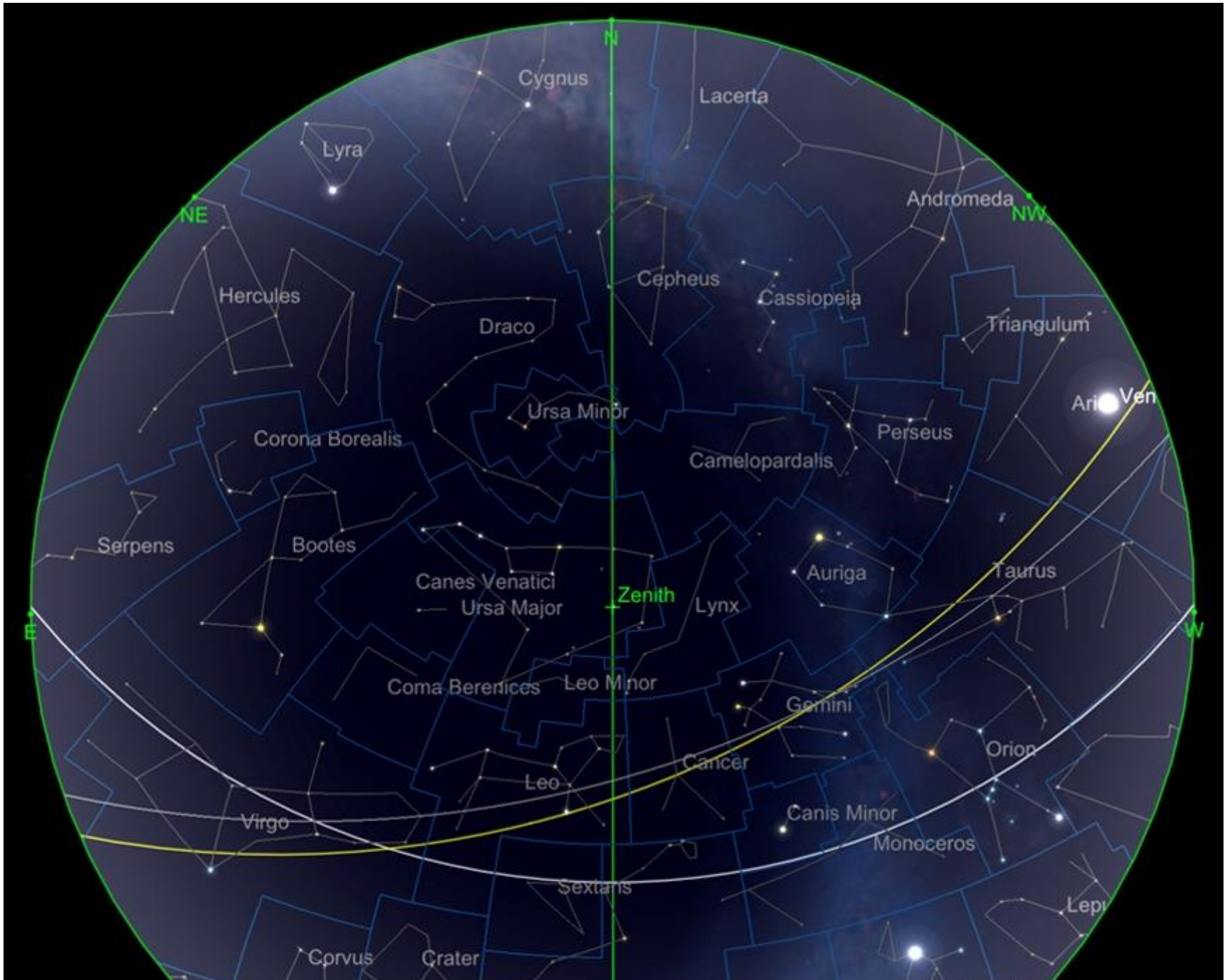
N
Cygnus
Lacerta
Lyra
NE
Andromeda
NW
Cepheus
Hercules
Cassiopeia
Draco
Triangulum
Ursa Minor
Ari
Ven
Corona Borealis
Perseus
Camelopardalis
Serpens
Bootes
Auriga
Taurus
Canes Venatici
Zenith
Ursa Major
Lynx
E
W
Coma Berenices
Leo Minor
Gemini
Orion
Cancer
Leo
Canis Minor
Virgo
Monoceros
Sextans
Lepi
Corvus
Crater

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We find ourselves at the annual crossroads that is March, with two significant events occurring that have wider ranging consequences for astronomical observations. First of all, the Vernal Equinox, which occurs this year on the 20th March. This is technically the halfway point between Winter and Summer and the time where the Sun crosses the celestial equator into the sky's northern hemisphere. After this point, very gradually, those in the northern hemisphere start to experience greater hours of daylight than night - though the geometry of our planet and it's orbital tilt, means that these effects aren't felt all over the world in exactly the same way. More equatorial parts of the planet never experience as extreme differences in the shift hours of darkness or light at certain times of the year. However, for those of us at more extreme latitudes, the move of the Sun to the celestial northern hemisphere this has obvious repercussions: most significantly for those seeking true darkness to observe or image deep sky targets - the lack of which peaks at midsummer.

The second event that has secondary repercussions for observations, is the annual changeover from standard time to daylight saving time, which occurs in Europe on 29th March this year, as a result of the equinox. The old "Spring Forward/Fall Back" adage give you a clue which direction the shift is taking place. This change is most often justified on the grounds of maximising working daylight hours, subsequent productivity and (arguably) to save energy. This has the instantaneous result of the sky being lighter at a later time of the evening for us in the northern hemisphere.

Of course, what works for the northern hemisphere has exactly the opposite effect in the southern hemisphere, who will be experiencing their Autumnal Equinox at the same time, which will precede the shift to standard time in some of these parts of the planet.

Wherever you find yourself, as ever, there's plenty to see in the skies above us this March - so let's see what lies in store for us…

The Solar System

The Moon

The Moon starts March in Taurus, just a day shy of First Quarter. This is one of the Moon's "Evening Spring Crescent" phases and one of the finest ties of the year to observe the Moon from the Northern Hemisphere, as it is at these times that angular separation from the horizon is at its greatest for those of us in the temperate northerly parts of our planet. The Moon will be transiting in the south around sunset during the early part of the month and will subsequently appear around its highest point in the sky.

The Moon reaches First Quarter on the 2nd, while still residing in Taurus and can be found just above the Hyades, including Taurus' principle star, the order giant Aldebaran. Those with telescopes and binoculars are encouraged to get out with them if it's clear in your locality and check out the detail visible down the terminator - the dividing line between the Moons' light illuminated side and dark side which remains in shadow, out of the reach of the Sun's rays. At this time of the month, very dramatic long shadow detail is visible along the ranges of mountains which border the northern Mare Imbrium (The Sea of Rains): the Montes Alpes, Apennius and Caucasus. These ranges are the ring wall of the massive impact crater that flooded with lava and cooled to form the 1200 km / 750 mile-wide Mare Imbrium. This impact - understandably - was a spectacularly violent event, which occurred in the late heavy bombardment period of the Moon's history, where protoplanetary debris of some appreciable size still littered the inner solar system. This impact was so violent that the forces transferred through the Moon's interior by the initial impact are thought to have formed the distinct grooved marks which litter the terrain around the crater Van De Graaff on exactly the opposite side of the Moon from Mare Imbrium. The smooth floor of the Mare belies the chaotic nature of the feature's inception and at this time of year the long shadows cast by the low Sun's rays falling on the deep greys of the sea floor are one of the most evocative sights in astronomy. Take a look yourself.

