SOUTH AFRICAN ASTRONOMICAL OBSERVATORY

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What's Up – February 2013

Sun and Moon
LAST QUARTER (half moon in the morning sky) falls on the 3rd. NEW MOON is on the 10th at 09:20 AM. FIRST QUARTER (half moon in the evening sky) falls on the 17th. FULL MOON occurs on the 25th at 22:26 PM.

On the 10th the young lunar cresecent will be visible in the northern Pacific and western USA and Canada. It may also be visible with optical aid from the eastern US, Canada and Mexico. On the 11th it will be visible worldwide except the southern parts of South America, New Zealand and and most of Australia. The first possible sighting in South Africa will be on the 11th of February.

The Moon will be at perigee (closest approach to Earth) at a distance of 365 313 km on the 7th at 14:10 PM. On the 19th at 08:31 AM the Moon will be at apogee (furthest from Earth) at a distance of 404 473 km.

Planetary and Other Events – Morning and Evening
Mercury is visible as an evening star for the whole of the month. Venus shines as a brilliant morning star, rising around 05:30 AM. Mars is up in the very early evening, it is visible early in the month, however by month's end it is lost in the sun's glare before it sets.

Jupiter is visible from dusk until around 01:00 AM at the beginning of the month, although by month's end it will set by 23:30 PM. Saturn rises just before midnight at the beginning of the month (after 10:00 PM at months end) and is visible until daybreak. Uranus and Neptune are both visible from sunset. Uranus sets around 22:00 PM at the beginning of the month, gradually setting earlier each night until the end of the month when it sets around 20:00 PM. Neptune sets before 20:30 PM all month.

Two meteor showers are active in February. The gamma-Normids are active from February the 25th to March the 22nd, peaking on the 13th of March. However, observing prospects are not good for this shower in February due to the bright moon. The alpha Centaurids, in the constellation of Centaurus are active from the 28th January to the 21st February, peaking on the 7th of February. Observing prospects for the alpha Centaurids are good and they are best viewed between 22:00 PM and 03:30 AM looking towards the constellation of Centaurus in the south east. Hourly rates are expected to be around 5 meteors per hour at the maximum.

Another exciting event this February is the near Earth fly-by of asteroid 2012 DA_{14}. This asteroid has an estimated diameter of about 45 m and an estimated mass of 130,000 tons! It was discovered in February 2012 and it is predicted to make a close pass of the Earth on the 15th February at 21:26 PM at a distance of 34,100 km, closer than satellites in geosynchronous orbit! Unfortunately, the asteroid will not be visible with the naked eye as it is too faint with a peak apparent magnitude of only 7.4. We will not notice the passing of the asteroid in any way, however professional astronomers will be pointing their telescopes its way to study it in detail!

The Evening Sky Stars
The stars of Orion are high in the north on February evenings, with blue-white Rigel above and to the left of the three belt stars, and orange-red Betelguese below and to the right of them. Below and to the left of Orion is Aldebaran, brightest star in the Bull, with the Pleiades nearby in the NW at the Bull's shoulder. The Pleiades, according to the Namaquas, were the daughters of the sky god. When their husband (Aldeberan) shot his arrow (Orion's sword) at three zebras (Orion's belt), it fell short. He dared not return home because he had killed no game, and he dared not retrieve his arrow because of the fierce lion (Betelgueuse) which sat watching the zebras. There he sits still, shivering in the cold night and suffering thirst and hunger.

To the right of Orion is Procyon, brightest star in the smaller of Orion's two hunting dogs. Directly below (N) of Procyon are the stars of the Twins, with the dim stars of Cancer the Crab just to the right. Among the stars of Cancer is what looks to the eye like a fuzzy glow, but which binoculars show to be a cluster of stars, the 'Beehive'. Directly below Orion is brilliant Capella near the northern horizon, brightest star in the Charioteer. Capella is actually a system of four stars, consisting of a pair of luminous yellow stars and a pair of faint red dwarf stars. Above Orion's feet (he's upside down, as you'd expect for a constellation invented in the northern hemisphere) is the Hare, with Orion's Big Dog above Orion itself and to the right if you're facing north. The Big Dog boasts the brightest star in the sky, Sirius.

With Sirius nearly overhead, we have Canopus (second brightest star in the sky) high in the south near the Milky Way. Bright Achernar (Senakane, the 'Little Horn') is below Canopus and to the right for an observer facing south. The Water Snake and the Small Magellanic Cloud are below Achernar and to the left. Among galaxies separate from our own, the Small Magellanic Cloud is the second nearest, 'only' 200 000 light years away. We see it as a dim glow like a detached piece of the Milky Way -- and we see it as it was 200 000 years ago. This small satellite galaxy of the Milky Way is gradually being torn apart by the tidal forces it encounters each time it passes near our Milky Way's largest satellite galaxy, the Large Magellanic Cloud.

This time of year is a great time for snakes in the sky. The Small Cloud lies partly in the southern Water Snake, while the giant monster Water Serpent is visible in the north. Directly to the right of Achernar are the stars of the Phoenix, with the Toucan directly below. The Toucan includes a particularly beautiful cluster of hundreds of thousands of stars, just visible to the naked eye as a dim fuzzy spot if there is no moon and there are no city lights interfering. This cluster, 47 Tucanae, is nearly 120 light years across, and is roughly 20 000 light years away from us. Of the roughly 100 'globular clusters' that orbit the centre of our Milky Way galaxy, 47 Tuc is the second brightest.

The Milky Way runs almost due north and south in our skies in early evening this month, from the N into the SSW. The southern portion is very much the brighter, running through the constellations of the Poop Deck, the Compass, the Sails and the Keel (all parts of the ancient constellation of the great ship Argo), with Crux and the Centaur near the horizon.

