

What's Up – March 2022

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Sun and Moon

The New Moon occurs on 2 March at 19h34. The First Quarter falls on 10 March at 12h45 and the Full Moon occurs on the 18th at 09h17. The Last Quarter Moon falls on the 25th at 07h37.

On the 11th of March at 01h03, the Moon will be at apogee (furthest from Earth) at a distance of 404 268 km. The Moon will be at perigee (closest approach to Earth) at a distance of 369 760 km on the 24th of March at 01h37.

The March (autumnal, or vernal if you are on the northern hemisphere) equinox occurs on the 20th of March at 17h33 (local time), this marks one of the two dates in the year when day and night are approximately equal in length.

Planetary and Other Events – Morning and Evening

Mercury, Venus, Mars and Saturn are all visible in the morning sky this month and they can all be observed in the southeastern skies just before sunrise. On the 1st of March, the Moon, Mercury and Saturn are very close to each other. Mercury and Saturn can be observed near the stars of the constellation Capricornus. Mars and Venus are initially close to stars of the constellation Sagittarius at the beginning of the month and are located near Capricornus by month end. Do not miss the exciting alignment of the waning crescent moon, Saturn and Venus on the 27th of March. Check out the alignment of Venus, Mars and Saturn on the 28th of March. Jupiter is trapped in the solar glare and reaches solar conjunction on the 5th of March and is not visible at all this month.

Two meteor showers are active in March. The gamma-Normids are active from February the 25th to March the 22nd, peaking on the 13th of March. These showers are best viewed between 00:00 a.m. and 04:30 a.m. looking south-east towards the constellation Norma. Hourly rates are expected to be around 8 meteors per hour at the maximum. The delta-Pavonids are active from the 11th of March to the 16th of April, peaking on the 6th of April. They are best viewed between 02:00 a.m. and 04:30 a.m. looking towards the constellation of Pavo (the Peacock). Hourly rates are expected to be around 5 meteors per hour at the maximum.

Keen observers are encouraged to check Comet 19P/Borely, which will be visible this month. The comet will be located near the stars of the constellation Aries.

The Evening Sky Stars

The bright stars near the summer Milky Way continue to dominate the evening sky, just as in February. The Milky Way runs from NNW to SE in early evening at the beginning of March, and from NW to SE at the end of the month. If you live where a lack of city lights allows you to see the Milky Way, notice how very different the northern and southern portions appear. In the north the Milky Way appears relatively smooth and dim, becoming suddenly brighter and clumpier south of straight up. In the north we're looking out toward the edge of our Milky Way galaxy; while at the point where we see the sudden brightening (in the constellation of Carina, the Keel of the great ship Argo) we are looking along our spiral arm of the galaxy, where there are far more stars in the line of sight. Orion is still high in the NNW in early evening, outlined by the bright stars Rigel, Saif, Betelgeuse and Bellatrix. Taurus the Bull, with the brightish star

Aldebaran, is low in the NW.

Directly below Orion in the north are the stars of Auriga the Charioteer, with brilliant Capella near the horizon. Capella is really a pair of giant stars, which orbit each other every 104 days. About 100 million km apart, the two stars are each about 10 times the diameter of the Sun, and 50 and 80 times as bright, respectively.

Low in the NNE are the bright stars of the Twins, Castor and Pollux. Castor is another interesting multiple star. Through a telescope, there are 3 stars visible, and astronomers have discovered that each of these is itself double. Castor thus consists of 3 pairs of stars, with the stars in each pair orbiting each other with periods of 20 hours to 9 days, the two bright pairs orbiting each other every 400 years, and the dim pair orbiting the other two over many thousands of years.

