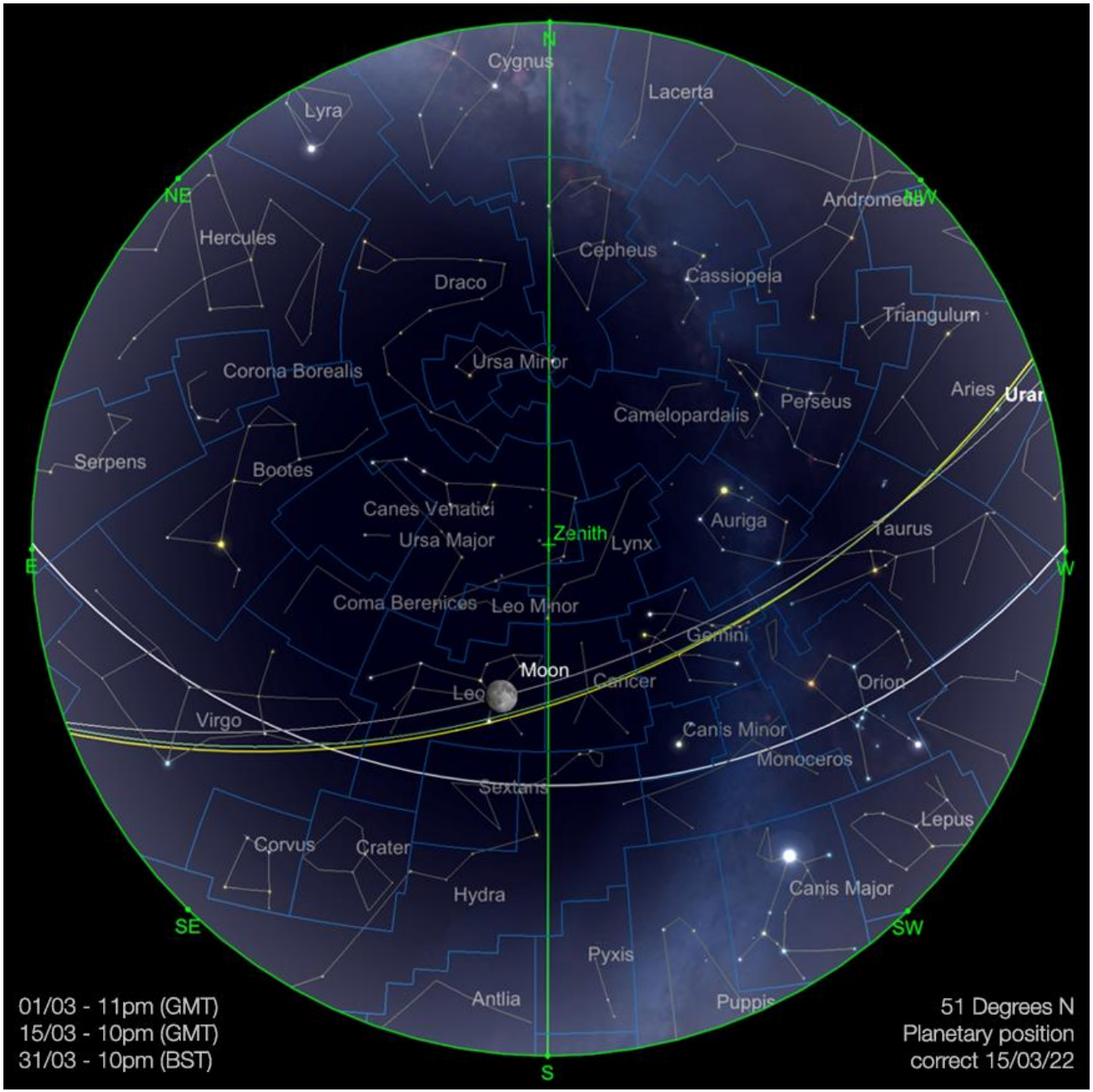

Telescope House March Sky Guide
The most up-to-date guide to Planetary and Lunar activity,
Comet News, plus Deep Sky Delights...


N
Cygnus
Lacerta
Lyra
NE
NW
Andromeda
Hercules
Cepheus
Draco
Cassiopeia
Triangulum
Corona Borealis
Ursa Minor
Aries
Perseus
Camelopardalis
Serpens
Bootes
Canes Venatici
Zenith
Auriga
Taurus
Ursa Major
Lynx
E
W
Coma Berenices
Leo Minor
Gemini
Moon
Leo
Cancer
Orion
Virgo
Canis Minor
Monoceros
Sextans
Lepus
Corvus
Crater
Hydra
Canis Major
SE
SW
Pyxis
Antlia
Puppis
S
01/03 - 11pm (GMT)
15/03 - 10pm (GMT)
31/03 - 10pm (BST)
51 Degrees N
Planetary position
correct 15/03/22

March is a longer month, following the relatively short month of February and it brings forth the highly anticipated regular annual astronomical event, the Vernal Equinox. This year, the Vernal Equinox will take place on Monday, 20th March, marking the occasion when the Sun moves from the southern celestial hemisphere to the northern celestial hemisphere, resulting in equal periods of day and night in certain parts of the world. While this equality of day and night is a generalisation and is not be precisely accurate for those in extreme northern or southern regions, those of us in the northern hemisphere will all start to enjoy longer days, officially welcoming the arrival of Spring. Conversely, for those residing in the southern hemisphere, the Vernal Equinox coincides with the Southern Hemisphere Autumnal Equinox, with darkness slowly but surely creeping in.

Moreover, the Vernal Equinox triggers a time shift, where the majority of the northern hemisphere adjusts their clocks forward by one hour to Summer Time. While Europe observes this shift on Sunday, 26th March, other countries like the United States may adjust their clocks earlier in the month. Around the Vernal Equinox, the southern hemisphere experiences a return to standard time, where their clocks are set back by an hour. It's important to note that equatorial regions experience more consistent hours of light and darkness throughout the year and hence do not require similar time adjustments.

Wherever you are in the world there's plenty to see in the skies above us this month, so let's find out what's in store for us.

The Solar System

The Moon

Our natural satellite begins March in Taurus, at a 9 day old waxing gibbous phase. Rising at a little after 11am the previous day, the Moon will set at a little before 4.30am (GMT).

During the first week of March, the Moon will coast over the most northerly part of the ecliptic, passing through Gemini and Cancer and down into Leo, where it will become Full on the 7th. As is customary, we remind readers that this part of the month won't be the most opportune for deep sky observations, or imaging (except for those using very narrowband filters).

