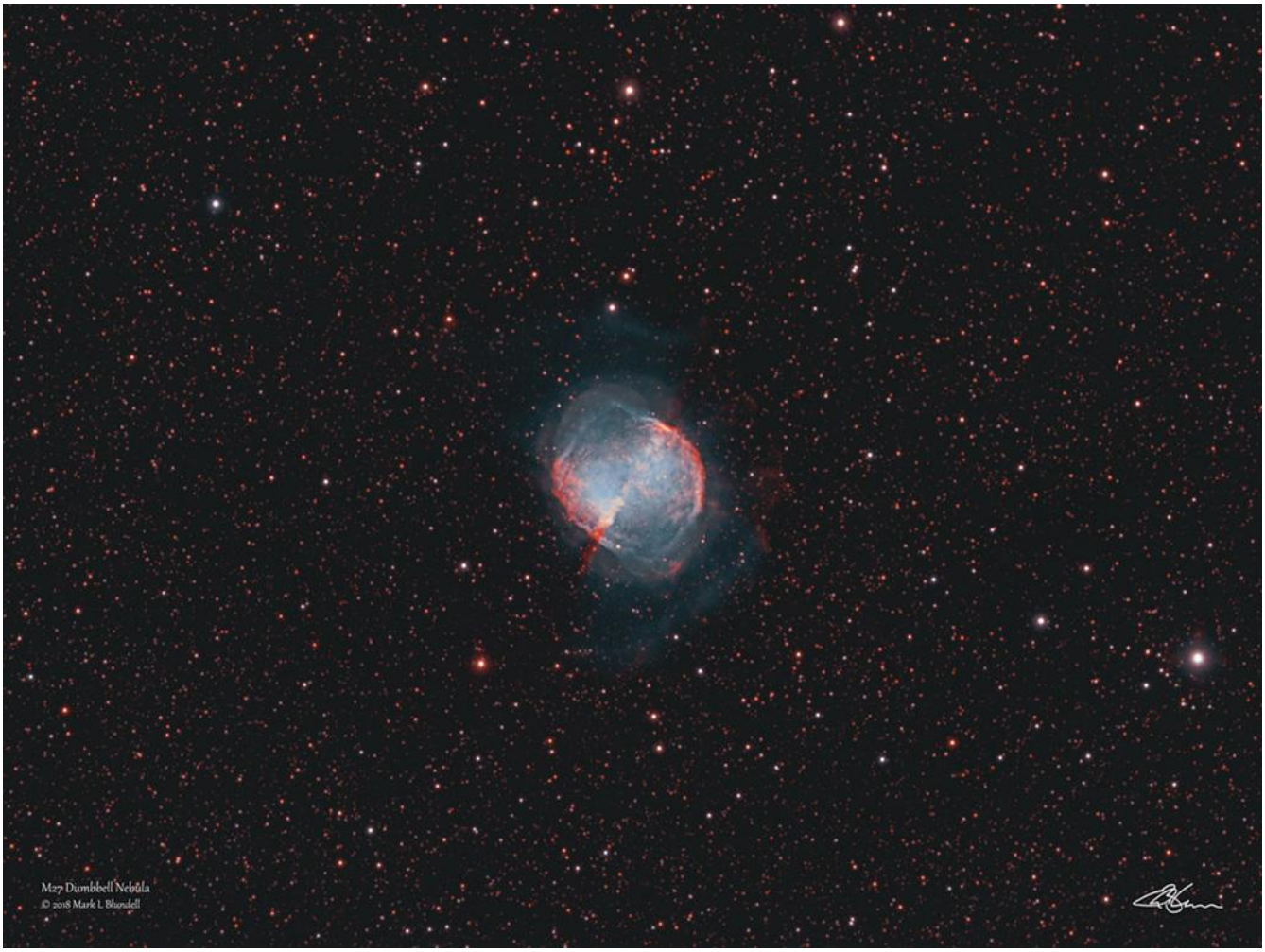
Discovered in 1746 by Philippe Loys de Cheseaux, M71 is a very loose globular, which was perhaps understandably classed as an open cluster for a considerable amount of time. Binoculars show it well, but smaller telescopes will start to resolve it into stars. At 3.3 arcminutes diameter and +8.18 mag, 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.

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.

Chart showing the location of The Coathanger Asterism. Image created with SkySafari 6 for Mac OS X, ©2010-2024 Simulation Curriculum Corp., skysafariastronomy.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, The Dumbell Nebula. 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.