

## What's Up – August 2023

### Sun and Moon

The Full Moon occurs on the 1<sup>st</sup> of August at 20h31 and the Last Quarter Moon falls on the 8<sup>th</sup> of August at 12h28. The New Moon occurs on the 16<sup>th</sup> of August at 11h38 and the First Quarter Moon falls on the 24<sup>th</sup> of August at 11h57. A second Full Moon (referred to as a Blue Moon) occurs on the 31<sup>st</sup> of August at 03h35.

On the 16<sup>th</sup> of August at 13h54, the moon will be at apogee (furthest from Earth) at a distance of about 406 634 km. On the 2<sup>nd</sup> of August at 07h52 the moon will be at perigee (closest to Earth) at a distance of 357 311 km. It will be at perigee again on the 30<sup>th</sup> of August at 17h54, at a distance of 357 181 km.

### Planetary and Other Events – Morning and Evening

Mercury and Mars are still visible in the west after sunset. Mercury, the smallest planet, can be observed near the stars of the constellation Leo. Mars, the red planet, is also located near the stars of the constellation Leo. Mars and Mercury will be near the Moon on the 18<sup>th</sup> and 19<sup>th</sup> of August. Saturn, the beautifully ringed planet, is visible in the east later in the evening. It can be observed near the stars of the constellation Aquarius, and will be near the Moon on the 3<sup>rd</sup> of August. Saturn reaches opposition on the 27<sup>th</sup> of August; this is the best time to observe the planet and its beautiful rings. Venus reaches inferior conjunction on the 13<sup>th</sup> of August and passes into the morning sky. Venus then shines as the bright morning star and can be observed in the morning in the last week of August.

Four meteor showers are active in August: The Piscis Australids, the Southern delta-Aquariids, the alpha-Capricornids, and the eta-Eridanids. The Piscis Australids are active from the 15<sup>th</sup> of July to the 10<sup>th</sup> of August, peaking on the 28th July. To view the Piscis Australids find a dark spot and look near the constellation of Piscis Austrinus for the Piscis Australids radiant. The best time to view the shower is from around 21h30 until 05h00. The Southern delta-Aquariids meteor shower is active from the 12<sup>th</sup> of July to the 23<sup>rd</sup> of August, peaking on the 30<sup>th</sup> of July. To view the Southern delta-Aquariids, find a dark spot and look near the constellation of Aquarius for the Southern delta-Aquariids radiant. The best time to view the shower is from around 22h00 until 05h00. The alpha-Capricornids meteor shower is active from the 3<sup>rd</sup> of July to the 15<sup>th</sup> of August, peaking on the 30<sup>th</sup> of July. To view the shower, look near the constellation of Capricornus for the alpha-Capricornids radiant. The best time to view the alpha-Capricornids is from around 20h00 until 04h00. The eta-Eridanids meteor shower is active from the 31<sup>st</sup> of July to the 19<sup>th</sup> of August, peaking on the 8<sup>th</sup> of August. To view the shower, look near the constellation of Eridanus for the eta-Eridanids radiant. The best time to view the eta-Eridanids is from around 01h00 until 05h30. The prospect for observation is poor for all four meteor showers.

### The Evening Sky Stars

In the north, orange Arcturus shines brightly in the evening sky, with the half circle of the Northern Crown to the right, and bright white Vega rising low in the north east. Higher in the ENE, tangled in the northern Milky Way, is Aquila the Eagle with its bright star Altair. Vega and Altair are relatively nearby stars, but like most of the stars visible to the naked eye would appear much brighter than the Sun if they and the Sun were at the same distance.

To the south of Arcturus, high in the NW, shines blue-white Spica, the brightest star in Virgo. Spica actually consists of two stars 260 light years away from us, orbiting each other once every 4 days. Both are much hotter and brighter than the Sun. The brighter of the pair is 11 times as massive as our Sun and 13 000 times as bright, the other 7 times as massive as our sun and 'only' 1 700 times as bright.

Red Antares and the stars of the Scorpion are almost overhead in the early evening, and you should easily be able to see the shape of the Scorpion – this is one of the few constellations which really resembles the creature it's named after. Antares is about 600 light years away, and

radiates about 10 000 times as much energy as the Sun at wavelengths perceived by the eye. But Antares has a surface temperature of only 3 300 degrees (compared to 5 500 degrees for the Sun) and radiates most of its energy as infrared radiation. The total energy output of Antares is about 65 000 times as much as that of the Sun, and this 'red supergiant' is so large that if it was placed at the centre of our own solar system, the orbit of Mars would be less than halfway from the centre of Antares to its swollen surface.