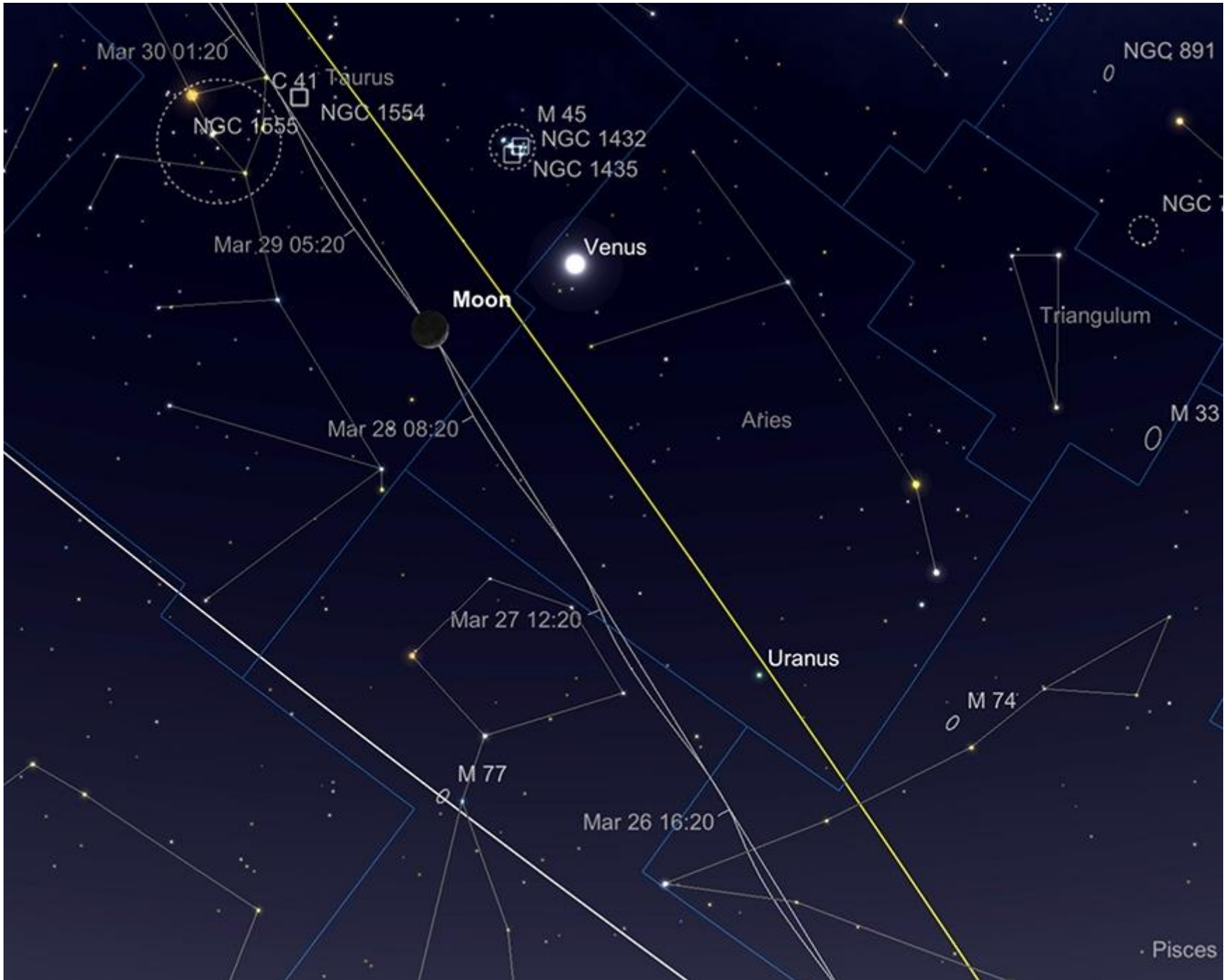

Mare Imbrium
Moon

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

The Moon reaches Full in the eastern part of Leo on the 9th. Naturally, this is one of the least favourable parts of the month for deep sky observation or imaging without some pretty serious filtration.

Last Quarter is reached in mid-month, on the 16th, when the Moon will be resident of the non-zodiacal constellation of Ophiuchus and will be low in the morning sky in the south, transiting at sunrise. The Moon then dips lower through Sagittarius, before beginning the climb north up through the Ecliptic until it becomes New in Pisces on the 24th March. Sliding to the south of the Sun, our natural satellite will be out of the way for deep sky observers and imagers alike, making this the most favourable part of the month for these activities. Check out what extra-solar system objects you can observe during this period in our deep sky section, later in this sky guide.

From this point, the Moon becomes an evening object and begins rising through a very steep part of the ecliptic from a temperate northern hemisphere perspective, gaining altitude night by night as it moves through the constellations of Cetus, Aries and into Taurus (being found close to Venus and the Pleiades on the evening of the 28th). Eventually we reach the end of the month on the 31st, where we find the Moon at one of its highest points north in the Ecliptic - standing nearly 60 degrees high in the SW at sunset (from latitude 51 degrees N). This is another of the "High Spring Crescents" - the most northerly of the year, in fact - and provides excellent opportunities for observation and imaging from temperate northern climes.


Mar 30 01:20
C 41
Taurus
NGC 1554
NGC 1555
M 45
NGC 1432
NGC 1435
NGC 891
Mar 29 05:20
Venus
Moon
Triangulum
Aries
M 33
Mar 28 08:20
Mar 27 12:20
Uranus
M 74
M 77
Mar 26 16:20
Pisces

The Moon and Venus, sunset, 28th March. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

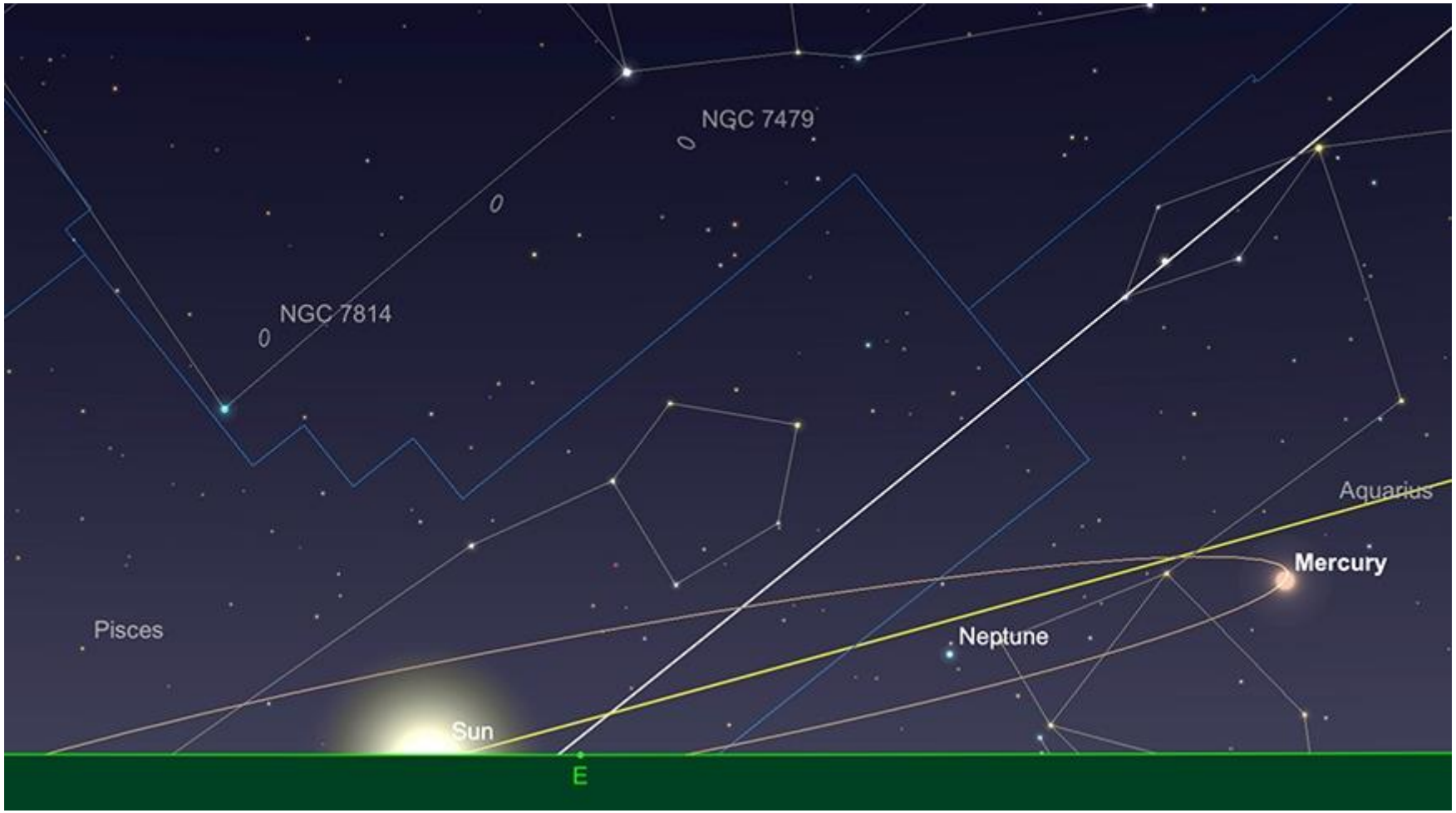
March really is an exceptional month for evening observation of the Moon - so get out there and make the most of it.

Mercury

While at the beginning last month, Mercury was potentially at its best apparition for evening observation, nothing Mercurial stays the same for long. The beginning of the month sees Mercury emerging from late February's Superior Conjunction and on the morning side of the Sun, but unobservable, as it is at a very dim +3.3 magnitude.

By mid-month, Mercury has improved a little in brightness, but will still be very difficult to find in the glare of the morning sky. At +0.6 mag, and 8.7 arc seconds across, it's of reasonable size and brightness, but stands just over 6 degrees high in the sky at sunrise (from latitude 51 degrees N).

Towards the end of the month, on the 24th, Mercury is to be found at greatest western elongation, but will have sunk south in the sky, now being just a little over 4 degrees high at sunrise (from latitude 51 degrees N). Observers in the equatorial regions of our planet will have a much better view of the innermost planet at this time. It will be much more of a challenge to even find the planet, much less hope to make any meaningful observations of it for most of us in the temperate northern hemisphere at this time.



Mercury at sunrise, greatest western elongation, March 24th. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

