

What's Up – August 2022

Sun and Moon

The First Quarter falls on the 5th of August at 13h06 and Full Moon occurs on the 12th of August at 03h35. The Last Quarter falls on the 19th of August at 06h36 and the New Moon occurs on 27th of August at 10h17.

On the 22nd of August at 23h52, the moon will be at apogee (furthest from Earth) at a distance of about 405 418 km. On the 10th of August at 19h08, the moon will be at perigee (closest to Earth) at a distance of 359 828 km.

Planetary and Other Events – Morning and Evening

Venus, Mars, Jupiter and Saturn are still visible in the morning sky. Some people have never seen these planets. Since National Science Week is this month, it may be good idea to show family or neighbours the various planets (over a hot coffee, as the mornings are very cold). Venus can be located near the stars of the constellation Leo. Venus will be near the Moon on the 26th of August. Mars is located near the stars of the constellation Taurus. The red planet will be near the Moon on the 19th of August. Jupiter is located near the stars of the constellation Pisces. Jupiter will be near the Moon on the 15th of August. Saturn is located near the stars of the constellation Capricornus. The ringed planet will be well placed for observation as it reaches opposition on the 14th of August. It will be near the Moon on the 12th of August. Mercury can be observed near the stars of the constellation Virgo in the early evening sky, and it reaches the greatest elongation (distance from the Sun in the sky) on the 27th. Mercury will be near the Moon on the 29th of August.

Three meteor showers are active in August: The Piscis Austrinids, the Southern delta Aquarids and the alpha Capricornids. The Piscis Austrinids are active from the 19th July to the 17th August, peaking on the 29th July. To view the Piscis Austrinids find a dark spot and look east near the constellation of Piscis Austrinus for the Piscis Austrinids radiant. The best time to view the shower is from around 21h30 until 05h00, when they'll be in the west. The Southern delta Aquarids meteor shower is active from the 21st of July to the 29th of August, peaking on the 30th of July. To view the Southern delta Aquarids, find a dark spot and look east near the constellation of Aquarius for the Southern delta Aquarids radiant. The best time to view the shower is from around 22h00 until 05h00, when they'll be in the west. The alpha Capricornids meteor shower is active from the 15th of July to the 25th of August, peaking on the 30th of July. To view the shower, look east near the constellation of Capricornus for the alpha Capricornids radiant. The best time to view the alpha Capricornids is from around 20h00 until 04h00, when they'll be in the west.

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 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 13000 times as bright, the other 7 times as massive as our sun and 'only' 1700 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 10000 times as much energy as the Sun at wavelengths perceived by the eye. But Antares has a surface temperature of only

3300 degrees (compared to 5500 for the Sun) and radiates most of its energy as infrared radiation. The total energy output of Antares is about 65000 times as much as the Sun's, and this 'red supergiant' is so large that if it were 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 a hundred billion of suns, complete with the bulge near the middle. For the indigenous people 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.

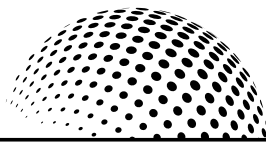
The Morning Sky Stars

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) 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 (Mons Mensae) constellation in the far south. Thanks to Nicolas de Lacaille, who added more than a dozen 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) slopes 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 quite likely has been caused by the formation of a system of planets – but the actual planets elude detection so far.