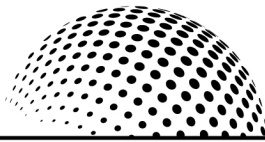
High in the south are the Giraffes of Vha Venda star lore (the Pointers – Alpha and Beta Centauri – and the stars of the Southern Cross). For observers away from city lights, the winter Milky Way is spectacular on August evenings when the moon doesn't interfere. The centre of our Galaxy is nearly overhead, and it is easy to see the 'pancake' shape of our wheel of hundreds of billions of suns, complete with the bulge near the middle. For the Indian tribes of South America, the dark patches in the Milky Way were also constellations. We know today that such dark areas as the Coal Sack (near the Southern Cross) and the Great Rift are dense dust clouds where new stars are forming.

### The Morning Sky Stars

Orion is once again prominent in the eastern sky, raising his club to swat the pesky Bull that forever charges at him. Orion's two dogs are with him as well, with Procyon (brightest star in the Small Dog) lower in the east and Sirius (brightest star in the Large Dog and in the night sky) to the southeast of Orion. It's unclear, however, whether the dogs are paying attention to Orion's problems or to the hare which is hopping by between Orion and the Large Dog.

High in the southeast shines Canopus (called uCanzibe in isiXhosa; Naka in seSotho and seTswana), the second brightest star in the night sky and brightest star in the huge ancient constellation of Argo, the great exploring ship that sought the Golden Fleece. Today it's split up into several smaller constellations such as the Sails and the Keel. If the Argo is headed to or from Cape Town, it's only logical that Table Mountain is in view, and it is just possible (on a dark night far from city lights) to see the dim stars of the Table Mountain (Mensa) constellation in the far south. Thanks to Nicolas de Lacaille, who added fourteen constellations to the southern sky as he observed from Cape Town, Table Mountain is the only geographical feature on Earth to have its own place in the stars. You'll probably find it easier to see the Tablecloth, represented by the Large Magellanic Cloud. The LMC, as astronomers know it, is a satellite galaxy of our own Milky Way, and a mere 180 000 light years away. It's the closest galaxy to our own which is not actually being 'digested'. Our Milky Way is cannibalizing two small galaxies at the moment, and neither is fully separate anymore. Part of the LMC (which looks to the eye like a stray patch of the Milky Way) slops over into the nearby constellation of the Swordfish, and the remainder of the southern sky is taken up with an odd collection of birds, water creatures and scientific instruments such as the Peacock, the Crane, the Water Snake, and the Rhomboidal Net. The instruments, like Table Mountain, owe their place in the sky to Lacaille's mapping of the southern sky in the mid-eighteenth century.