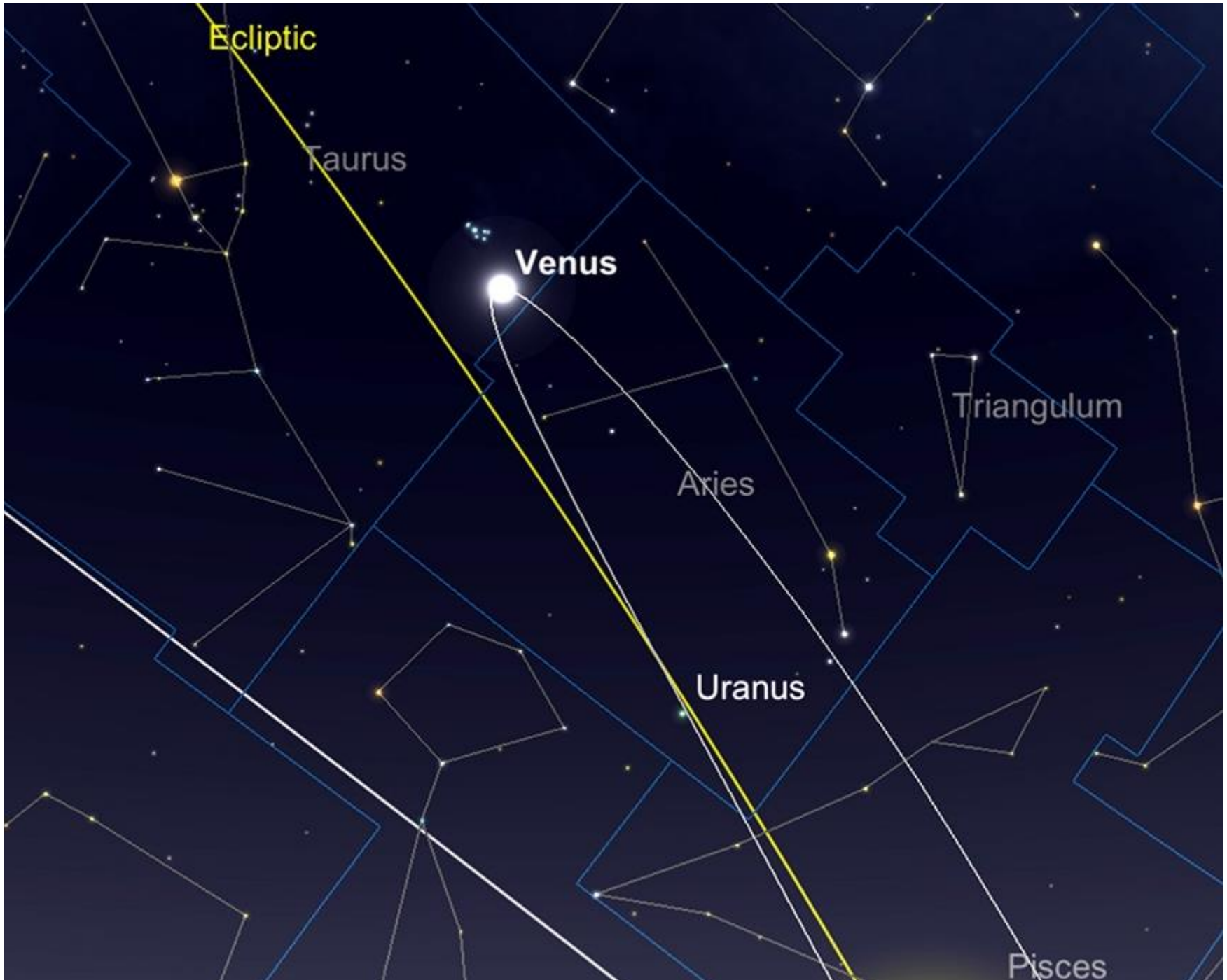
Venus

At the beginning of the month, Venus is an evening target, found in Pisces at -4.2 mag, showing a 18.9 arc second diameter, 62% illuminated disk. The planet has been very well-placed for observations over the past couple of months and is still creeping north in the ecliptic and now stands nearly 39 degrees high at sunset (from latitude 51 degrees N). The planet is separated from the Sun by 44 1/2 degrees. There will be no mistaking Venus in the sky after sunset - it will be blazingly bright. Brighter, in fact than any natural object in the sky bar the sun and Moon. The light from Venus will be bright enough to cast shadows. It's this brightness that makes Venus so attractive in a wide field setting, but such a challenge to observe. As we've explained before in previous Sky Guides, heavy Violet filters - the #47 Wratten classification - will give visual observers the best chance to catch glimpses of Venus' cloud formations, particularly the prominent equatorial "V" shape that can be seen at times.

By mid-March, Venus has increased its separation from the Sun to nearly 46 degrees, but only stands a little higher at sunset - just under 42 degrees (from latitude 51 degrees N). The planet is fractionally brighter at -4.3 mag.

Venus reaches greatest eastern elongation from the Sun on the 24th. By this point the planet is over 46 degrees separation from the Sun and will stand over 40 degrees high at sunset. The planet will now be 23.5 arc seconds diameter and will have attained a magnitude of -4.4. Venus' phase at this point will be a little over 51%.

Venus ends the month, in Taurus, at -4.4 mag, separated from the horizon by just over 40 degrees at sunset. Venus presents a 25.4 arc second, 47% illuminated disk. Venus will continue to increase in brightness, while decreasing its phase as seen from our perspective on Earth. This is due to Venus drawing nearer to us on its faster interior orbit. The next couple of months will see our neighbouring planet truly become a close neighbour within the solar system. While Venus will start to loose altitude from our perspective, there are still a good deal of observational and imaging opportunities ahead of us, as far as Venus is concerned. However, later March's peak in angular separation from the horizon will give us perhaps the kindest conditions for observations during this current Venusian apparition - and so shouldn't be missed.


Ecliptic
Taurus
Venus
Triangulum
Aries
Uranus
Pisces

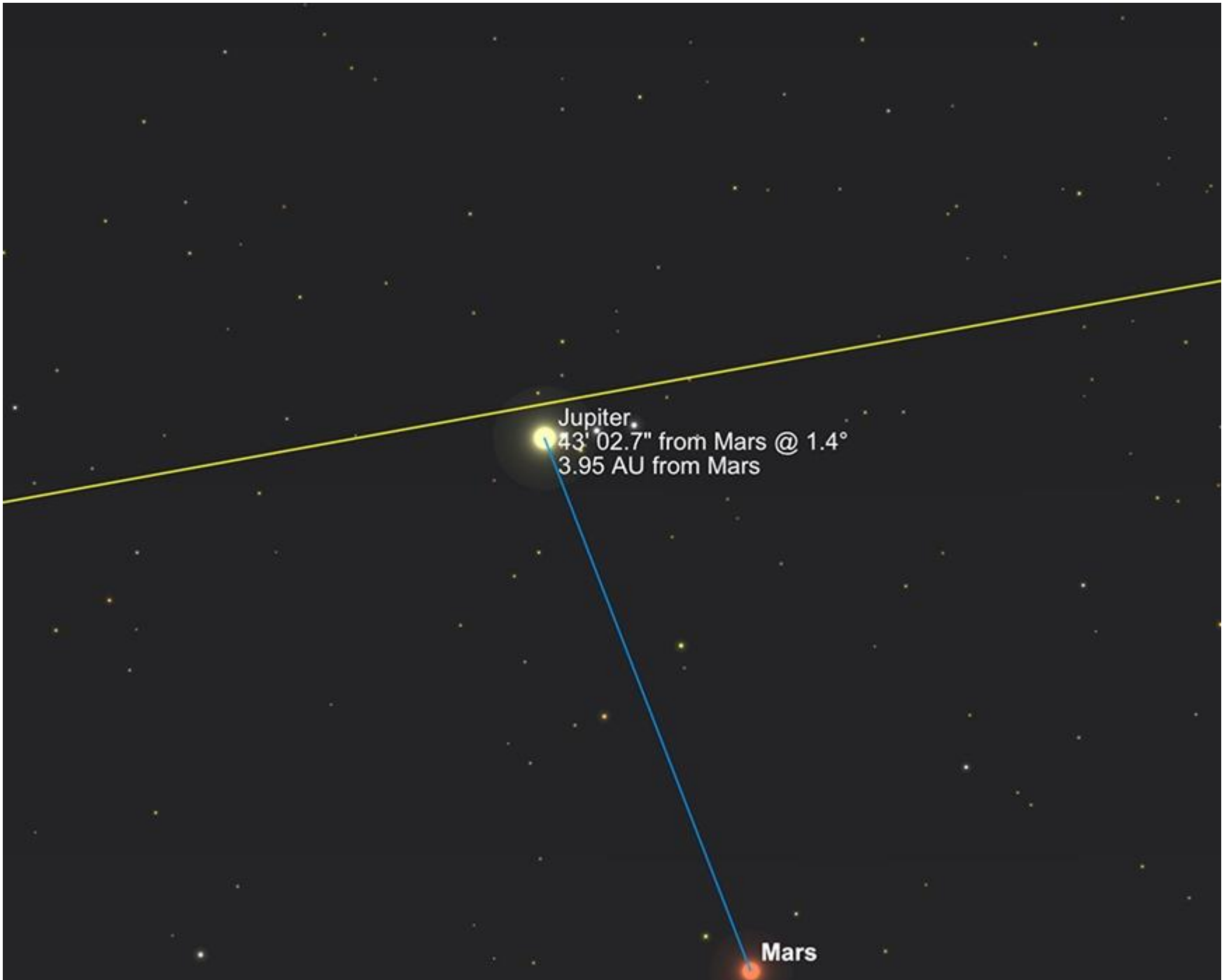
Venus at sunset, 31st March. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Mars

At the beginning of the month, Mars is now found in Sagittarius at a steady, if unspectacular, +1.1mag. It is 5.5 arc seconds in angular diameter and the Red Planet stands just under 13 degrees high, in the SSE at daybreak (from latitude 51 degrees N).

