

## What's Up – July 2014

### What's Up – July

#### Sun and Moon

The First Quarter Moon occurs on the 5<sup>th</sup> of July. The Full Moon is on the 12<sup>th</sup> of July at 13h25. The Last Quarter Moon occurs on the 19<sup>th</sup> of July and the New Moon is on the 27<sup>th</sup> of July. On the 13th July at 02:37 AM the moon will be at perigee (closest to Earth) at a distance of 358 300 km. On the 28th, the moon will be at apogee (furthest from Earth) at a distance of 406 600 km.

#### Planetary and Other Events – Morning and Evening

Mercury is visible in the morning sky, reaching the greatest elongation on the 12<sup>th</sup> of July. Venus is the brilliant morning "Morning Star" this month, rising shortly before the onset of twilight. Mars is visible for the first half of the night. Jupiter sets during the evening twilight and is marginally visible early in July. Saturn is prominent in the evening sky and can be seen for slightly more than half the night. Uranus and Neptune are well placed for observing in the morning sky and can be seen for more than half of the night.

Four meteor showers are active in July, namely July Phoenicids, the Southern delta Aquariids and Alpha Capricornids. Of these, observing prospects are good for the following three: the July Phoenicids, the Southern delta Aquariids and the alpha Capricornids.

The July Phoenicids meteor shower is active from the 10th July to the 16th July, peaking on the 13th. To view the shower, find a dark spot and look east near the constellation of Phoenix. The best time to view the July Phoenicids is from 23:00 PM in the east to 05:00 AM when they'll be in the SW.

The Southern delta Aquariids meteor shower is active from the 12th July to 17th August, peaking on the 28th 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 dawn when they'll be in the NW.

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

The Milky Way is a dominant presence on July evenings, with the brilliant stars of Centaurus nearly overhead, and the Cross just to the south. Marking the southern edge of the Milky Way below the Centaur are the dimmer stars of the Housefly and the Southern Triangle. To the west of Centaurus along the Milky Way is the great ship Argo, with Canopus, second brightest star in the sky, glowing low in the SW. Sirius appears brighter in our sky only because it's so much closer (9 light years to Canopus' distance of 313 light years), but Canopus is a supergiant star, 8-9 times as massive as our own Sun, 65 times the Sun's diameter and 15,000 times as bright. Although the surface temperature of Canopus is 'only' 7800 degrees, its atmosphere is heated to about 20 million degrees, meaning plenty of hard radiation for any alien astronaut unfortunate enough to be nearby.

To the east of the Centaur are the stars of the Wolf and the Scorpion, with the Altar just to the south at the edge of the Milky Way. But the thickest part of the Milky Way lies around

Sagittarius, the Archer, and the stars of the Scorpion's sting. In this direction is the centre of our galaxy, and hidden by thick dust clouds is the black hole in the exact centre, 4 million times the mass of our Sun and a bit smaller than the size of Earth's orbit.

Just north of the Centaur is the tail of Hydra, the giant water snake, with its body extending far into the west almost parallel to the Milky Way. Low in the west is Alphard (Arabic for 'the solitary one'). Low in the NW are the stars of the Lion, while low in the northeast are the dim stars of the great hero, Hercules with the delicate semi-circle of the Northern Crown between it and a bright orange Arcturus (the 'Bear Guard') low in the north.

Arcturus is the brightest star in Boötes (the Herdsman), which some say is the most ancient constellation in the sky. It looks brighter than any other star in the northern hemisphere, and is an orange giant 37 light years away, 215 times as bright as our sun, and 26 times the Sun's diameter. Arcturus' orbit around the centre of the galaxy is quite different from the orbits followed by most stars in our neighbourhood, and it has only 20% as much iron. One possible explanation is that it may originally have been part of a small galaxy that merged with our Milky Way billions of years ago.

#### The Morning Sky Stars

The Milky Way runs completely around the horizon on July mornings, appearing low in the sky in every direction. That means that when you look overhead you are looking straight from our Milky Way galaxy toward the South Galactic Pole. Orion the Hunter, with orange Betelgeuse and blue-white Rigel, is rising in the east. From the northeast, the V-shape of the Bull's head (with bright Aldebaran as the Bull's glowing eye) charges Orion. And riding on the back of the Bull is the open cluster of stars called the Pleiades, which is about 400 light-years away. The Pleiades is also widely known as the Seven Sisters, and known to the Namaqua people as "the daughters of the sky god". The isiXhosa and isiZulu speaking people call these stars "Isilimela".

On the low in the ESE we see brilliant Sirius, brightest star in the sky, among the other stars of Orion's Large Dog, while the Hare scampers between the Dog and the Hunter. The second brightest star in the sky is Canopus, seen in the southeast on July mornings, and marking the Keel of the upside-down Ship Argo. (As most of the constellations were invented in the northern hemisphere, we tend to see them bottom side up.) High in the south is bright Achernar, marking one end of the celestial river Eridanus. The other end is near Rigel about where Orion's knee would be. Below Achernar in the south are the southern Water Snake and the Toucan, with the Peacock a bit lower in the SW. Alpha Pavonis is actually a pair of hot, luminous blue-white stars about 183 light years away, revolving around each other every 11.75 days. It's about 450 times as luminous as the Sun.