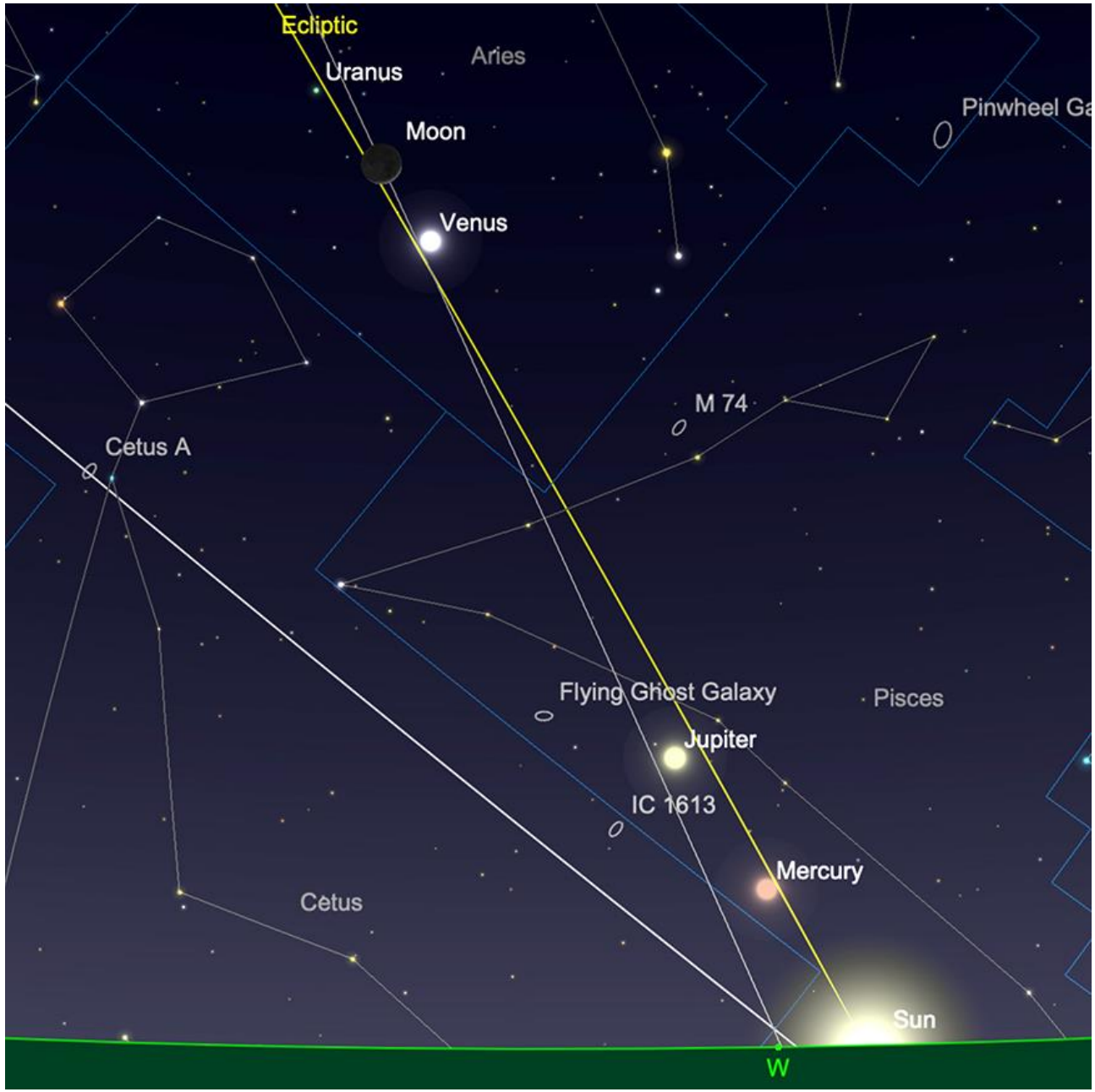
Beyond Full, the Moon starts to wane as it passes from Leo, on through the expanse of Virgo and into the more southerly reaches of Libra, Scorpius and the non-zodiacal constellation of Ophiuchus, where it will reach Last Quarter phase on the 15th. By this point in the month, the Moon will rise a little after 3am, leaving a sizeable part of the night free from lunar interference.

Beyond mid-month, the Moon will drift through the "bottom" of the ecliptic (from a northern hemisphere perspective), in Sagittarius, before starting its climb up through Capricornus and on into Aquarius, where it will meet the Sun and become New on the 21st, just a day after the aforementioned Vernal Equinox.

Emerging from the Sun's glare as an evening object, the Moon then begins one of its best crescent displays of the year. This part of the cycle is what we have referred to as the High Spring Crescent phases, as seen from the northern hemisphere. This is caused by the high angle of the ecliptic plane, as it appears from temperate and higher northern parts of the Earth at this time of year. This gives observers in these locations some of the best opportunities to observe the evening Crescent Moon at significantly higher separation from the horizon than at other times.

During the next week, the Moon will rise past Jupiter, in Pisces, on the 22nd (though will be at a tiny 1.3% illumination and we'll be easily missed). The 24th sees the Moon sitting a little to the north of Venus (by just under 3 1/2 degrees), at 11% illumination, as the Sun sets - the two forming a very pretty pairing in the evening sky. The following couple of evenings finds the Moon in Taurus, near both the Pleiades and Hyades star clusters.

Mars is joined by the Moon on the 28th, while still in Taurus, the two bodies separated from each other by just over 3 degrees. The following evening finds the Moon back at First Quarter phase, while in Gemini. The Moon then becomes gibbous again as it continues its path through Gemini and on into Cancer, where it ends the month on the 31st, at around 68% illumination, rising at a little after 1pm (BST).


Ecliptic
Aries
Uranus
Moon
Pinwheel Ga
Venus
M 74
Cetus A
Flying Ghost Galaxy
Pisces
Jupiter
IC 1613
Mercury
Cetus
Sun
W