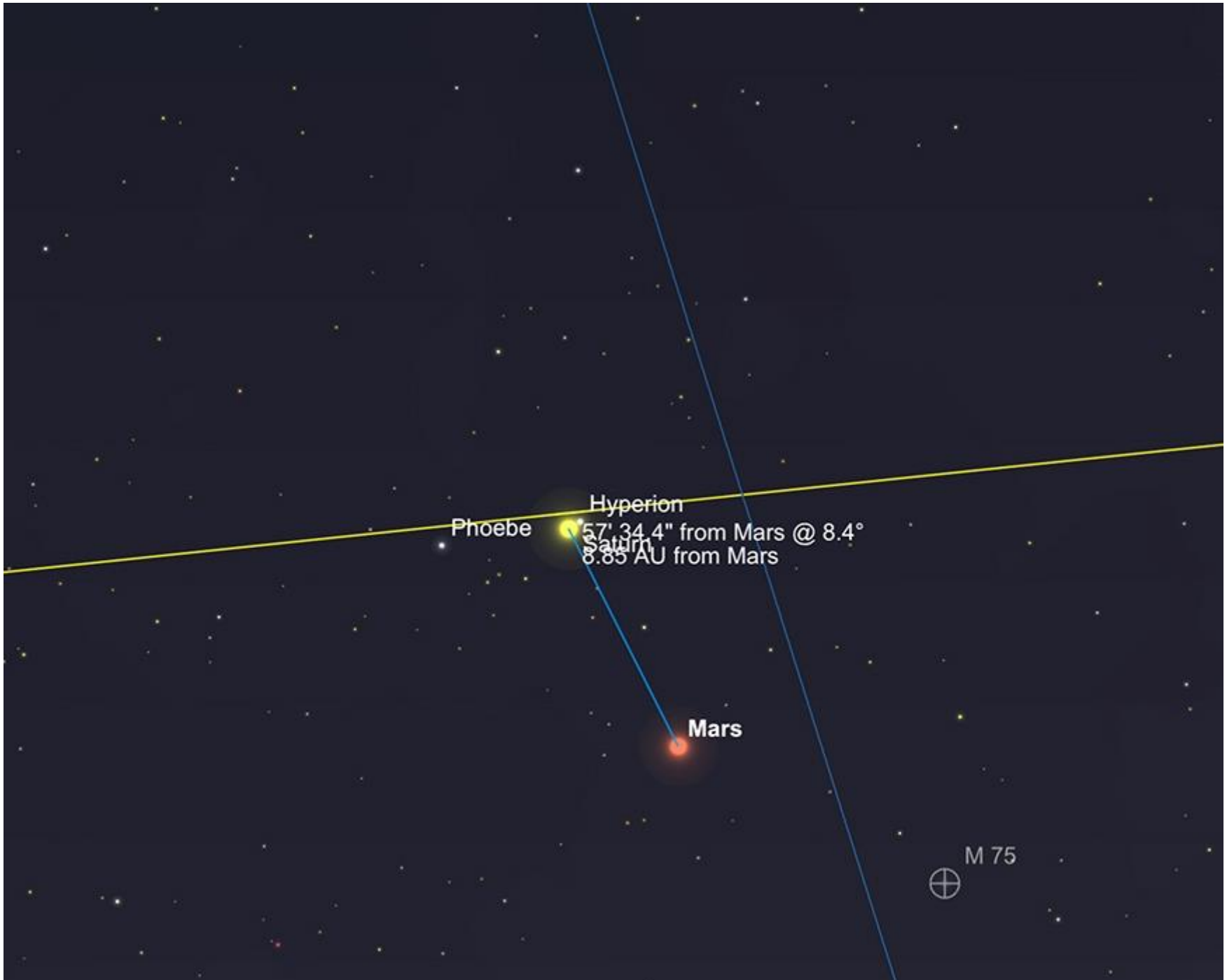
By mid-month, the +1.0 mag Mars is still in Sagittarius and stands just over 14 1/2 degrees high in the south at sunrise (from latitude 51 degrees N). The planet now rises at around 4am and transits a little before 8am (GMT).

On the morning of the 20th, Mars and Jupiter will come into close conjunction, separated by around 2/3rds of a degree. Jupiter has have been steadily tracking the fainter Mars during March.


Jupiter
43' 02.7" from Mars @ 1.4°
3.95 AU from Mars
Mars

Mars and Jupiter in close conjunction, sunrise 20th March. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Later in the month it will be the turn of Saturn to come into conjunction with the Red Planet, with the two planets separated by just over half a degree on the morning of the 31st.


Hyperion
Phoebe
57' 34.4" from Mars @ 8.4°
Saturn
8.85 AU from Mars
Mars
M 75

Mars and Saturn in close conjunction, sunrise, 31st March. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

At the end of March, Mars will have crossed over into Capricornus and now shines at +0.8 mag, standing just over 13 1/2 degrees high in the south at sunrise (from latitude 51 degrees N). In many parts of the world, particularly the northern hemisphere's temperate regions, various countries choose the end of March to change to Daylight Saving Time, which briefly appears to make rising times later (Mars will rise around 4.33am BST on the 31st). However, despite this human-induced change, the trend as far as Mars is concerned is towards earlier and earlier rising as the planet heads towards Opposition in October. There's still a long way to go until Mars is at its best though.

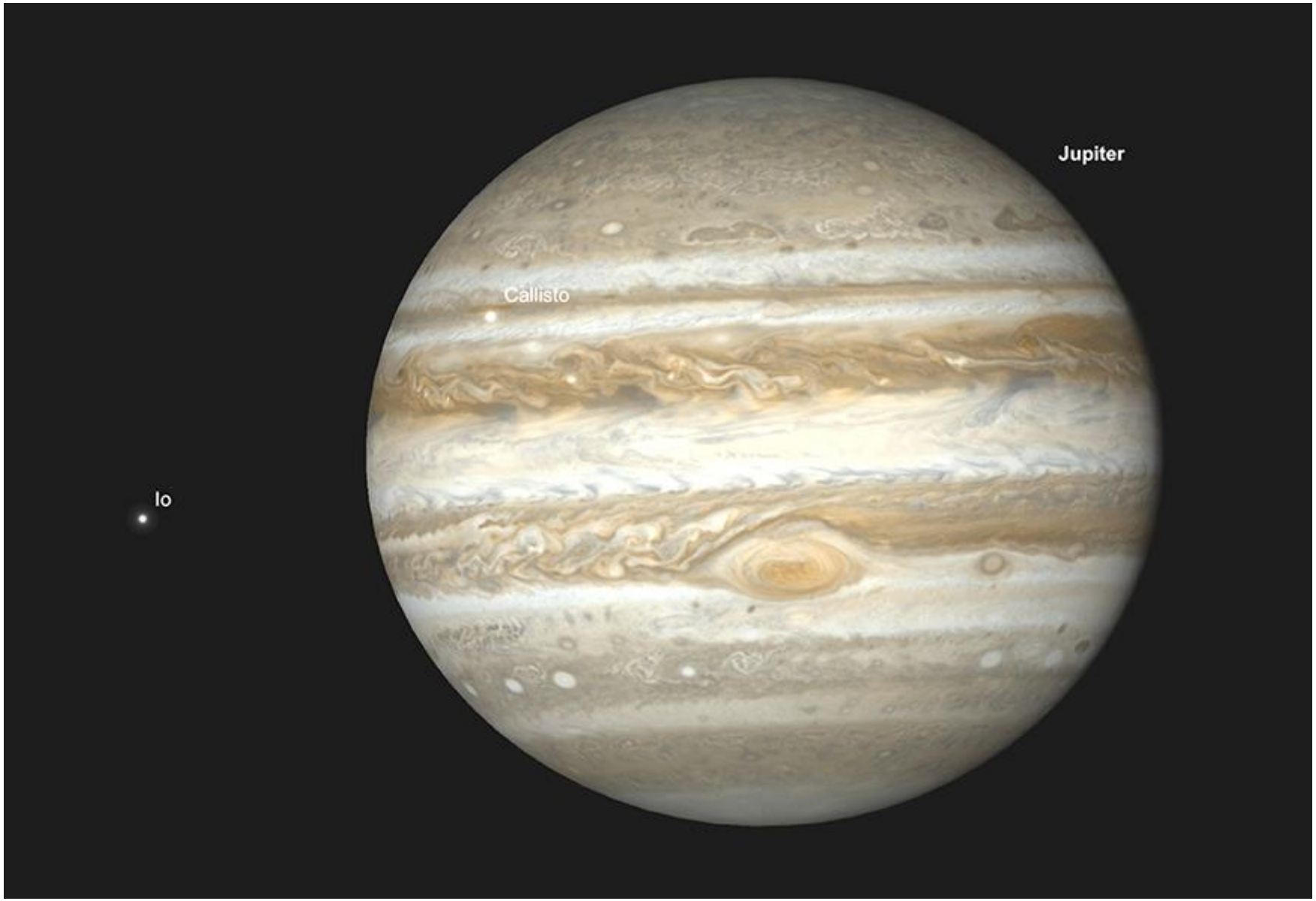
Jupiter

The beginning of March finds Jupiter at -2.0 mag in Sagittarius, at just over 34 arc seconds angular diameter. The planet rises at 4.44am (GMT) and transits at 8.46am, when it will attain a height of just under 12 degrees in the south (from 51 degrees N). The window for opportunity for observation is very limited before sunrise, which occurs at around a quarter to seven in the morning. The planet is just over 51 1/2 degrees to the west of the Sun at this point in the month.

Mid-month sees Jupiter having swelled by a minuscule amount to over 35 arc seconds diameter, but is no brighter. The planet now rises at just before 4am and transits in the south at just after 8am. The giant planet stands 13 1/4 degrees high at sunrise (from 51 degrees N). By this point in the month, Jupiter is 63 degrees from the Sun.

As previously mentioned, Jupiter comes into close conjunction with Mars on the morning of the 20th. Although you'll need a clear horizon and clement conditions to observe this, it's always a thrill to see two members of our solar system in the same binocular or low power telescope field of view.

March 31st finds Jupiter, still in Sagittarius, now at -2.1 mag, 37 arc seconds diameter and standing 14 2/3 degrees high at transit point, which it reaches at 8.08am (BST) - the change in time from standard to daylight saving in Europe having occurred on the 29th March (and earlier in the month on the 8th, for those observers in North America). The planet will have risen just after 4am BST. There's a good simultaneous Great Red Spot and Callisto transit just before sunrise on the 31st.


Jupiter
Callisto
Io

Jupiter GRS and Callisto Transit, sunrise, 31st March. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Jovian Opposition isn't until July this year, so there's still some way to go until Jupiter's at its best. However, being located in Sagittarius, the most southerly of the zodiacal constellations, it's not particularly well placed for those of us in the temperate northern hemisphere.