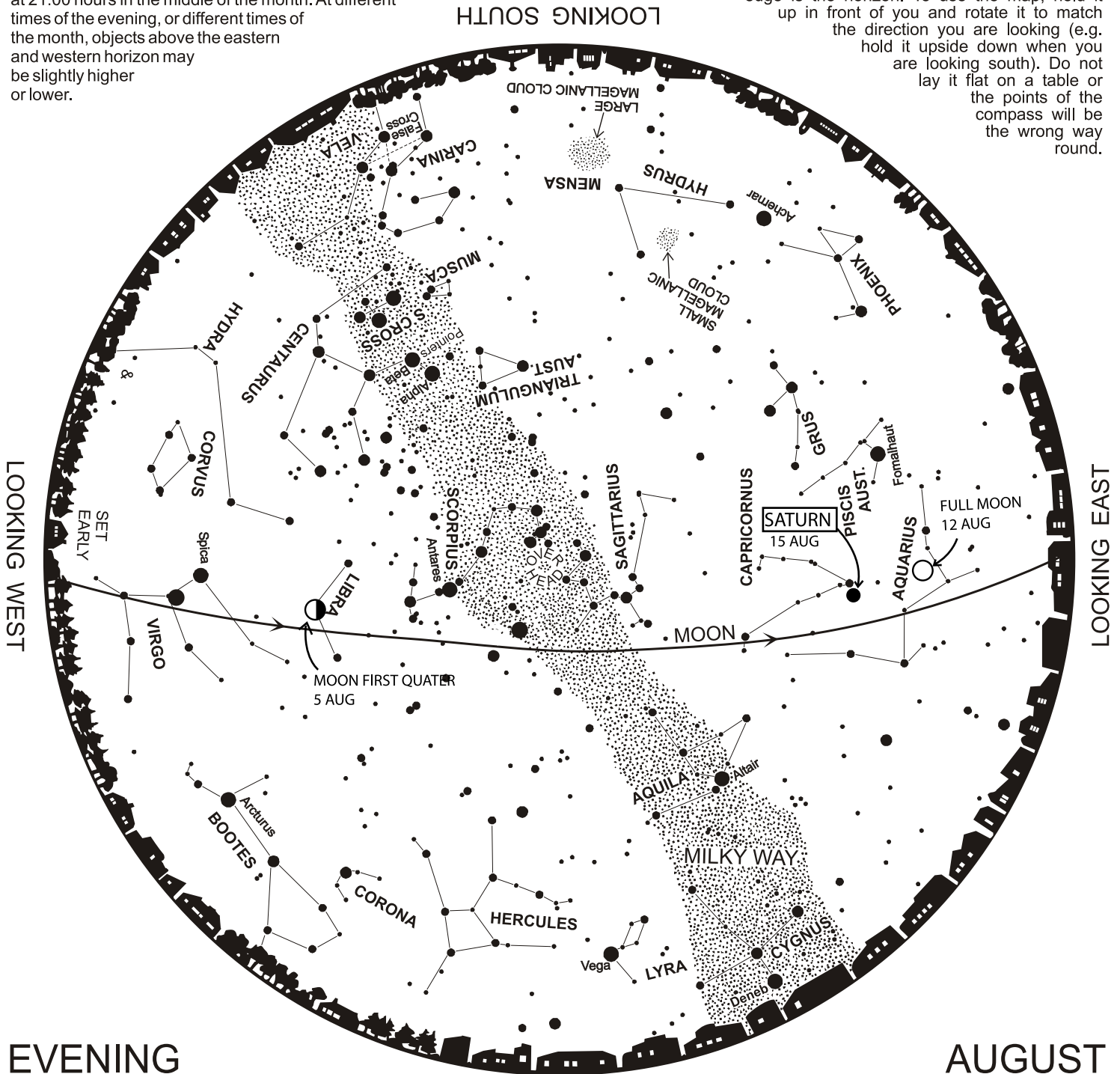
Sivuyile Manxoyi (sivuyile@saa.ac.za)



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 2022

Put your birding skills to the test this month as you trace out the several winged constellations that are currently gracing 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. Aquila (eagle) soars upwards through the Milky Way Galaxy, pursued closely by Cygnus (swan) close to the northern horizon. Following the plane of the Milky Way, past Aquila, you will find the winter constellations Scorpius (scorpion) and Sagittarius (archer) directly overhead this month. Continue along this Galactic path, past the Southern Cross with its two bright pointer stars Alpha and Beta Centauri, and

you may spot the Great Carina nebula (NGC 3372). This large bright emission nebula is a rich star-forming region, well worth exploring with your binoculars (see the 2022 Sky Guide Africa South, available from local bookshops, for more details).

Saturn rises along with Capricornus (sea goat) a few hours after sunset. Late August will be your best opportunity this year to see Mercury in the early evening just after sunset (optimally on 27 August). The Moon will be in the evening sky until 17 August and then from 28 August with Full Moon (the 'Peace Moon', see cfah.org.za/fullmoon/ to find out more) on 12 August