The brightest star in the sky (not counting the Sun), Sirius the Dog Star, appears almost overhead on March evenings, while a bit south of the point overhead is the second brightest star in the night sky, Canopus. Rising in the southeast are the stars of the Southern Cross and the Pointers (Alpha and Beta Centauri). Alpha Centauri is a triple system, with two sun-like stars orbiting each other every 80 years and a dim red dwarf tagging along at a much larger distance. This red star was discovered by Robert Innes at the Union Observatory in Johannesburg in 1915, who also suggested the name Proxima. As seen from a planet around either of its brighter companions, Proxima would be an ordinary dimmish star, invisible for observers plagued by city lights. When it was discovered, Proxima was the faintest star known, but it has long lost this distinction. At a little over 4 light years away, the stars of the Alpha Centauri system are the closest neighbours of our own Sun.

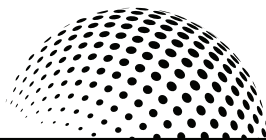
Achernar and the Magellanic Clouds (looking like detached pieces of the Milky Way) can still be seen in the southwest on March evenings. The Large and Small Magellanic Clouds are the nearest galaxies to our own Milky Way (with the exception of two small galaxies actually being swallowed by our galaxy) and are about 180 thousand and 190 thousand light years away, respectively. Compare this with Achernar, which is located inside the Milky Way and a mere 90 light years away. The Sotho referred to Achernar as the senakane (the little horn) while the shield of the little horn is the Small Magellanic Cloud, known as mo'hora le tlala (plenty and famine). If dry dusty air made it appear dim, famine was to be expected.

The Morning Sky Stars

Bright orange Arcturus is low in the northwest before dawn, while ice-white Vega can be seen rising in the northeast. Vega is one of our neighbours, only 25 light years away, and is surrounded by a disk of dust which has intrigued astronomers. To the right of Arcturus is the dim semicircle of the Northern Crown, with the stars of Hercules between the Crown and Vega. Almost overhead is Antares, heart of the Scorpion. The Milky Way runs from northeast to southwest, with the brightest part of the Milky Way in the Scorpion and in Sagittarius the Archer.

High in the south are the stars of the Southern Cross and the Pointers, with bright Canopus very low in the southwest.