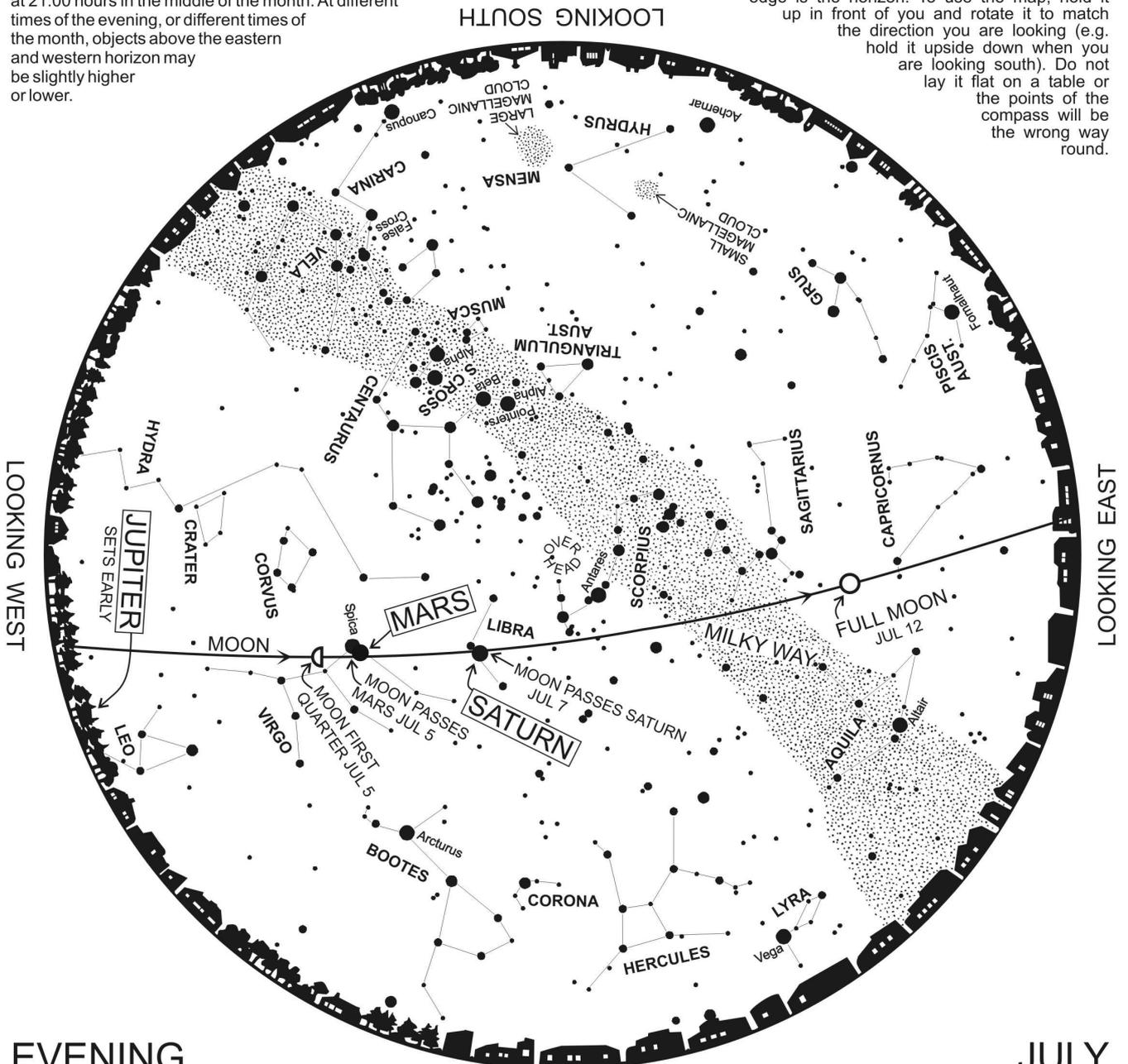
High in the W are the Crane and the Southern Fish, with its bright star Fomalhaut, with the stars of the Sea Goat making a dim irregular triangle a bit lower in the W. High in the N and NE is the appropriately large constellation of the Whale, reminding us that in a couple of months it will be time for whale-watching again along the Cape coast.

# Planetarium

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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**

LOOKING NORTH

**JULY  
 2014**

The 88 official constellations we recognize today are areas named mostly after traditional patterns prominent within their borders. The largest constellation, Hydra, the Water Snake, can be seen in the western sky. Alphard, a bright star close to its head is near the horizon with fainter stars depicting its body as it twists and curls upwards. Nearby we find the Crater and Corvus, the Cup and the Crow respectively. According to Greek mythology, Apollo threw the Snake, Cup and Crow into the sky. Almost directly overhead is the bright star, Antares, a red supergiant at the "heart" of the Scorpion

(Scorpius). If it were placed at the centre of our Solar System, its outer surface would lie between the orbits of Mars and Jupiter. The smallest constellation, Crux, is the well-known Southern Cross, high in the southern sky. It can be distinguished from the False Cross lower down by looking for the two bright stars in line with the top of the Southern Cross, Alpha and Beta Centauri (the Pointers). Two planets are prominent in the evening sky. Mars is in Virgo and Saturn is in Libra. The Moon is in the evening sky until 14 July and again from 28 July.

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.