Rising into eastern evening sky this month are Alphard, the orange star at the heart of Hydra the Water Serpent (lowish in the east at dusk), and Regulus in Leo (low in the northeast).

The Morning Sky Stars
The brilliant Milky Way in the morning sky runs from E to WSW, running from Scutum (the Shield), the Archer and the Scorpion through the Carpenter's Square, the Altar, the Wolf and the Drawing Compasses, before reaching the Centaur, the Cross and the Housefly, and finally the Great Ship Argo in the west. To the south of the Milky Way are the mostly dim stars of the Peacock,

the Bird of Paradise, the Octant, the Chameleon and the Flying Fish.

High in the north, almost overheard, are the stars of Virgo, with blue-white Spica the brightest among them. Spica is actually a double star but unfortunately it is not resolvable with binoculars or a telescope. The two components are less than 32 million kilometers apart (the Sun-Earth distance is 150 million kilometers). The two stars orbit each other every 4 days.

Keeping dangerous bears out of our southern sky is bright orange Arcturus, low in the north and brightest star in the constellation of Boötes, the bear-herd. Arcturus is the brightest star in the sky's northern hemisphere, and the fourth brightest in the sky. Arcturus is cooler and much larger than our sun, radiating more than 200 times as much energy. At 26 times our sun's diameter, Arcturus would extend a quarter of the way out to the planet Mercury if put in the Sun's place. Unlike the Sun, it does not derive its energy output from fusing hydrogen to helium in its core, but has reached a stage in its life cycle where it converts helium into carbon.

Nicola Loaring 31 January 2013

Planetarium

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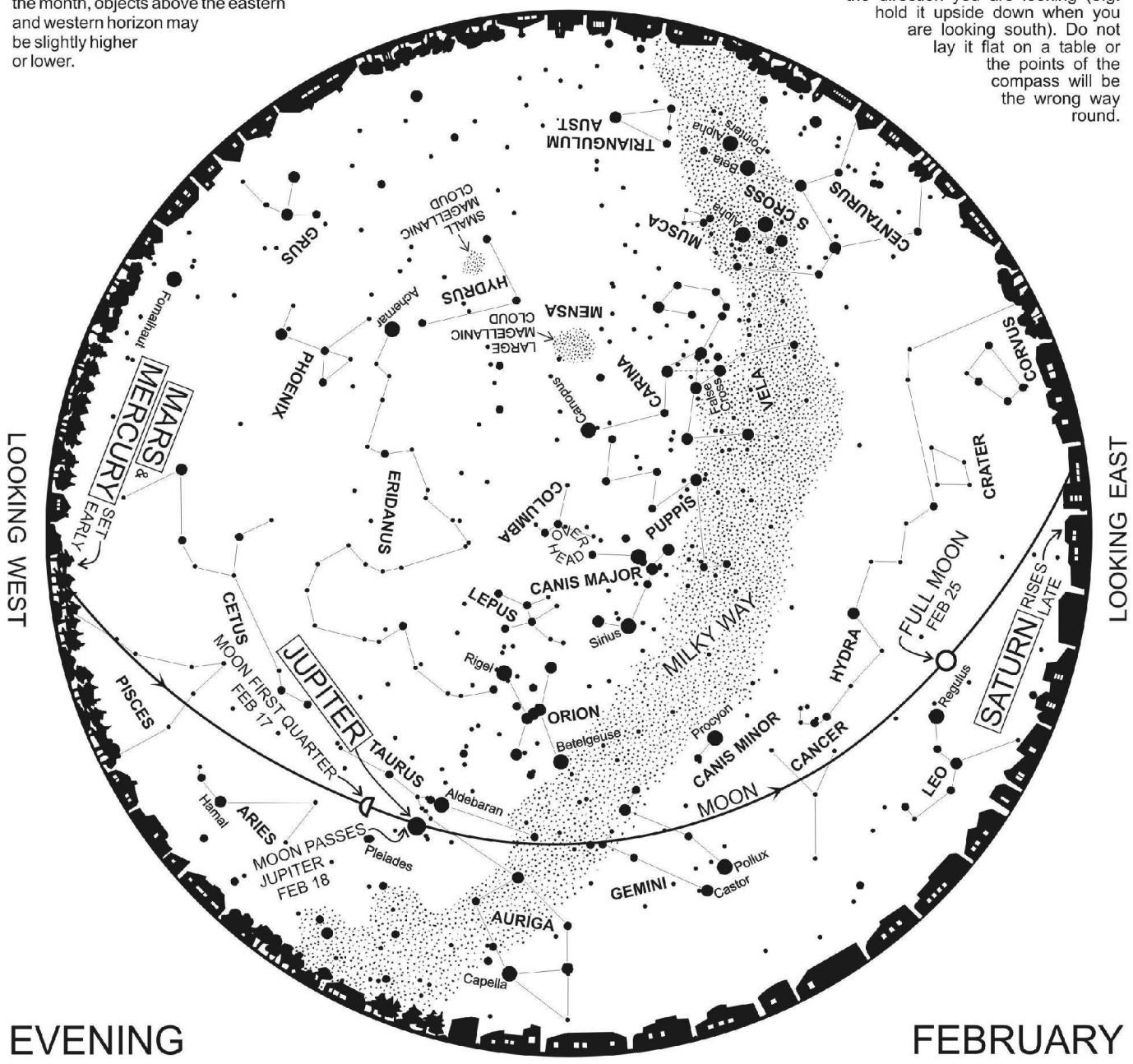
The map shows the night sky visible above the Cape at 21:00 hours in the middle of the month. At different times of the evening, or different times of the month, objects above the eastern and western horizon may be slightly higher or lower.

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

FEBRUARY 2013