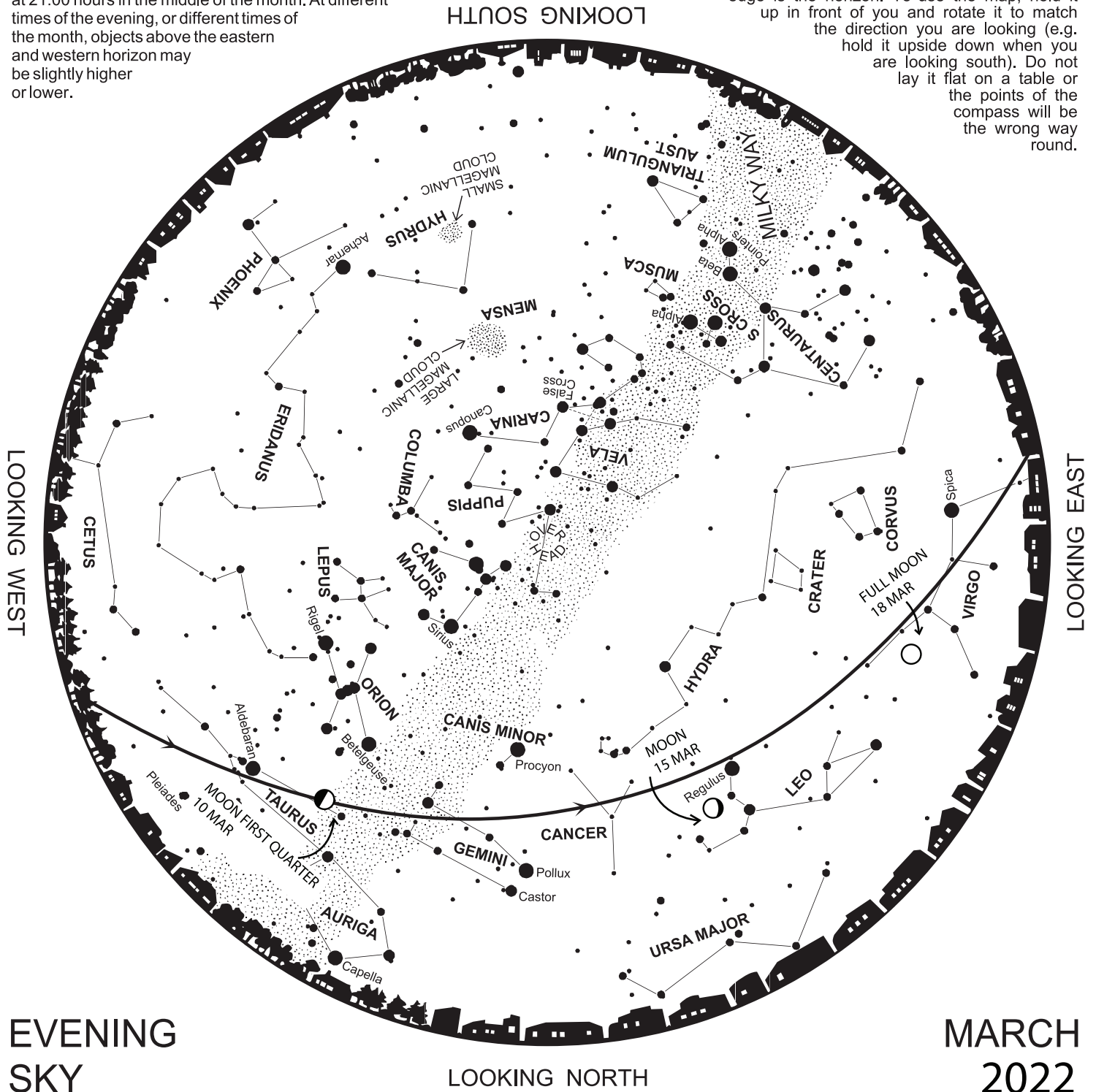
Achernar shines low in the southeast, with the stars of the 'Celestial Aviary' above it. In this part of the sky are the Toucan, the Phoenix, the Crane and the Peacock, assorted scientific instruments and the Southern Fish.



IZIKO PLANETARIUM AND DIGITAL DOME

The map shows the night sky visible above the Cape at 21:00 hours in the middle of the month. At different times of the evening, or different times of the month, objects above the eastern and western horizon may be slightly higher or lower.

The centre of the map is the overhead point, the edge is the horizon. To use the map, hold it up in front of you and rotate it to match the direction you are looking (e.g. hold it upside down when you are looking south). Do not lay it flat on a table or the points of the compass will be the wrong way round.



EVENING SKY

MARCH 2022

According to African starlore, the Milky Way Galaxy was created when a girl of an ancient race flung a handful of ashes and burned edible root into the sky, creating a glowing path her elders could use to find their way back home. The old red roots created the cool red stars and the young white roots, the hotter blue/white stars.

Try to identify the different coloured stars in the Milky Way as it unfurls itself directly overhead this month. These colours give an indication of the star's surface temperature, where white stars like Rigel (see Orion, hunter, in the north-west) and Sirius (Canis Major, big dog, overhead) are typically

much hotter with shorter lifespans than cooler red stars like Betelgeuse (Orion) and Aldebaran (Taurus, bull, low in the north-west).

The Moon will be in the evening sky from 5 to 24 March, with Full Moon ('Harvest Moon', see cfah.org.za/fullmoon/ for more details) on 18 March and Vernal Equinox (roughly equal day and night) on 20 March (17:32:53 SAST). From 19 to 23 March in the morning, all five naked-eye planets are visible shortly before sunrise, with the closest planetary grouping on 21 March. Try to identify Mars, Venus, Saturn, Mercury, and Jupiter as they appear in the west along an imaginary line called the Ecliptic.