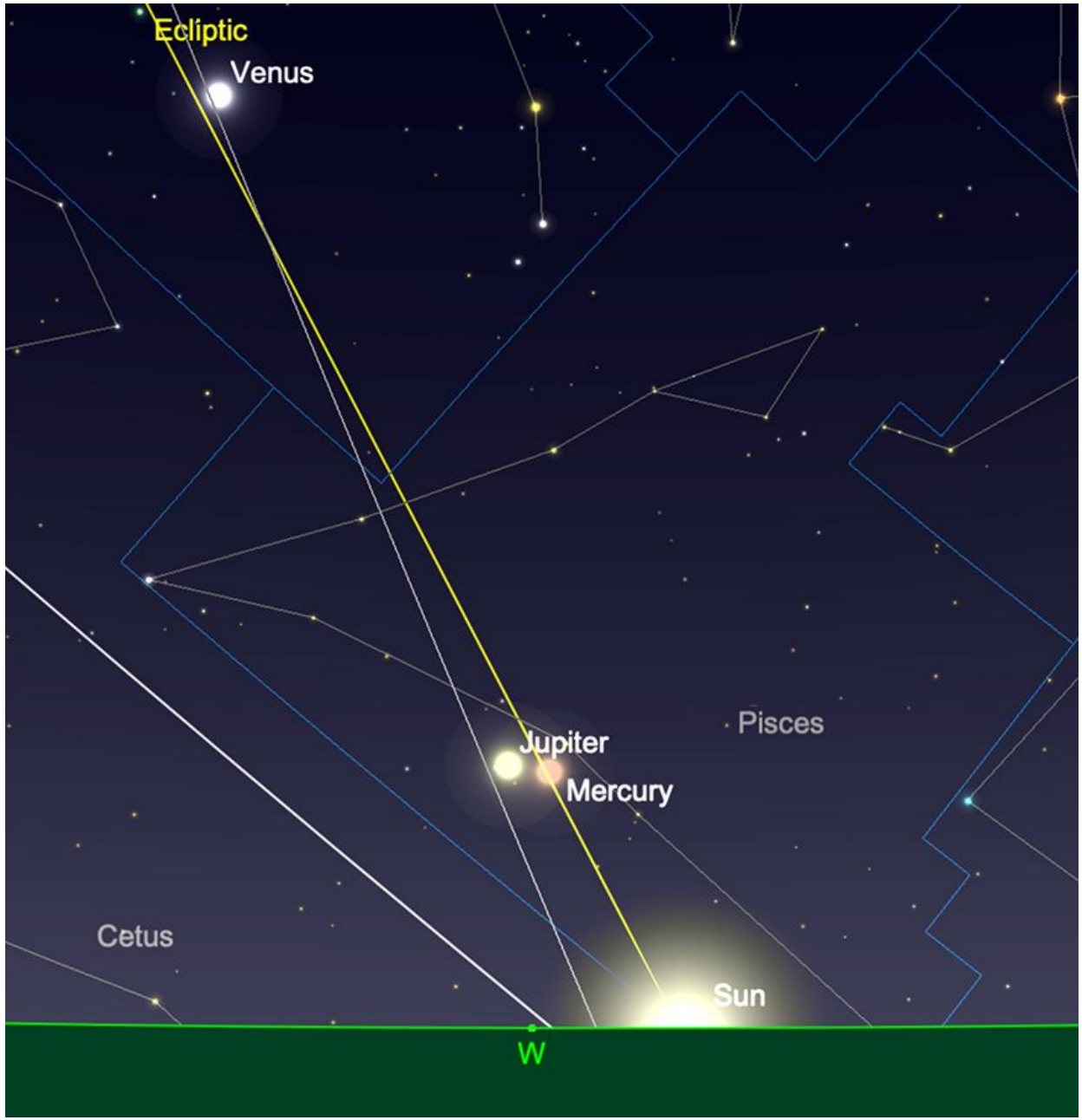
Mercury

Mercury spends much of the beginning stages of March in a very poor position for observers in much of the northern hemisphere. As covered in previous sky guides, just as the evening ecliptic “sets” at a very high angle for northern hemisphere residents, the morning ecliptic “rises” very shallowly, at this time of year. This, coupled with Mercury’s march in a descending sunward direction, means it will be extremely low to the horizon, as the Sun rises and unobservable for many of us.

Mercury reaches superior conjunction - the opposite side of the Sun as visible from the Earth - on March 17th. After this it will emerge from the glare of our parent star as an evening target. This will have great results from a northern hemisphere perspective, as Mercury will rapidly climb into the sky, away from the Sun.

By the time we reach the end of the month, Mercury will be in the same area of sky as Jupiter - the two drawing together in close conjunction on the evening of the 27th, separated by just under 1 1/2 degrees. By this point, Mercury will be -1.5 magnitude. This is fainter than Jupiter, but nonetheless a very reasonable brightness and this and Jupiter’s proximity around this time should make it easier to find.

Mercury ends March at a respectable -1.1 mag., at 80% illuminated phase, showing a diameter of 5.8 arc seconds. Standing at just over 12 degrees high at sunset (from 51 degrees N), the innermost planet finishes the month on a real high - certainly in comparison with the month‘s beginning.


Ecliptic
Venus
Pisces
Jupiter
Mercury
Cetus
Sun
W

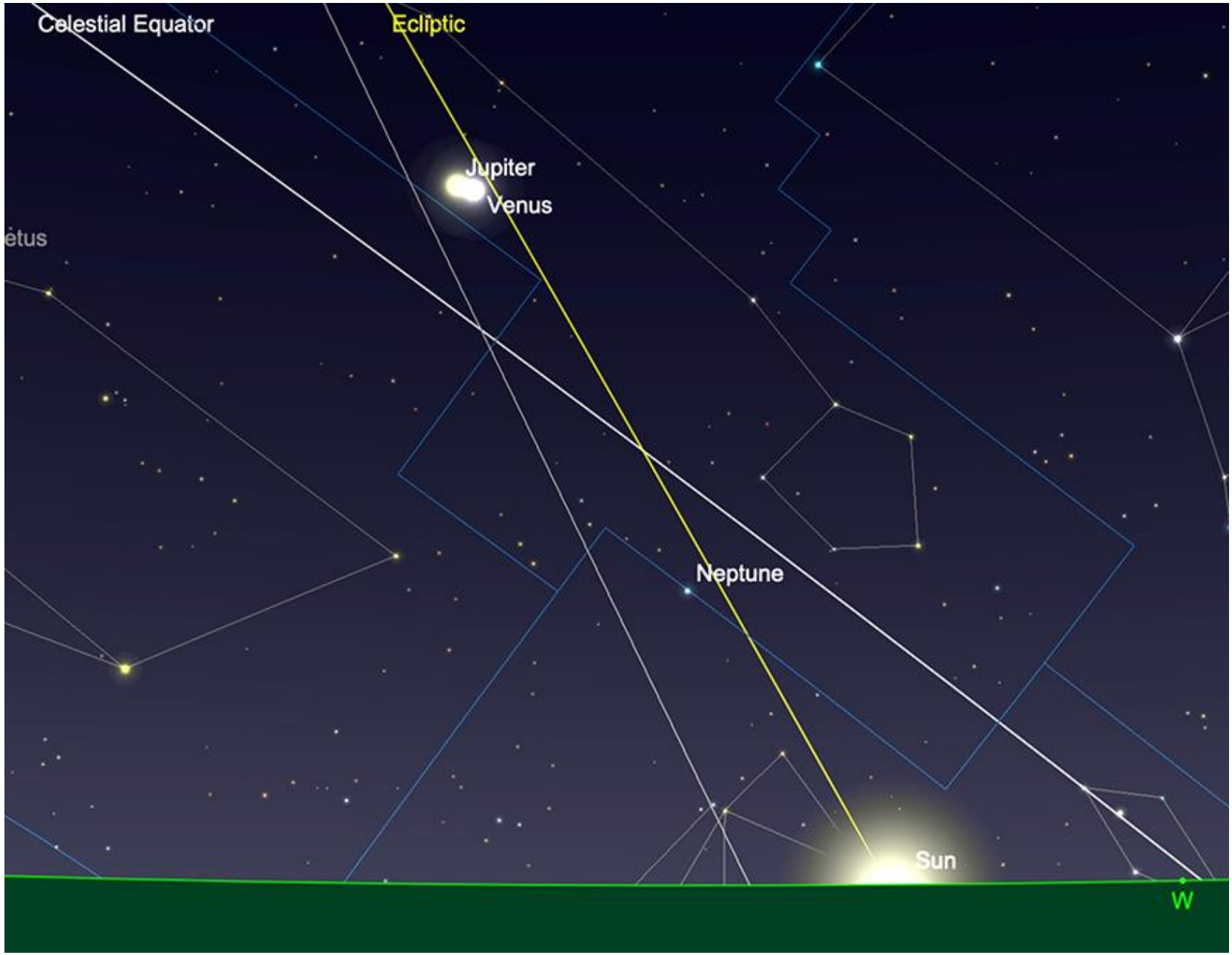
Venus

We begin March in spectacular fashion with Venus in very close conjunction with Jupiter. The evening of the 1st sees the two planets separated by just 39 arc minutes - 2/3rds of a degree - this will mean that they are observable in the same field of view of a telescope, using modest magnification. This should be quite a sight even with the naked eye. The two planets will stand around 18 degrees high as the Sun sets (from 51 degrees N), making this event easy to observe for those with a clear westerly horizon. At -4.0 mag and -2.1 respectively, Venus and Jupiter are the 3rd and 4th brightest natural objects in the sky, so this conjunction is likely to capture the attention of those less interested in astronomy.

Whereas Jupiter is sinking towards the Sun, Venus is drawing away from it, so the two planets draw away from each other fairly quickly, once the beginning of the month is over. By mid-month, the two will be separated by 13 degrees. The 15th March finds Venus no brighter in magnitude from the month's beginning, but it will have increased its separation from the horizon to 28 degrees at sunset (from 51 degrees N).

By the end of the month, Venus 'brightness stay static at -4.0 mag. However its phase will have decreased to 77%. In most situations, decreasing phase goes hand in hand with modest loss of brightness. However, in Venus 'case at present, while its phase decreases, it is drawing closer to us, expanding its size. It's this expansion that allows Venus to remain static in brightness, as its phase decreases - essentially the illuminated area of the planet stays the same.

We leave Venus on the evening of the 31st, standing just under 32 degrees in elevation (from 51 degrees N) as the sun goes down.