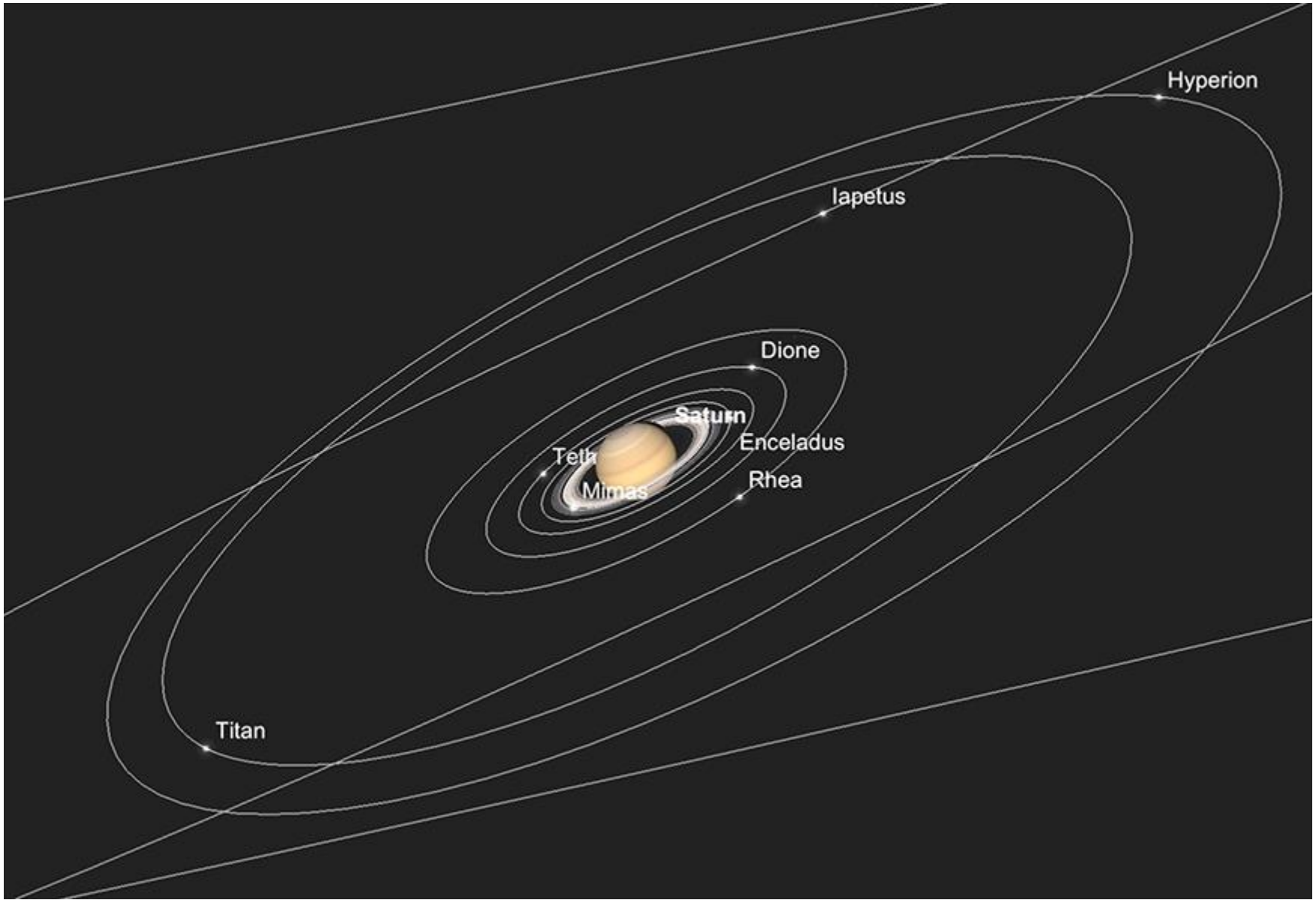
Saturn

Saturn is a morning target in Sagittarius during March, rising at a little after 5.10am (GMT, from 51 degrees N) and stands just over 10 degrees high in the S at sunrise. At +0.7 mag, and 15 1/2 seconds of arc diameter, Saturn isn't especially prominent, but still brighter than any star in its resident constellation (though somewhat overshadowed by the much brighter Jupiter, just 8 1/2 degrees to the west). It is separated from the Sun by just under 43 degrees on the 1st.

By mid-month, Saturn is no brighter, and is only fractionally larger in angular size at 15.7 degrees of arc. The Ringed Planet will rise at 4.19am and will have attained a height of over 12 degrees from the horizon at sunrise.

On the morning of the 21st, Saturn crosses over the IAU boundary between Sagittarius and Capricornus . This might not sound a particularly momentous event, but considering Saturn has been a resident of Sagittarius since 2017, this is a sure sign that Saturn's steady creep northward in the Ecliptic is most definitely continuing. This will actually reverse as Saturn goes retrograde in May this year, sending Saturn back into Sagittarius from July, until its prograde motion moves the planet back into Capricornus in December 2020.

By the end of the month, nothing much has changed as far as Saturn's concerned: the planet is still +0.7 mag and is now 16.1 arc seconds across. The planet now stands just over 14 degrees high at sunrise (from 51 degrees N), having risen at just past 4.20am (BST). As previously reported Saturn can be found a shade under a degrees to the N of the brighter Mars on the 31st.

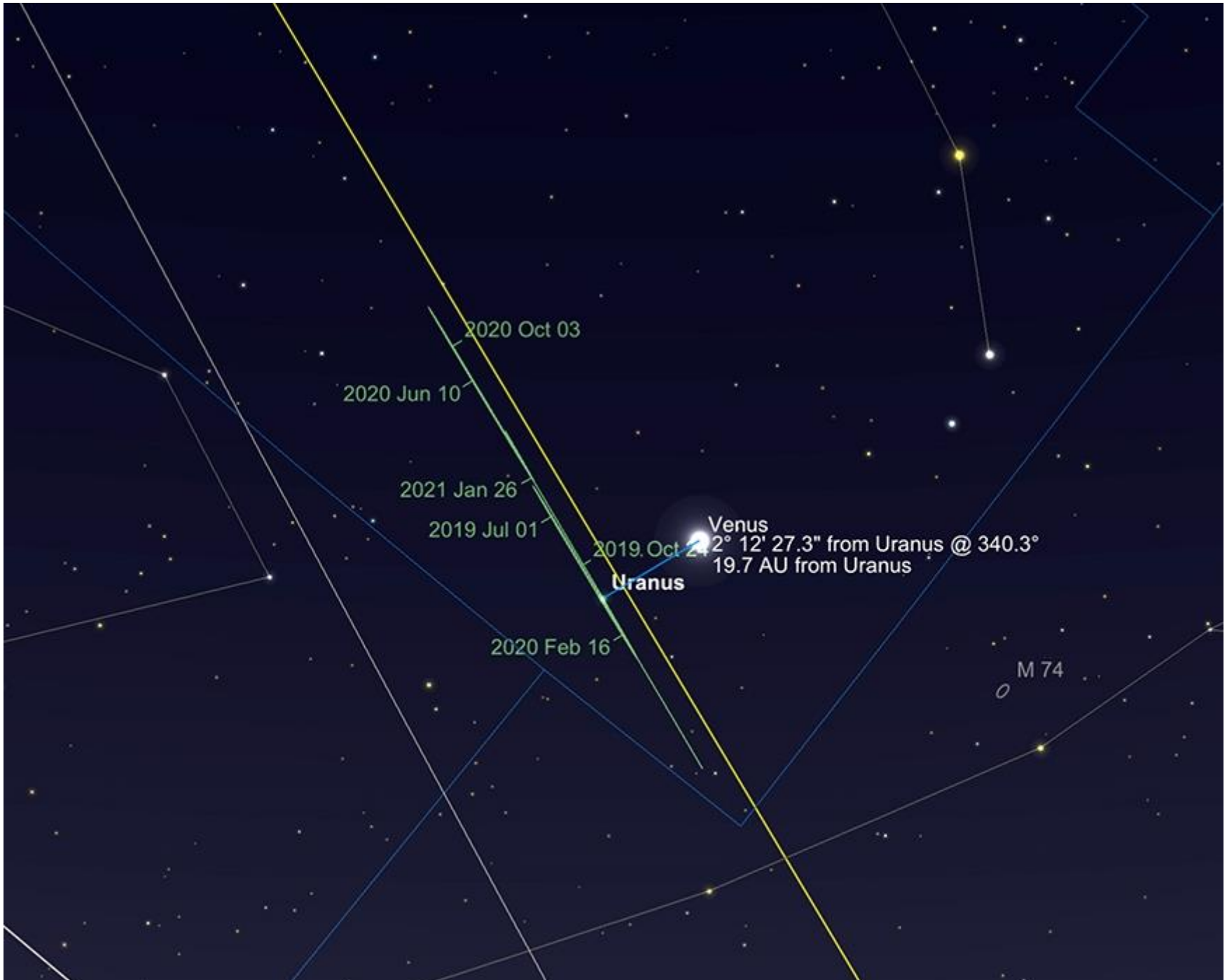

Hyperion
Iapetus
Dione
Saturn
Enceladus
Teth
Rhea
Mimas
Titan

Saturn and major moons, sunrise, 31st March. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Uranus and Neptune

Neptune reaches superior conjunction on March 8th (after which it reemerges as a morning object), and as a consequence, is lost to potential observation the month.

Uranus is somewhat better placed at the beginning of the month, but it too is approaching superior conjunction in late April. At +5.8 magnitude and 3.5 arc seconds diameter at the beginning of the month it won't be hard to find in Aries, hanging just above the central "V" of Pisces, setting a little after 10.30pm on the 1st (GMT, from 51 degrees N). On the 7th, 8th and 9th March, Venus draws into conjunction with Uranus, making its location much more prominent, with Uranus hanging a little over 2 degrees to the SE of Venus on the 7th. Astronomical Twilight ends at around a quarter to eight in the evening at this point of time, with Uranus still 21 degrees above the horizon (GMT, from 51 degrees N), it will certainly be possible to find the Outer Giant. However, fast forward to the end of the month and the situation changes radically. On the evening of the 31st, Uranus has practically set when Astronomical Twilight ends. The challenge will be to pick the much fainter Uranus out in the evening twilight, before the onset of true astronomical darkness and atmospheric extinction renders the setting planet invisible.