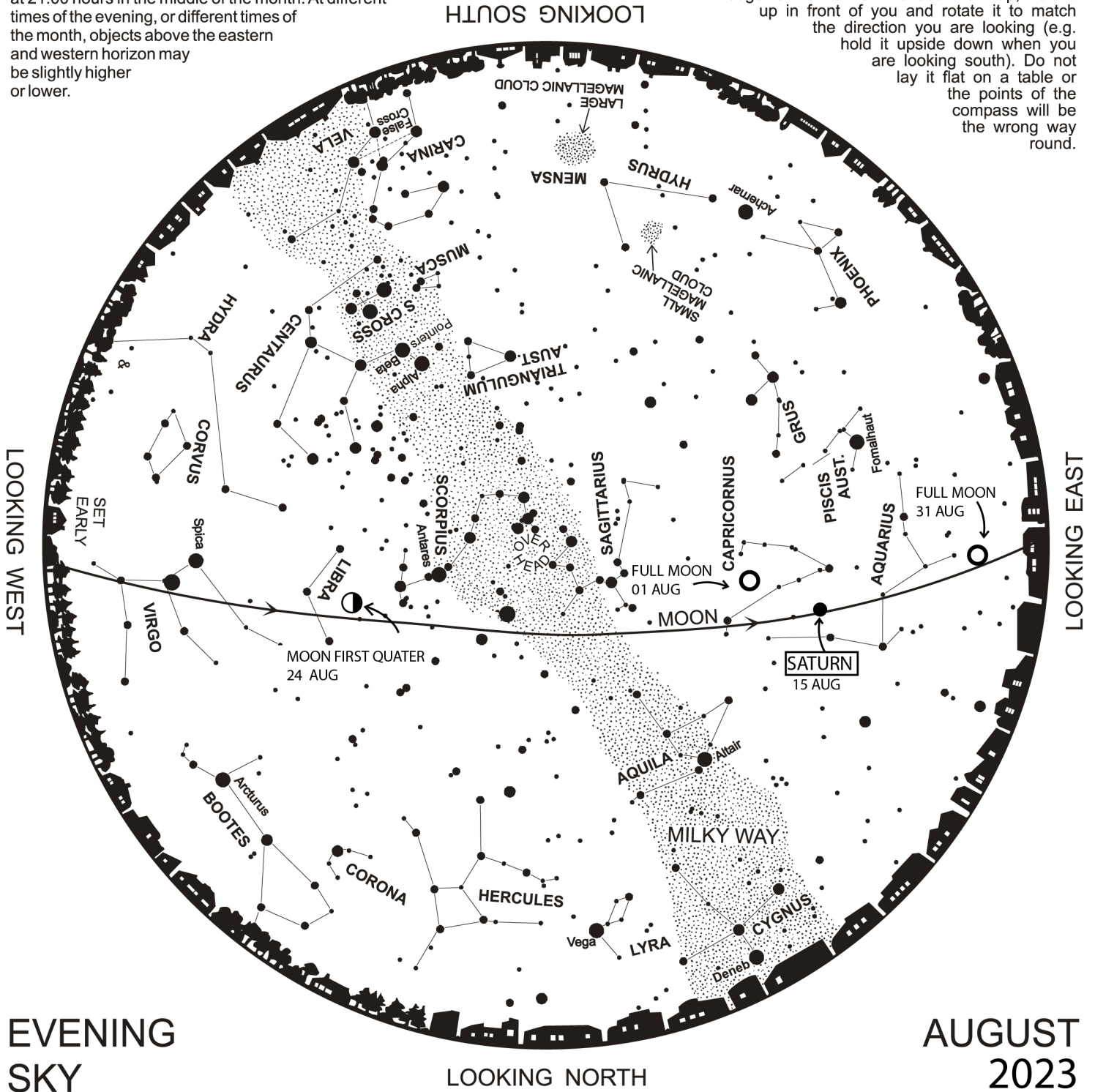
Flowing from the southwest corner of Orion is the long winding constellation of Eridanus, the celestial river, with bright Achernar near its 'mouth' high in the southwest. Canopus is 'Naka' (the 'Horn' star), in the Sotho calendar, while Achernar is 'Senakane', the 'little horn'. To the west of Eridanus is a rather watery part of the sky including the Whale, the Fishes, the Water Bearer and the Sea Goat. Fomalhaut (meaning 'mouth of the southern fish') is the brightest star in the western sky, but almost all the bright stars in this month's morning sky are in the east. It's relatively nearby (only 25 light years away) and a mere 200 million years old, making it just a baby compared to the Sun. A huge disk of icy dust, four times the diameter of our solar system, surrounds Fomalhaut. There is a clear area around the star itself which may have been caused by the formation of a system of planets, but while it's quite likely that there are planets around Fomalhaut, they have eluded detection so far.



# 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

## AUGUST 2023

Put your birding skills to the test this month as you trace out the several winged constellations currently gliding across our evening skies. This celestial aviary includes Corvus (crow) low on the western horizon and Grus (crane) hovering just above the constellation Phoenix towards the southeast. Between Grus and Hydrus (water snake), lies Tucana (toucan, not shown on map). Aquila (eagle) soars upwards through the Milky Way Galaxy, pursued closely by Cygnus (swan) near the northern horizon. Following the Milky Way onwards, you'll find Scorpius (scorpion) and Sagittarius (archer) directly overhead.

Further south, past the Southern Cross with its two bright pointer stars Alpha and Beta Centauri, lies the Great Carina nebula (NGC 3372) - a large bright emission nebula well worth exploring with binoculars. This month you can test out the phrase 'once in a blue moon' (meaning very rarely), as there are two full moons: on 1 August (Peace Supermoon) and on 31 August (Dusty Blue Supermoon, also a monthly Blue Moon). Both full moons are Supermoons, which occur when the new/full moon is at its closest approach to Earth. During the month, Venus will migrate from 'Evening Star' (setting just after sunset in the west) to 'Morning Star' (rising before sunrise in the east), where it will reside for the rest of the year.