Celestial Equator
Ecliptic
Jupiter
Venus
ètus
Neptune
Sun
W

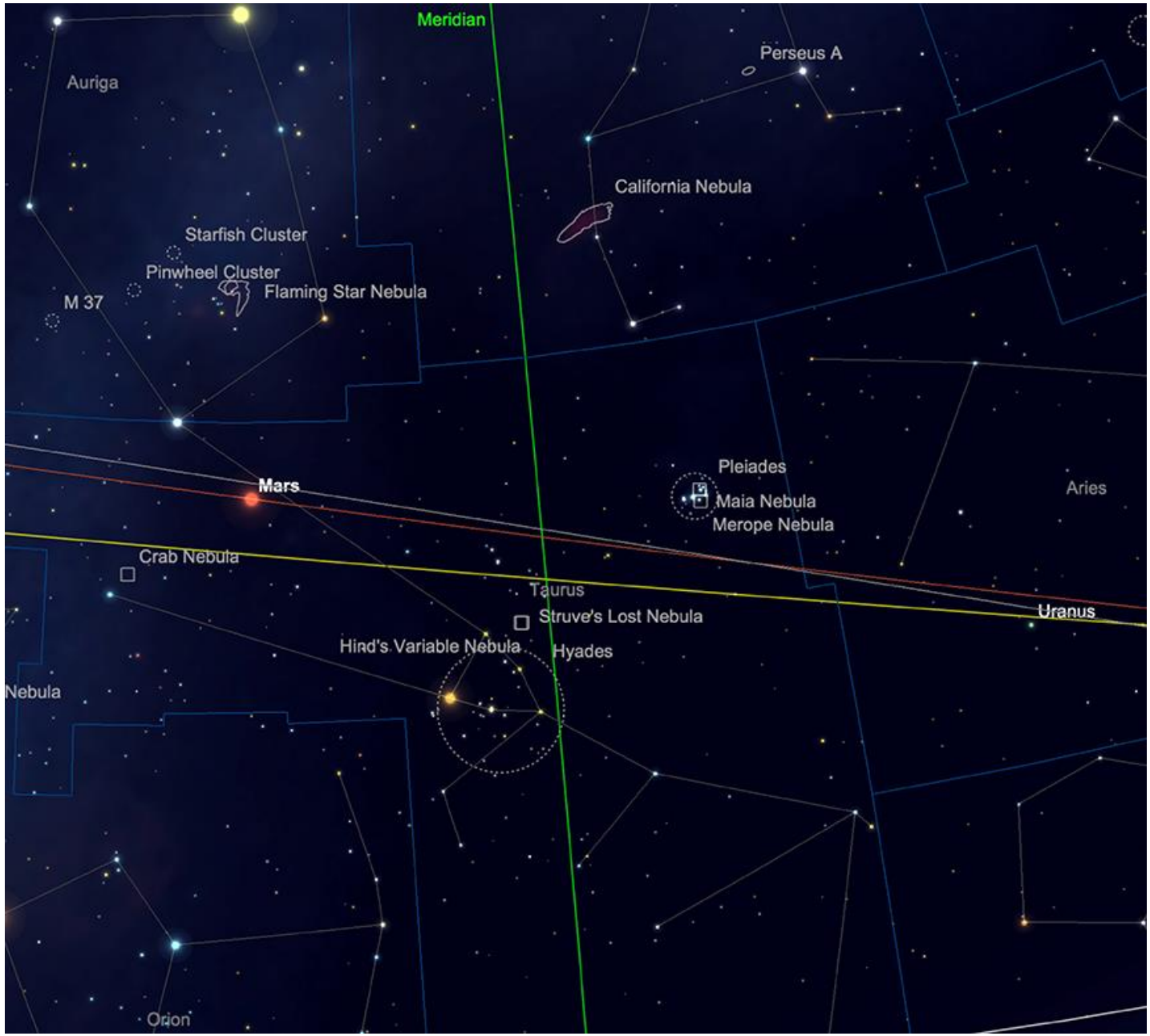
Mars

Mars is very well situated for evening observation, as a resident of Taurus. However as mentioned in previous month's sky guides, the window for really rewarding observations of Mars is definitely closing and the quality of views in telescopes will degrade significantly from the month's beginning to its end.

March starts with Mars sitting in between the "horns" of Taurus. At +0.4 mag and 8.1 arc seconds across, it will need reasonable magnification in a telescope to reveal the mottling of the major continental-sized features on its surface.

Mid-month will find Mars having drifted further westward in the ecliptic, but still very much within the borders of Taurus. By this point in time it will have shrunk to 7.2 arc seconds diameter and displays a brightness of +0.7 mag.

By the time we get to the end of March, Mars will now be a rather small 6.5 arc seconds diameter target at +1.0 magnitude. The latter part of the month will see the planet having crossed the border from Taurus into Gemini. While we would never want to dissuade anyone from turning a telescope on any planet object of interest in the night sky, the end of March will see Mars having lost nearly 2/3rds of its surface area, when compared to its peak around December 2022's opposition and being nearly three magnitudes fainter than it was then. Mars ' comparatively small diameter, coupled with ever increasing distance from Earth, means one thing: the trend is downwards as far as observations of the Red Planet go. The simple fact that the outer planets appear earlier and earlier in the evening sky, post-opposition, means less experienced observers often start to notice Mars, once it's a long way past its peak. We have to wait until January 2025 until Mars is back to opposition - so it's some time until the planet is back to its best.


Meridian
Perseus A
Auriga
California Nebula
Starfish Cluster
Pinwheel Cluster
Flaming Star Nebula
M 37
Pleiades
Mars
Maia Nebula
Merope Nebula
Aries
Crab Nebula
Taurus
Struve's Lost Nebula
Uranus
Hind's Variable Nebula
Hyades
Nebula
Orion

