

What's Up – August 2014

What's Up – August

Sun and Moon

The First Quarter falls on the 4th of August. The Full Moon (the largest full moon of the year) is on the 10th at 20h09. The Last Quarter falls on the 17th. The New Moon falls on the 25th.

On the 10th of August, the moon will be at perigee (closest to Earth) at a distance of 356 900km. On the 24th of August the moon will be at apogee (furthest from Earth) at a distance 406 500km.

Between the 1st and 31st of August, the Sun has moved 9.3 degrees southward and the length of the day has increased by 41.2 minutes.

Planetary and Other Events – Morning and Evening

Mercury can be seen in the evening sky for the second half of the month after reaching superior conjunction on the 8th of August. Venus is prominent in the morning sky but rises only shortly before the Sun. By month end, it rises less than an hour before the Sun. Mars can be seen for the first half of the night. Jupiter rises shortly before the Sun and is visible in deep twilight by month end. Saturn is visible after sunset and can be seen for about half the night. Uranus and Neptune can be seen for more than half the night. Neptune is particularly well placed for observing. Three meteor showers are active in August.

Of these, observing prospects are good for the following two: the Southern delta Aquariids and the alpha Capricornids. The Southern delta Aquariids meteor shower is active from the 21st July to 29th August, peaking on the 29th July. To view the Southern delta Aquariids find a dark spot and look east near the constellation of Aquarius for the Southern delta Aquariids radiant. The best time to view the South delta Aquariids is from around 21:30 PM until 05:00 AM when they'll be in the west. The alpha Capricornids meteor shower is active from the 15th July to the 25th August peaking on the 30th 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 20:00 PM until 04:00 AM 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 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 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 the Sun, 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 Vanda starlore (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 Coalsack (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 paying attention to Orion's problems or to the hare which is hopping by between Orion and the Large Dog. 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 between Orion and the Large Dog. High in the southeast shines Canopus, second brightest star in the 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 Mensa) 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) 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 was 'Naka' (the 'Horn' star), in the Sotho calendar, while Achernar was '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 the actual planets elude detection so far. It's quite likely that there are planets.

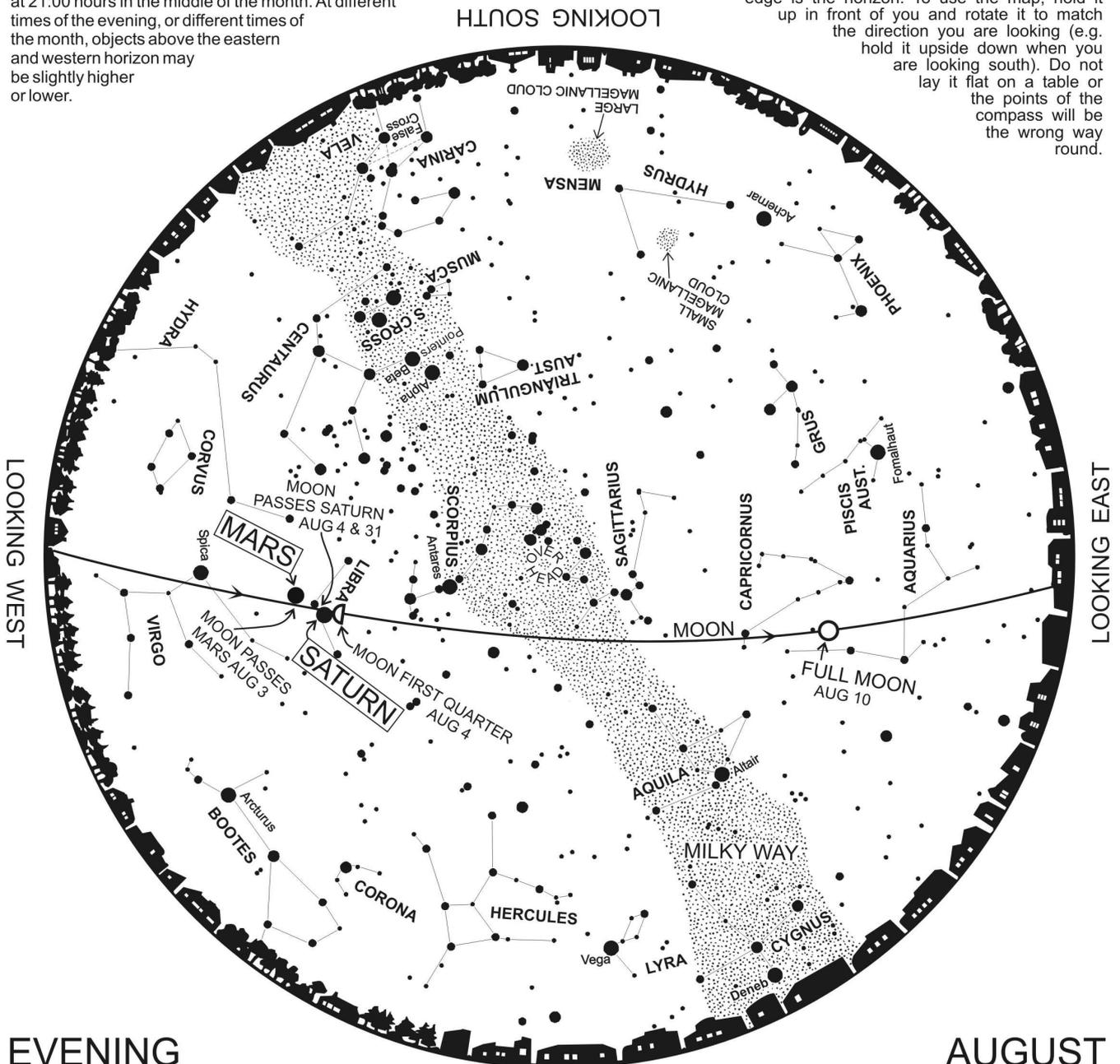
Sivuyile Manxoyi: Sivuyile@saa.ac.za 31 July 2014

Planetarium

25 Queen Victoria Street, Cape Town
 Postal: PO Box 61, CAPE TOWN, 8000
 Tel 021 481-3900, Fax 021 481-3990

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
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Astrophotography, the photography of celestial objects began in 1840 when the Moon was first imaged. The first star to be photographed (other than the Sun), was Vega, the brightest star in the constellation Lyra (Lyre, a musical instrument). This month Vega can be seen low above the north-eastern horizon. Scorpius, the constellation resembling a scorpion, is directly overhead. From Scorpius the constellations of Sagittarius (Archer), Capricornus (Sea Goat) and Aquarius (Water Bearer) lie in a line down to the eastern horizon. Down to the western horizon are Libra (Scales)

and Virgo (Maiden). These are six of the 12 constellations of the zodiac, well-known patterns of stars that lie along the ecliptic, the path of the Sun, Moon and planets against the starry background. The ecliptic also crosses the constellation of Ophiuchus (Serpent Bearer) briefly, where it lies just north of Scorpius and Sagittarius. Planet Mars starts the month in Virgo, but joins planet Saturn in Libra by mid-month. The Moon is in the evening sky until 12 August and again from 28 August. The largest Full Moon of the year is on 10 August.

This map is given to those who attend the shows on Saturday at 13:00, Sunday at 13:00 and Tuesday at 20:00. It is copyright to the Planetarium.

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