

## What's Up – February 2018

### What's Up – February

#### Sun and Moon

The Full Moon ( a Blue moon , second Full Moon within the same calendar month) occurred on the 31st January 2018 as a result of this , we have three lunar phases this month. The Third Quarter falls on the 7th of February at 17h53. The New Moon occurs on the 15th of February at 23h05, please note there will be a partial solar eclipse on the 15th of February but will only be visible in Antarctica and southern regions of South America. and the First Quarter falls on the 23rd of February at 10h09.

On the 11<sup>th</sup> of February at 16h17 the Moon will be at apogee (furthest from Earth) at a distance of 405 700 km. The Moon will be at perigee (closest approach to Earth) at a distance of 363 932 km on the 27th of February at 16h39.  
(Look out for the second Blue Moon the 31st of March, two Blue Moons in a year is a rare event)

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

Mercury is visible but may be difficult to see as it is moving closer to the Sun. It reaches its superior solar conjunction on the 17th of February. Try to catch Mercury at dawn early this month and at dusk at month-end. Venus reemerges from its recent solar superior conjunction to shine brightly as the brilliantly as Evening Star. Venus can be seen low in the west just after sunset. Mars and Jupiter are visible from late night until dawn. Saturn rises in the morning and can be seen until daybreak. Uranus can be located near constellation of Pisces early in the evening this month. Neptune is approaching its conjunction with Sun and is therefore only visible at dusk very early in February near the stars of the constellation Aquarius.

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.. To see the shower, look towards the constellation of Norma between 00:00 AM and 04:00 AM. Around 8 meteors per hour are expected at the peak.

The alpha Centaurids, in the constellation of Centaurus are active from the 28th January to the 21st February, peaking on the 8th of February as the Earth passes through the centre of the meteor stream. Observing prospects for the alpha Centaurids are unfavourable due to the full moon on the 4th. 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 7 meteors per hour at the maximum.

#### 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 Betelgeuse 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 (Aldebaran) 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 (Betelgeuse) 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, 47Tuc is the second brightest.

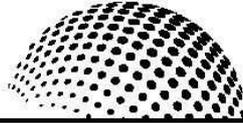
The Milky Way runs almost due north and south in our skies in early evening this month, from the N into the SSW. The southern portion is very much the brighter, running through the constellations of the Poop Deck, the Compass, the Sails and the Keel (all parts of the ancient constellation of the great 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 (lowest 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 kilometres apart (the Sun-Earth distance is 150 million kilometres). 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.

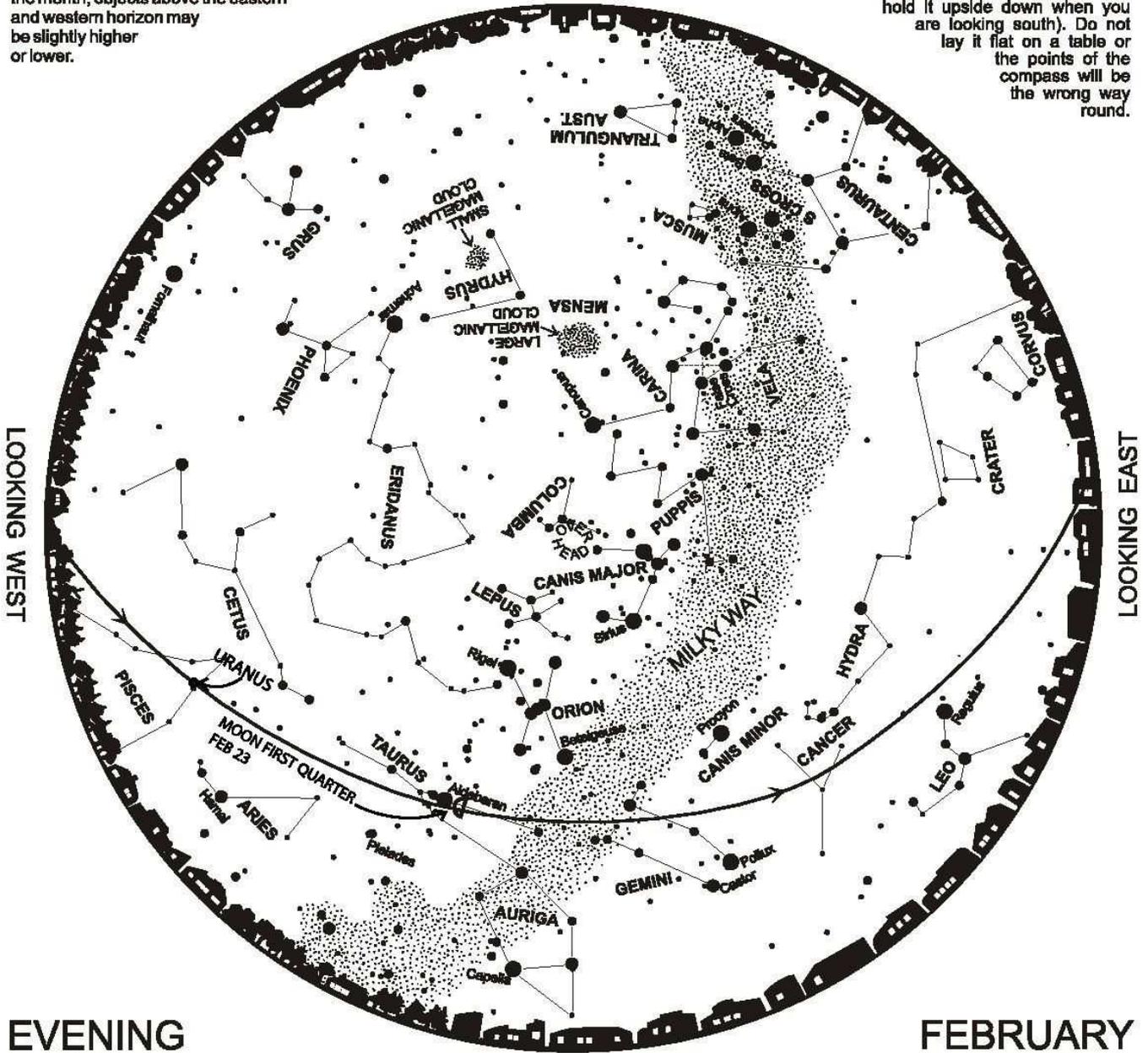


# IZIKO PLANETARIUM AND DIGITAL DOME

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.

LOOKING SOUTH



EVENING SKY

FEBRUARY 2018

LOOKING NORTH

High above the northern horizon the asterism known as Orion's Belt can be identified easily. The three bright stars forming the Belt are named, from right to left, Mintaka, Alnilam and Alnitak. Extend their line towards the left and downwards to reach the bright star, Aldebaran, in the constellation of Taurus (Bull). This orange-hued star is a red giant around 65 light years away. It has expanded to 44 times the diameter of the Sun and now shines with 425 times the Sun's luminosity, although it only has about 50% more mass. In the same direction but more than twice as far away as Aldebaran at about 150 light years distant, are the Hyades, a v-shaped open star

cluster. The Hyades and Aldebaran represent the nose and fiery red eye of the Bull. On the opposite side of the sky is Crux (Southern Cross), still low above the southern horizon but climbing higher every night. Towards the end of the month Venus can be seen as the brilliant Evening Star low in the west soon after sunset. The Moon is in the evening sky (at 9pm) on 1 February and again from 18 February. The partial eclipse of the Sun on 15 February is not observable from southern Africa.

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