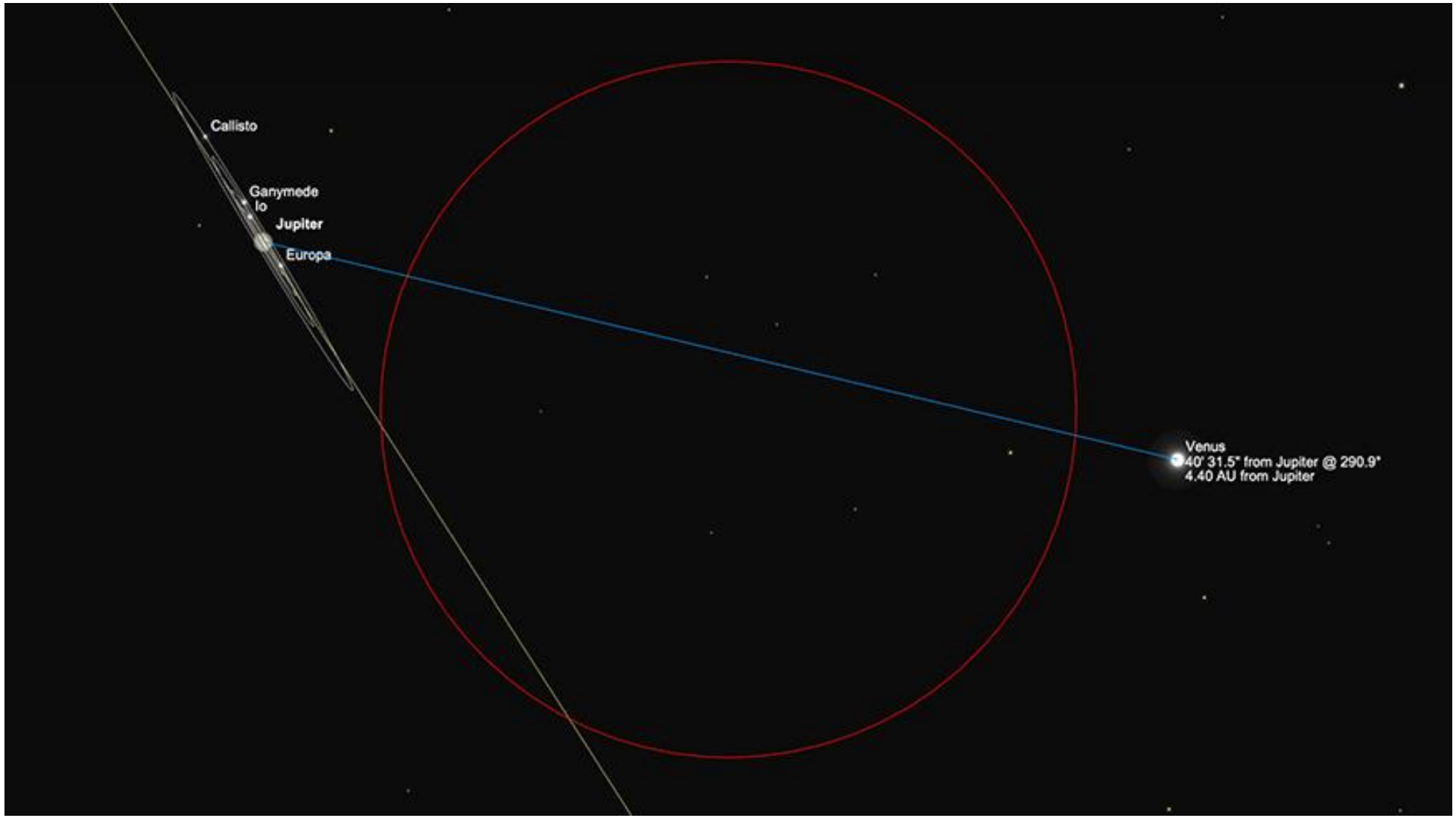
Jupiter

Jupiter, being by far the largest planet in the solar system, never suffers from the same drop off in brightness that the diminutive Mars does. No matter what part of its orbit it is on, the King of the Planets always presents a decent sized and suitably bright target in a telescope. As discussed above, the highlight of March as far as Jupiter is concerned is it's very close conjunction with Venus on the 1st. At -2.1 mag and 34.2 arc seconds diameter, Jupiter will present an impressive sight in practically any telescope.

However, as it sits around 25 degrees high in the sky at sunset (from 51 degrees N), Jupiter will be below the "magic" 30 degrees of elevation, for many northern hemisphere observers and this will start to tend to lessen the quality of atmospheric seeing conditions, when looking at the planet with significant magnification. As mentioned, Jupiter is heading sunwards, and this means as the month progresses, it will appear to sink further down in the sky, settling earlier and earlier as it does. This will naturally have a negative affect on observations, as the window of time in which we can perform these closes.

Mid-month will see Jupiter standing just under 17 degrees high at sunset (again, as observed from 51 degrees N), itself setting just under two hours after the Sun.

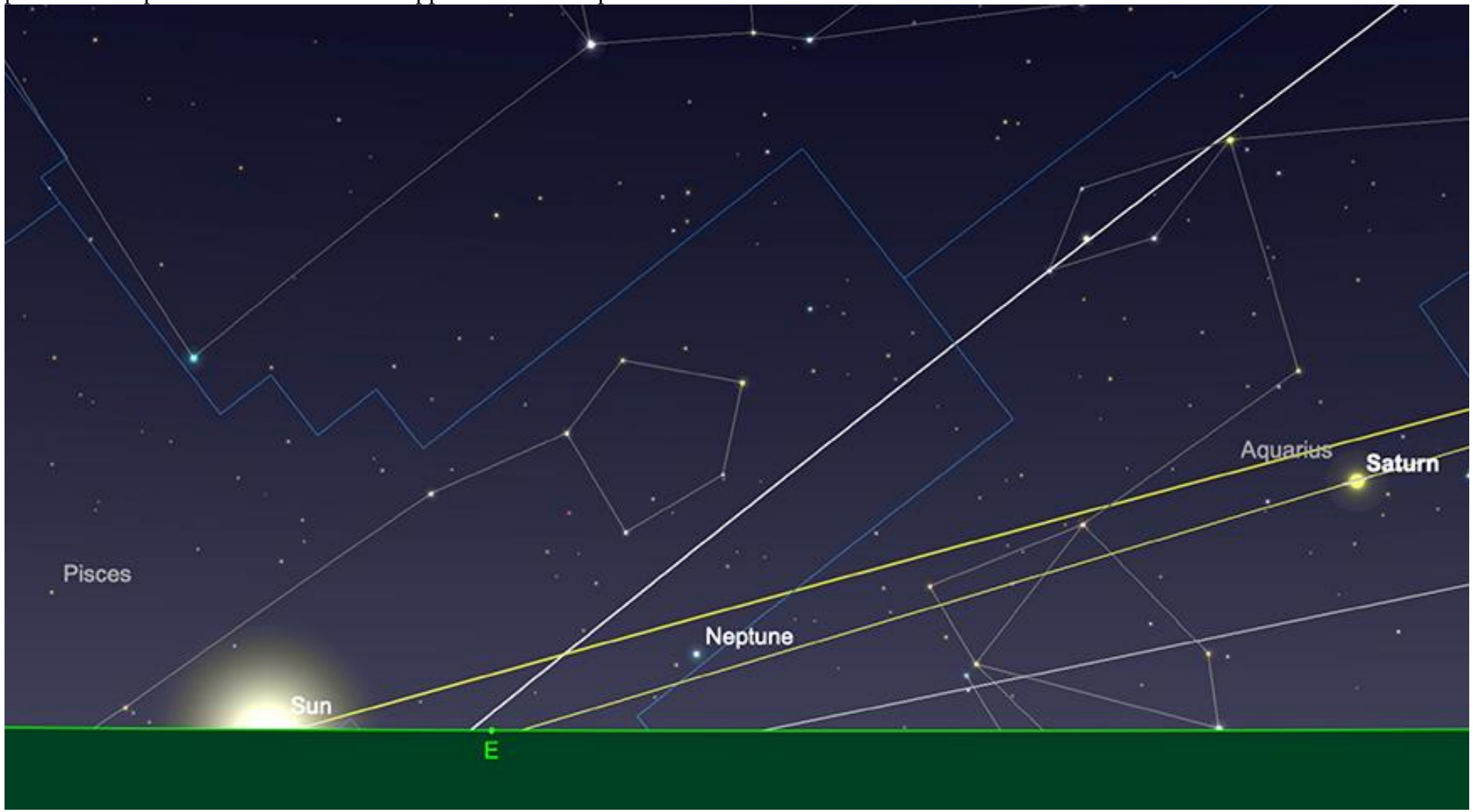
By the time we get to the end of March, Jupiter will stand just 6 degrees above the horizon, setting just over 40 minutes after the Sun does. By this point in time, Jupiter is under two weeks away from superior conjunction and the evening window for Jovian observations will effectively be shut.



Saturn

Saturn is emerging slowly from last month's superior conjunction and is in a very poor position for temperate northern hemisphere observations at the beginning of March. Sitting alongside the equally difficult to observe Mercury on the 1st.