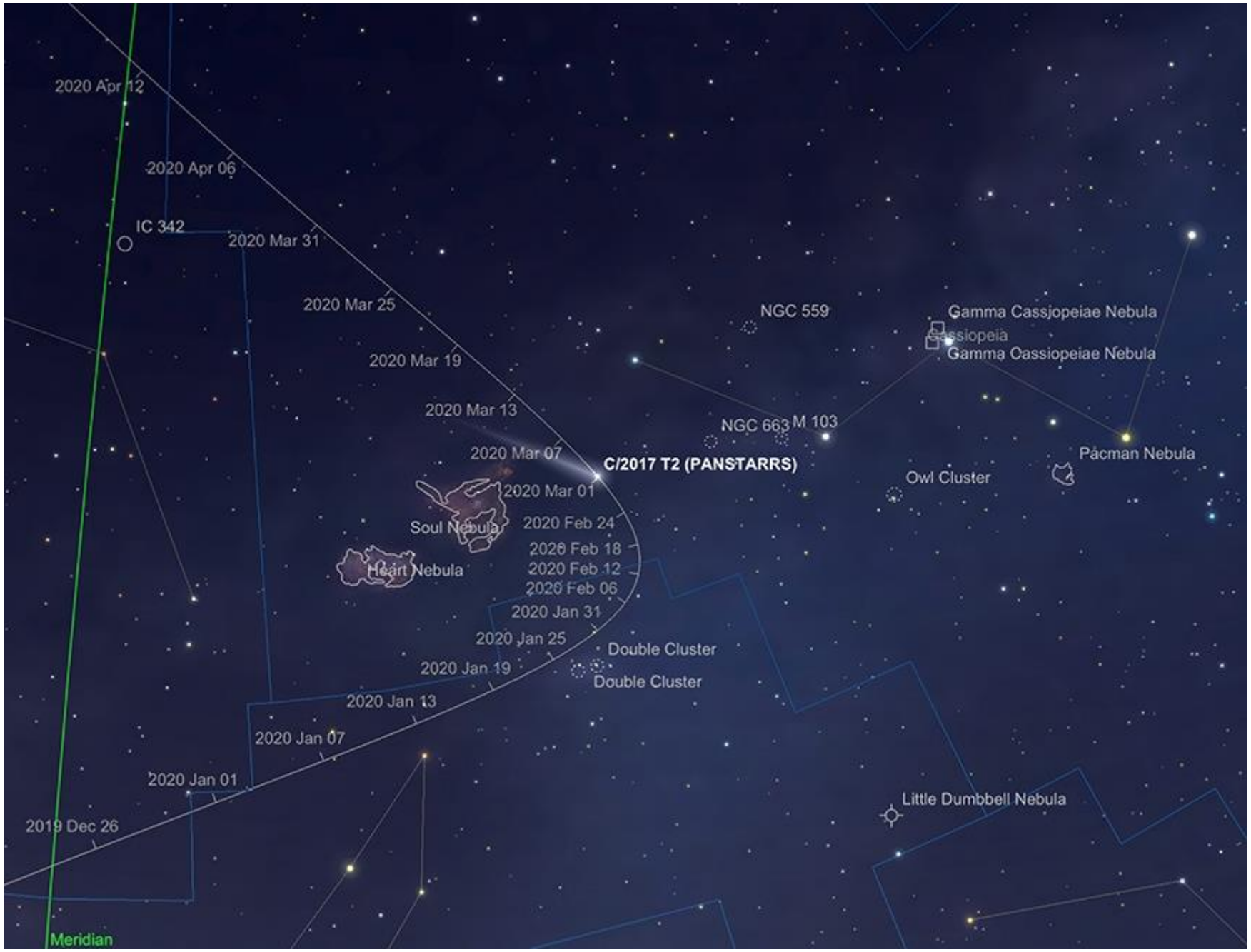

2020 Oct 03
2020 Jun 10
2021 Jan 26
2019 Jul 01
2019 Oct 24
Venus
2° 12' 27.3" from Uranus @ 340.3°
19.7 AU from Uranus
Uranus
2020 Feb 16
M 74

Uranus and Venus, end of Astronomical Twilight, evening of March 8th. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Uranus ends March just under 24 degrees from the Sun.

Comets

C/2017 T2 PanSTARRS will not reach naked eye brightness as previously hoped for, but should remain an interesting comet to track down in telescopes and larger binoculars. The comet begins the month in the Cassiopeia, having passed to the north of the Double Cluster in neighbouring Perseus at the tail end of January. While this close approach to a well-know deep sky target has resulted in some good widefield astrophotographic offerings, the comet will also pass at reasonable distance to ICs 1848 and 1805 - the Heart and Soul Nebulae - during early March. March 1st finds the comet just under 3 degrees to the west of the Heart Nebula. At time of writing, the comet is hovering around the 8/9th magnitude, but by early March is more likely to find C/2017 T2 at between the 7th to 8th mag - still reasonable if you've got a telescope or binoculars, but not quite the spectacular we hoped it would be.


2020 Apr 12
2020 Apr 06
IC 342
2020 Mar 31
2020 Mar 25
2020 Mar 19
2020 Mar 13
2020 Mar 07
2020 Mar 01
2020 Feb 24
2020 Feb 18
2020 Feb 12
2020 Feb 06
2020 Jan 31
2020 Jan 25
2020 Jan 19
2020 Jan 13
2020 Jan 07
2020 Jan 01
2019 Dec 26
Meridian
C/2017 T2 (PANSTARRS)
Soul Nebula
Heart Nebula
NGC 559
Gamma Cassjopeiae Nebula
Cassiopeia
Gamma Cassiopeiae Nebula
NGC 663
M 103
Pacman Nebula
Owl Cluster
Double Cluster
Double Cluster
Little Dumbbell Nebula

C/2017 T2 PanSTARRS path through Cassiopeia, March 2020. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Deep Sky Delights - The Messier Marathon

We take a break from our regular round up of in-depth coverage of observations of the extra-solar system kind, to cover the grand tour-de-horizon that is the Messier Marathon. Many readers will have heard of this challenge - to observe as many, if not all of the 110 deep sky objects on the Messier list in one night's sitting. Around the Vernal or Autumnal Equinoxes is normally the most sensible time attempt the Marathon, as the spread of Messier objects in the sky, the chance of clearer weather and a significant amount of darkness all conspire to give us the best chance of picking off the majority - if not all of the Messier list. Late March and early April are the most regular times of the year when the Messier Marathon is attempted - depending when the New Moon falls.

It must be noted that the Marathon is not possible everywhere in the world. Charles Messier, making his observations from France in the 18th century, did not have the opportunity to add many of the wonderful deep sky treasures of the southern hemisphere to his list, and a significant amount of Messier objects are circumpolar for those in the northern hemisphere - which put southern hemisphere observers at a distinct disadvantage.

The optimum latitude for attempting the Messier Marathon is about 25 degrees N, but this should not put those who are further north or south of this part of the world off attempting it. You will simply have to complete the Marathon with what's practical to observe from your particular location.

So, what do you need?

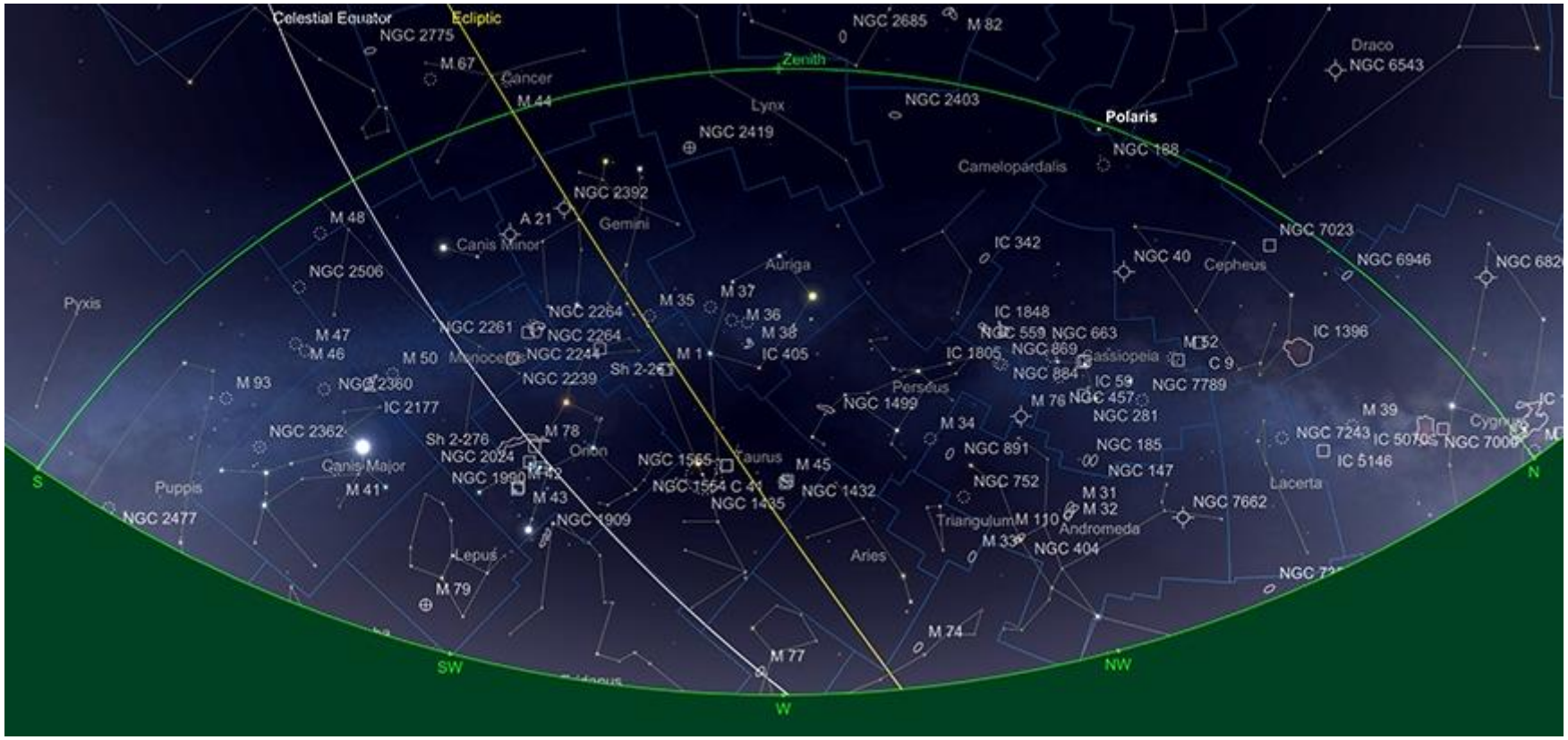
1. A Telescope. While it's possible to observe many of the Messier list in binoculars, the type of magnifications needed to resolve some of the fainter members of the list really do require a telescope to be sure of identification. Naturally, the larger your aperture, the better your chances of positively identifying some of the fainter members of the Messier list and a Goto telescope will help immeasurably - though some observers will regard this as cheating somewhat. However, in regards to a telescope's aperture, it should be noted that Messier himself observed with many telescopes throughout his career, but made many of his discoveries using a refractor of around 3-4 inches / 90-102mm of aperture, or a Gregorian reflecting telescope of around 7.5 inches of aperture. Both instruments would have been roughly equivalent in performance to many general starter's telescopes today, albeit they were used in the 18th century, when skies were generally much darker than they are today.