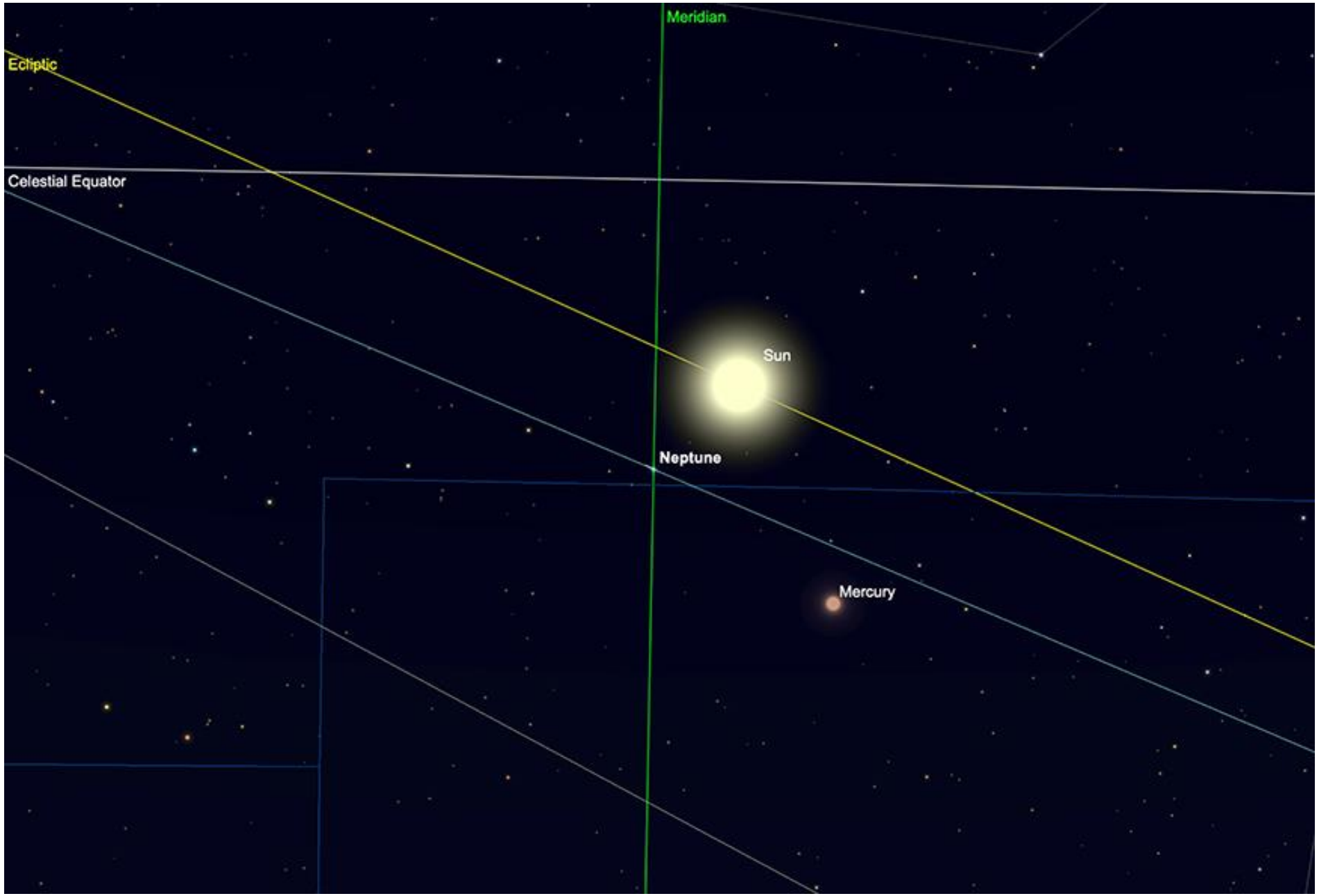
By the end of March, Saturn sits around 37 degrees to the west of the Sun, at +1.0 magnitude brightness, displaying a 15.7 arc second diameter disk. It will stand just under 8 degrees high at sunrise (from 51 degrees N), but will still be low and prone to poor seeming conditions. Subsequently, moderation is recommended for those up early enough to observe it, in both magnification used to observe the planet and expectations of how it will appear in a telescope.



Uranus and Neptune

Uranus is well situated, in Aries, at the beginning of March. At +5.7 magnitude, it can be glimpsed by those with reasonable eyesight from a very dark location, but is much easier in binoculars. At 3.5 arc seconds across, it is similar size to many planetary nebulae - and although a bit brighter, can appear quite similar in telescopes. Uranus will still be of significant altitude - just under 38 degrees (from 51 degrees N) - as true astronomical darkness kicks in at this latitude, making identification of this distant world somewhat easier.

Uranus ’neighbour, Neptune, is much closer to the Sun in Aquarius and comes to superior conjunction during mid-March (15th), making it unobservable - until it gains suitable distance from the Sun in the morning sky.


Meridian
Ecliptic
Celestial Equator
Sun
Neptune
Mercury

Comets

Comet C/2022 E3 (ZTF) has faded rapidly from its peak, which it reached in late January/early February. Found in southern Taurus on the 1st, it is predicted to be around the 8th magnitude and subsequently only observable in telescopes and powerful binoculars, from suitably dark locations. The area that ZTF occupies at the beginning of the month is easily found: trace a line down south from Aldebaran (Alpha Tauri) and a line west from Mintaka (Delta Orionis), the highest and furthest star to the right of the three in the belt of Orion (as viewed from the northern hemisphere). Where these two lines meet is the area of sky the comet occupies. The comet is travelling southward and crosses over the border into the large, but somewhat sparse constellation of Eridanus, the River on the 3rd March. It continues its course south and slightly to the east during the rest of the month, until it ends March about 5 1/2 degrees to the west of Rigel (Beta Orionis). By this juncture, ZTF will have faded dramatically and is predicted to be around the 11th magnitude.

It's worth mentioning that the previously covered comet C/2017 K2 PanSTARRS will be putting on a very respectable performance for those in the southern hemisphere. It is found near Archenar (Alpha Eridani) at the beginning of the month. Some current brightness predictions put it at around 6th magnitude, some up to a couple of magnitude fainter. The most recent observations, at time of writing, peg it at around 8th magnitude at best, which is still somewhat higher than initially predicted. Sadly, this comet is only observed in the southern hemisphere at present.


Meridian
Barnard's Loop
M 78
Epsilon Orionis Nebula
Flame Nebula
Orion Nebula
Witch Head nebula
C/2022 E3 (ZTF)
2023 Feb 27
2023 Feb 28
2023 Mar 01
2023 Mar 02
2023 Mar 03
2023 Mar 04
2023 Mar 05
2023 Mar 06
2023 Mar 07
2023 Mar 08
2023 Mar 09
2023 Mar 10
2023 Mar 11
2023 Mar 12
2023 Mar 13
2023 Mar 14
2023 Mar 15
2023 Mar 16
2023 Mar 17
2023 Mar 18
2023 Mar 19
2023 Mar 20
2023 Mar 21
2023 Mar 22
2023 Mar 23
2023 Mar 24
2023 Mar 25
2023 Mar 26
2023 Mar 27
2023 Mar 28
2023 Mar 29
2023 Mar 30
2023 Mar 31
2023 Apr 01
2023 Apr 02
2023 Apr 03
2023 Apr 04
2023 Apr 05
2023 Apr 06
2023 Apr 07
2023 Apr 08
2023 Apr 09
2023 Apr 10

Meteors

There are no major meteor events predicted for March. However, sporadic meteors can be seen at any time during the night.

Deep Sky Observation - 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 (indeed we've covered it before in previous sky guides) - 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. This year, the weekends of the 18th and 19th and the following 25th and 26th are closest to New Moon in the month, giving us the best opportunity to take this challenge on.

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 off those who are further north, or south of this part of the world 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.

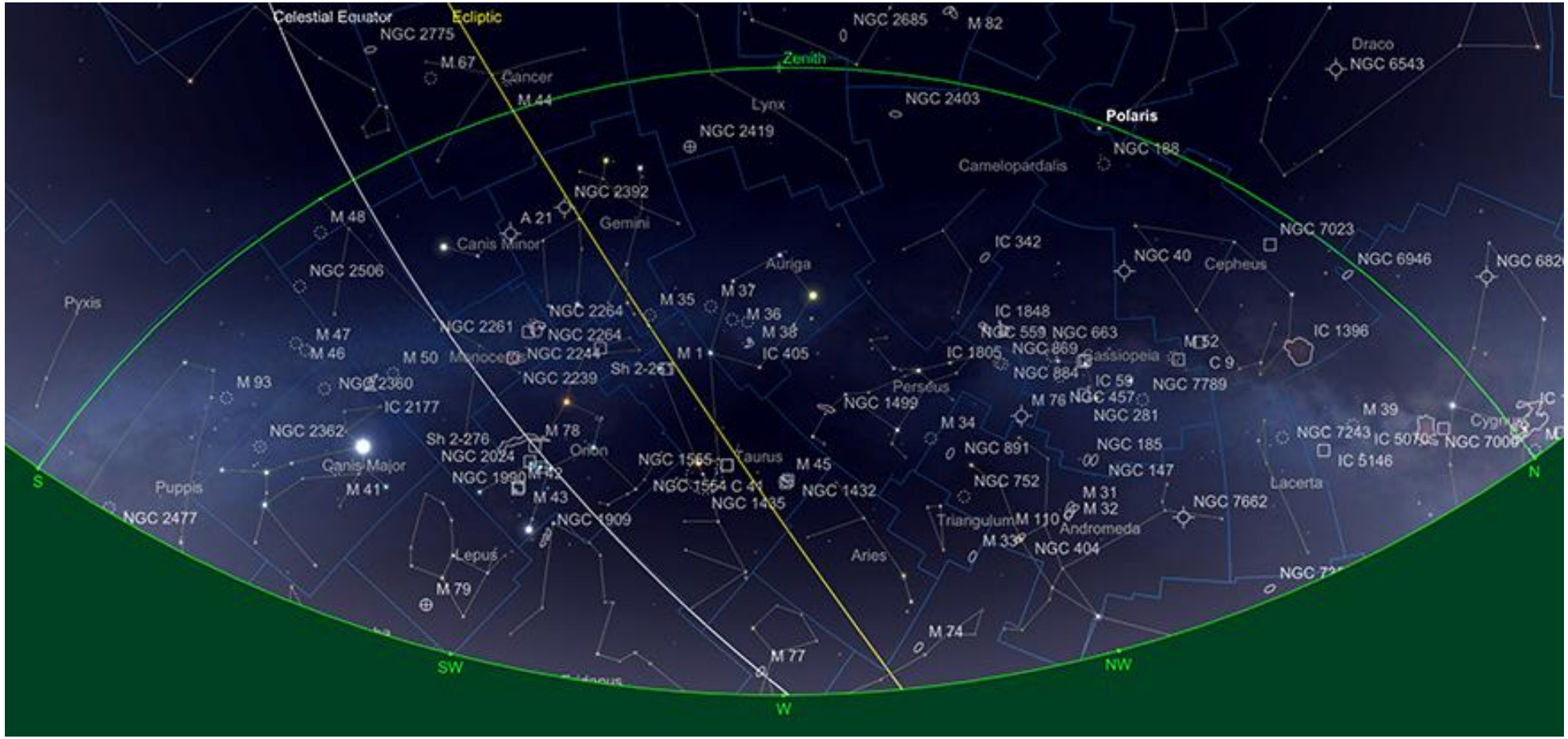
2. A Dark Observing Site. As eluded to above, dark skies are essential to achieving positive identification of some of the fainter members of the list. The absence of the Moon from proceedings is also extremely helpful, as any additional skyglow caused by our natural satellite will be extremely unhelpful. This makes the New Moon period of the 17th 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.

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 7th 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.

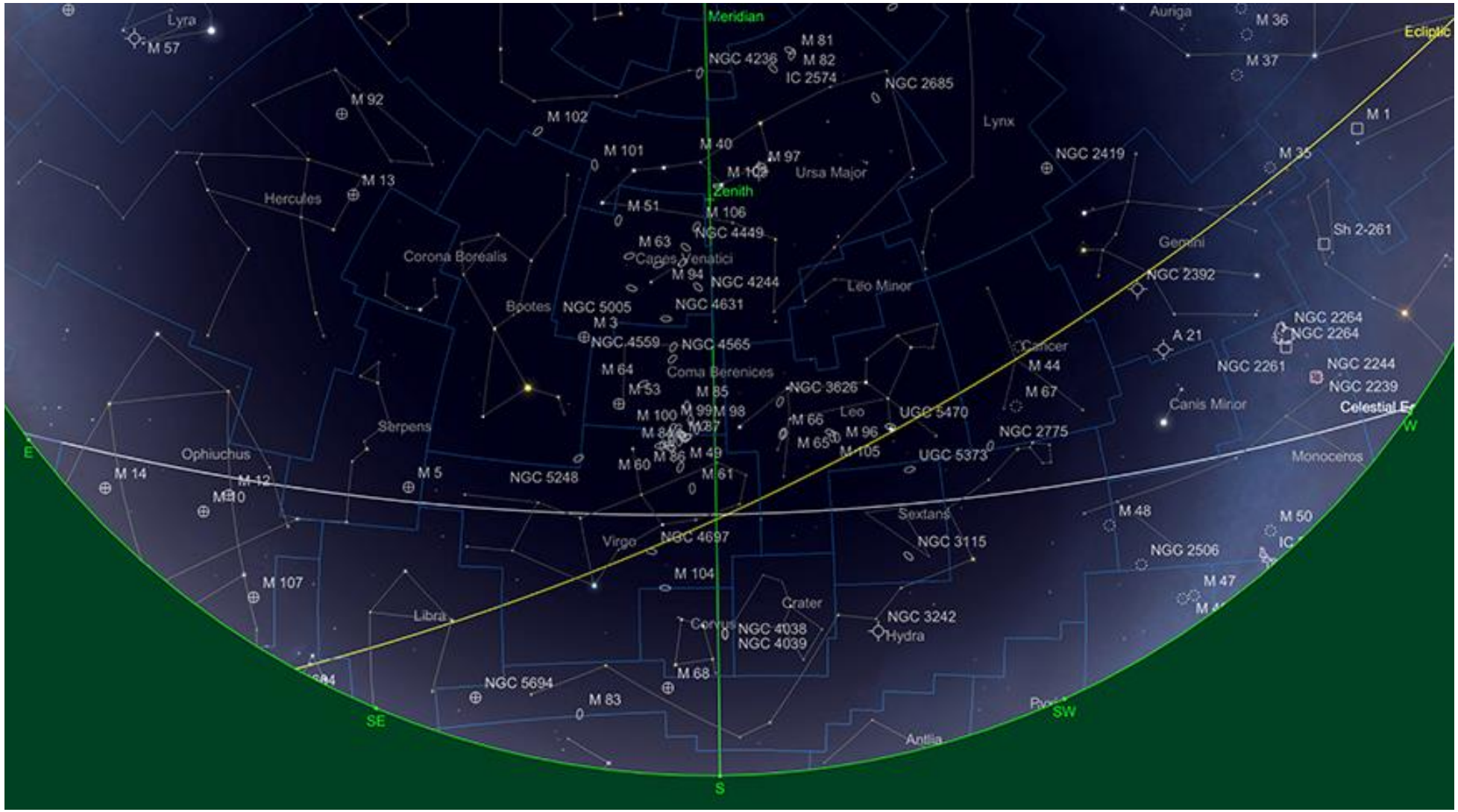
When attempting the Messier Marathon at this time of year, we can split it up into roughly four quarters. The first of these are those objects that are in the west of the sky after Sunset, which need to be observed quickly before they set (or become too low to observe in the north). If you use the Milky 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.