2. A Dark Observing Site. As eluded to above, dark skies are essential to achieving positive identification of some of the fainter members of the list. The absence of the Moon from proceedings is also extremely helpful, as any additional skyglow caused by our natural satellite will be extremely unhelpful. This makes the New Moon period of the 24th March a more favourable time to observe, but a couple of days either side of this date should be good too, with a thin Crescent phase Moon not adding too much to the illumination of the sky. For most of us in full time work or education, the weekend of the evening Friday 20th to the early morning of the 22nd presents a more sociable opportunity to attempt the Marathon, with the following Friday to Sunday (27th to 29th), presenting the less favourable opportunity.

3. Clear Horizons. The early evening's window of observing objects in the extreme west of the sky will require a clear westerly horizon in order to have any chance of seeing these targets. For instance, around early April, the galaxy M74, one of the most beautiful face on spirals in the sky, but unfortunately the Messier object with the lowest combined surface brightness will only be 11° 18 minutes from the setting Sun, so will be set before Astronomical darkness has been achieved from mid-northern latitudes, making it highly unlikely, if not impossible, to detect. Likewise, M30 in Capricornus won't have risen very high in the sky by Sunrise, so will be a difficult find in the dawn sky at the end of the night. Likewise the wonderful open clusters M6 and M7 in Scorpius and the Globular clusters M54, M55, M69 and M70 are very low and difficult to detect in the morning sky from mid-northern latitudes.

4. Patience and Tenacity. This is a Marathon and not a sprint! Not everything on the list may be observable in one sitting, but the challenge is to observe as much as you can. Special attention should be paid to pacing yourself, making sure you're properly dark adapted, insulated from the cold of a springtime night and hydrated and fuelled as well. If you're not paying attention to all of these criteria, you run the risk of fatigue, which will ultimately make the Marathon a slog - when it's meant to be enjoyable.

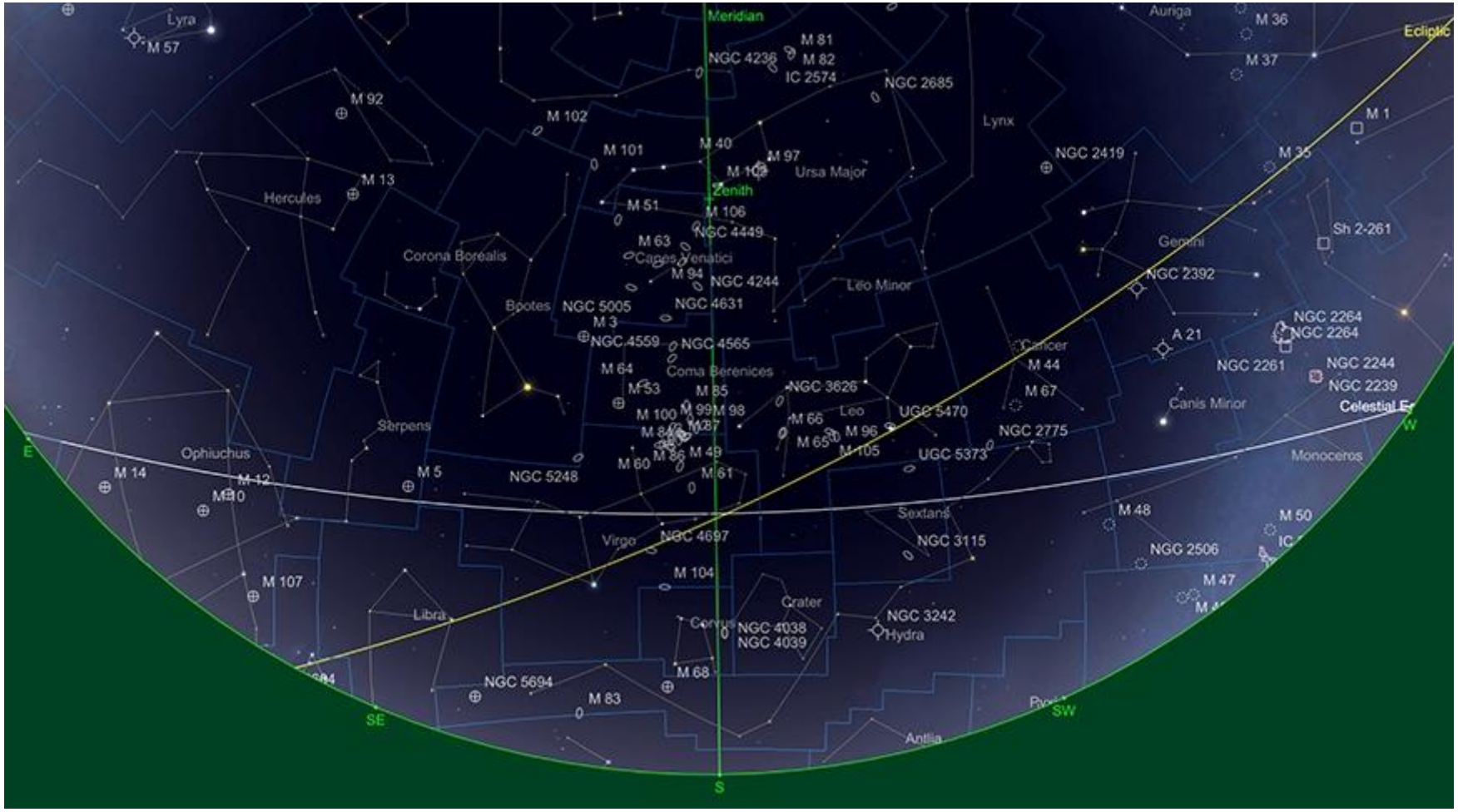
When attempting the Messier Marathon at this time of year, we can split it up into roughly four quarters. The first of these are those objects that are in the west of the sky after Sunset, which need to be observed quickly before they set (or become too low to observe in the north). If you use the Milky way as a dividing line, these are all the Messier objects that fall to the West of this point. This section of sky includes some of the brightest and best known of the Messier list: M31, the Andromeda Galaxy and its two attendants M32 and M110; M33 the Triangulum Spiral (which will be a tricky target in the evening at this time of year, due to its low surface brightness); the wonderful Pleiades (M45) and M1, the Crab Nebula in Taurus and of course the Orion Nebula complex, M42 and M43. While these targets are pretty easy to find, special attention should be shown to those potentially difficult objects in the southern reaches of this sector, such as the globular M79 in Lepus, which will be set by just past 9pm from mid-northern latitudes. It is also a good idea to attempt to observe the circumpolar Messier targets in the low NNW, such as the open cluster M39 in Cygnus and the easier, higher up targets in Cassiopeia and Perseus, if possible, though there will be opportunities to observe these later, if this is not practical.



The Messier Marathon Part 1: looking west, astronomical dusk. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