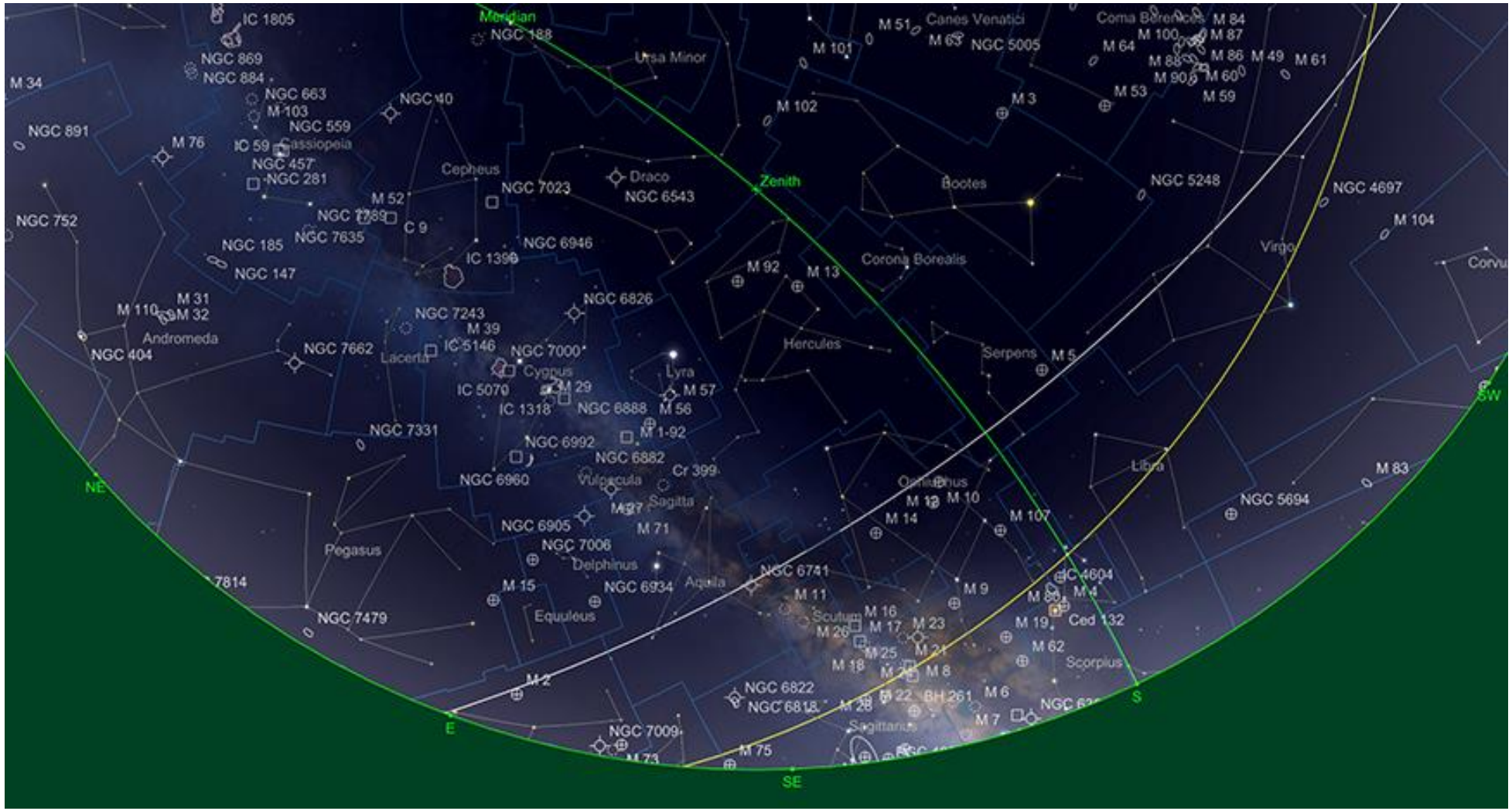
Messier Marathon part 1, after dusk, looking west. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

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.



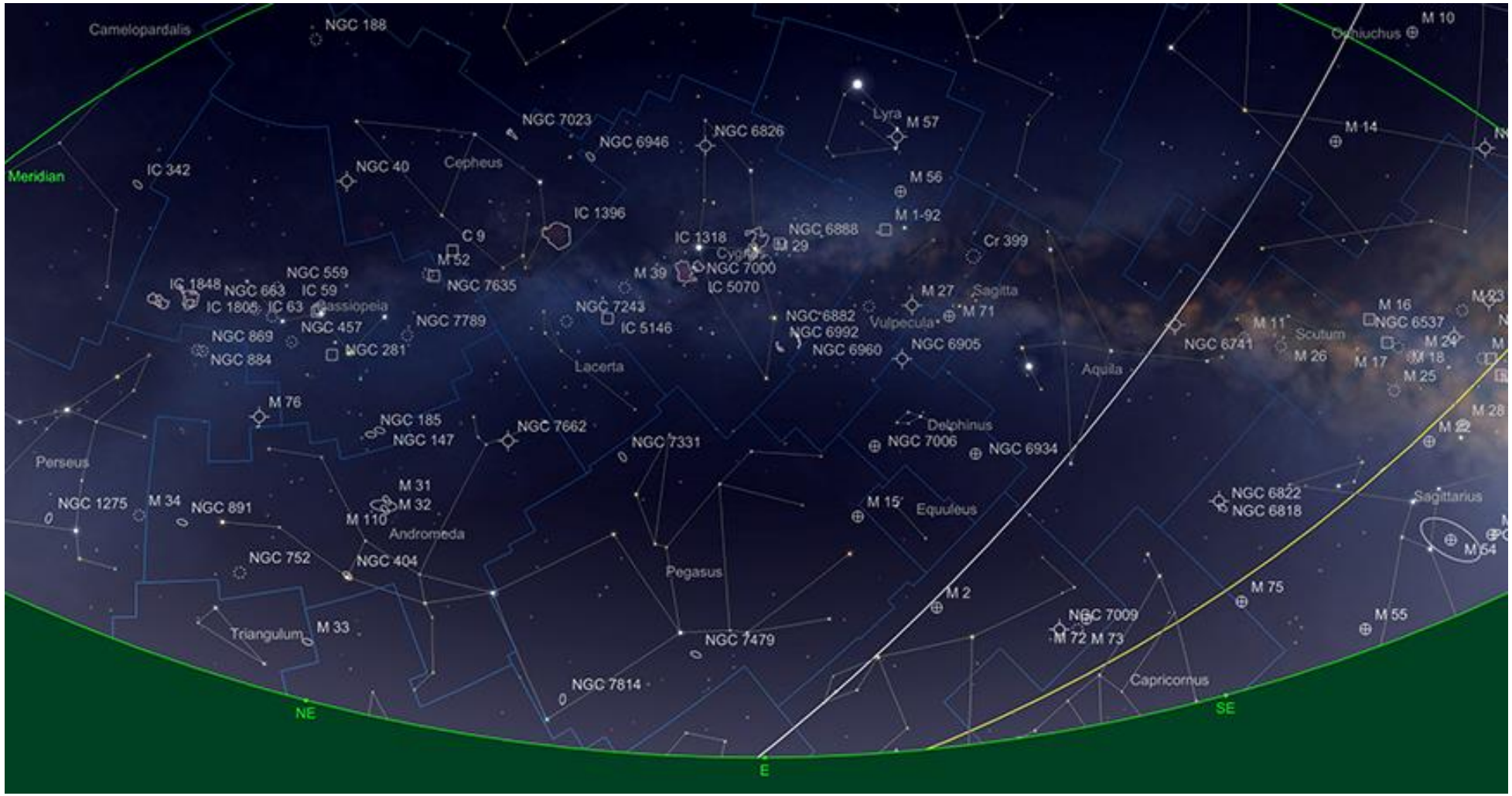
Messier Marathon part 2, midnight, looking north-south. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

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.



Messier Marathon part 3, 4am, looking southeast. 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.



Messier Marathon part 4, 5am, looking southeast. 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.