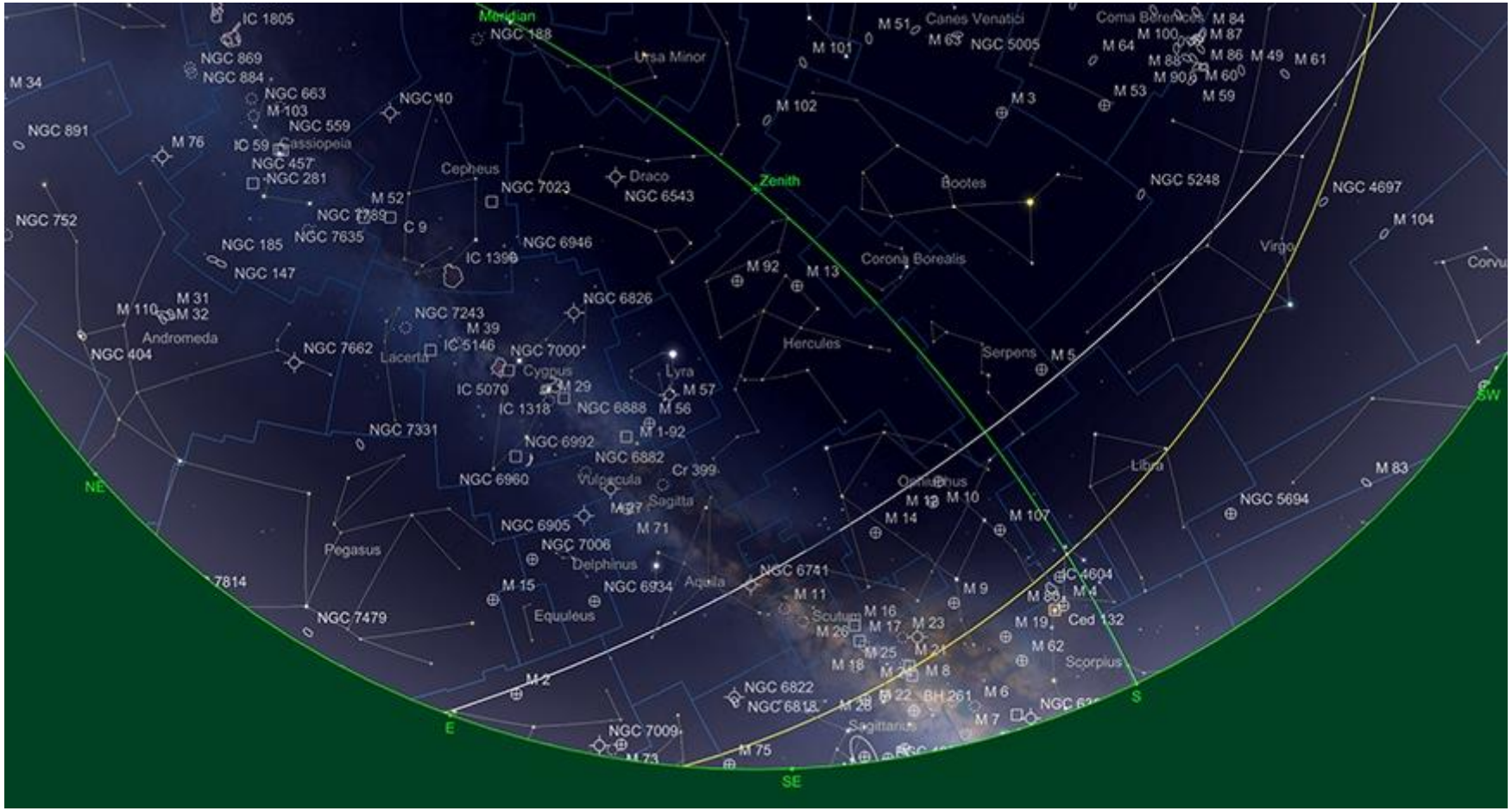
The second quarter of the Marathon is the most populous in terms of extra-galactic Messier objects This area of sky is the swathe east of the Milky Way, which takes in the huge arc of galaxies which runs from the fantastic pairing of M81 and M82 in the northern reaches of Ursa Major, down through multiple galaxies in Canes Venatici, Coma Berenices down into the huge riches of VIrgo and Leo, ending south of the celestial equator with the challenge of M104, the Sombrero Galaxy on the Virgo-Corvus borders. This area takes in just over a third (36) of the Messier List and will take the longest time to work through. Naturally a Goto telescope will help considerably here, as many of the objets in this part of the sky are towards the fainter end of Messier's list and tricky to find and positively identify for the uninitiated. Amongst the profusion of galaxies, there are notable globular clusters in the guise of the magnificent M3 in Canes Venatici and M53 in Coma Berenices, the intriguing Owl Nebula, M97 - the

"companion" of the galaxy M108, both of which are found near Merak, Beta Ursae Majoris. There is also the strange M40, which appears to have been catalogued, despite being simply a double star in Ursa Major.



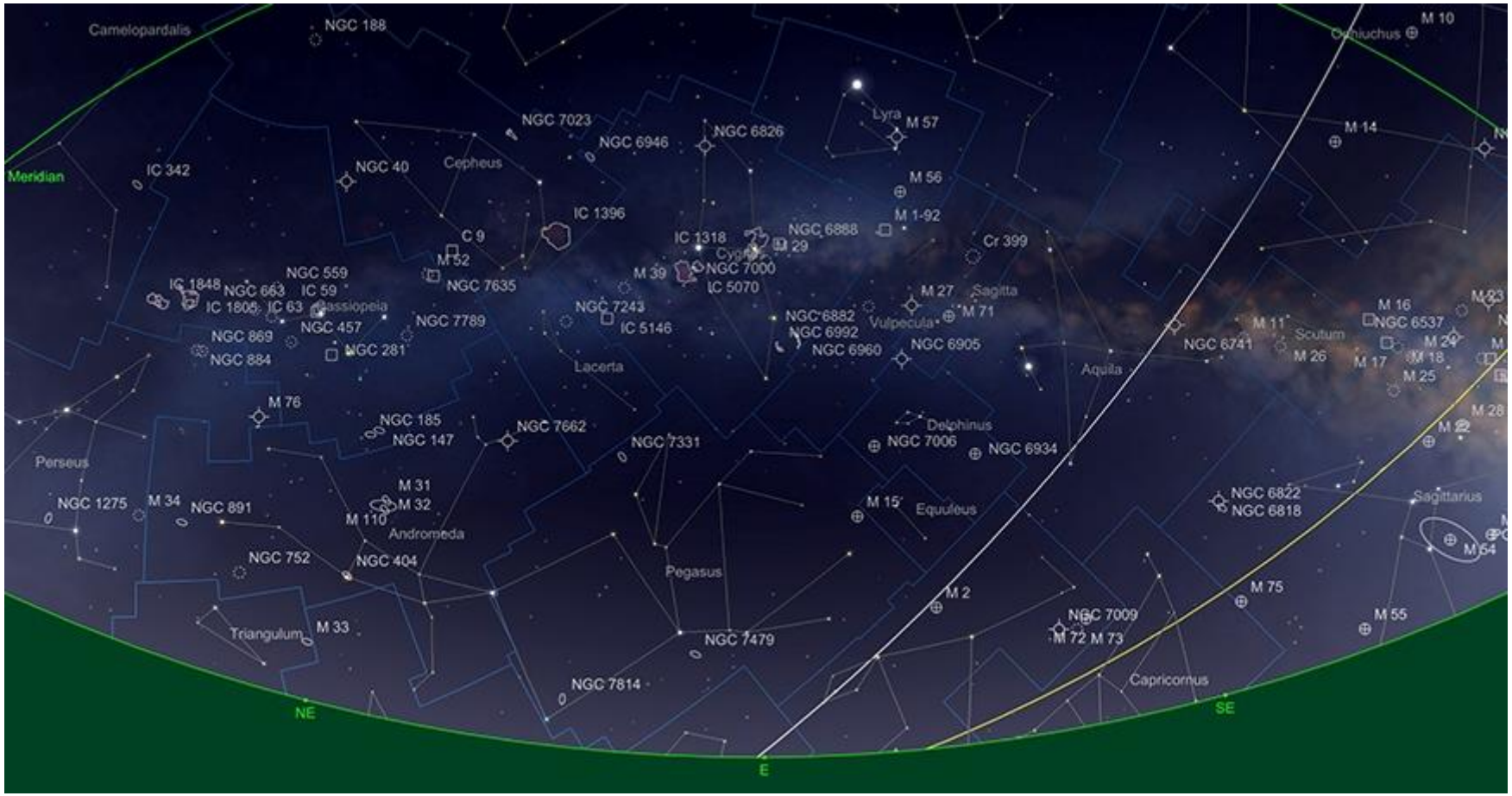
The Messier Marathon Part 2: looking south at midnight. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Where the second quarter of the Marathon was largely taken up by galaxies, the third quarter is very much the preserve of nebulae and star clusters - particularly the globulars which orbit the central bulge of the Milky Way. This quarter will have to wait until well after midnight in order to risen high enough for observation and contains the riches of Ophiuchus, Scorpius and Sagittarius - to west of the "Summer" part of the Milky Way, which looks directly towards of galactic centre and the richest area of deep sky objects bounded by our galaxy. In addition to the area, there are also the more northerly targets in Serpens (Caput), Hercules, Lyra and the Western half of Cygnus. This is a really challenging part of the marathon, as many of the targets will be very far south from mid-northern latitudes and atmospheric extinction will play a large part in observations. Highlights in this area include the great globular clusters of M13 and M92 in Hercules, M5 in Serpens, M10, M12, M14 and M07 in Ophiuchus and, if observable, M80 and M4 in Scorpius. However, you may have to revisit the latter two objects later in the night to see them well, if at all.



The Messier Marathon Part 3: looking south east at 4am. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

The last quarter of the Messier Marathon really is a race to see as much as is possible before the Sun begins to rise and Astronomical Dawn begins, which for many mid northern hemisphere latitudes is just after 4am at this time of year. This area of sky includes the eastern side of the "Summer" section of the Milky Way from the eastern side of Sagittarius in the south, up through Sagitta, Vulpecula and the eastern side of Cygnus, on through to the star clusters in Cassiopeia in the north. This area also includes the great globular clusters M15 in Pegasus and M2, below it in Aquarius. This area inevitably includes some of the toughest fainter objects to attempt to see before the dawn breaks - notably the fainter globulars M72 and M75 and the rather disappointing asterism M73, all in Aquarius. These will be extremely tough, if not impossible to see from higher northern latitude before the Sun makes its presence felt. However, this part of the night gives observers in higher northern latitudes the best chance of seeing the great areas of nebulosity in Sagittarius, M8 the Lagoon Nebula, M20 the Triffid Nebula, M17 the Omega Nebula and the Eagle Nebula in neighbouring Serpens at reasonable altitude.



The Messier Marathon Part 4: looking east at 5am. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

When you consider the possibility of seeing the lion's share of the Messier list in one sitting, it is perhaps wise to consider that it took Messier, aided by the excellent contemporary observer Pierre Mechain and reference to the observations of other earlier telescopic astronomers such as Giovanni Battista Hodierna, over a decade to expand his initial list of 45 objects, published in 1771, to the 102 objects of his final list, which was published in 1781. With reference to Messier's observing notes, this final list was expanded to the 110 objects we know today, by Messier scholars in the 20th century. If it took Messier, a professional astronomer, this long to be sure of his observations,

then don't be too disappointed if you can't see all of the Messier list in one night, should you attempt the Marathon. If you do attempt this epic task, we hope the weather is kind to you and however many objects you find, you enjoy it.

Text: Kerin Smith