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What's Up – July 2023

What's Up – July

Sun and Moon

The Full Moon occurs on the 3rd of July at 13h38 and the Last Quarter Moon falls on the 10th of July at 03h47. The New Moon occurs on the 17th of July at 20h31 and the First Quarter Moon falls on the 26th of July at 00h06.

The Moon will be at perigee (closest approach to Earth) at a distance of about 360 149 km on the 5th of July at 00h24. On the 20th of July at 08h56, the Moon will be at apogee (furthest from Earth) at a distance of about 406 289 km.

Planetary and Other Events – Morning and Evening

This month presents an opportunity to view all the 5 naked-eye planets: Venus, Mars and Mercury (in the evening skies), Saturn (from late evening) and Jupiter (in the early morning skies)

Venus still dazzles the evening sky as the bright evening star. It is located in the northwest near the stars of the constellation Leo. The moon will be near Venus on the 20th of July. Mars, the red planet, is also still visible in the evening sky, and it is also located in the northwest near the stars of the constellation Leo. Mars will be near the moon on the 21st of July. Mercury, the smallest planet in our solar system, joins Venus and Mars from midmonth and it is also located near the stars of the constellation Leo. Saturn, the beautiful ringed planet, can be observed from midnight and is located near the stars of the constellation Aquarius. Saturn will be near the moon on the 7th of July. Jupiter, the biggest planet in our solar system, can be observed in the morning sky. It is located in the northeast near the stars of the constellations Aries and Cetus. Jupiter will be near the moon on the 11th of July. With an aid of a telescope in dark and clear skies, Uranus and Neptune can be observed in the morning skies near the stars of the constellations Taurus and Pisces, respectively.

The dwarf planet Pluto reaches opposition on the 22nd of July and is therefore well positioned for observation with a telescope. It can be located near the stars of the constellation Sagittarius.

Three meteor showers are active in July, although observing prospects are poor for all of them. The Southern delta-Aquariids meteor shower is active from the 12th of July to the 23th of August, peaking on the 30th of July. To view the Southern delta-Aquariids, find a dark spot and look near the constellation of Aquarius for the Southern delta-Aquariids radiant. The best time to view the Southern delta-Aquariids is from around 22h00 in the east until 05h00, when they'll be in the NW.

The alpha-Capricornids meteor shower is active from the 3rd of July to the 15th of August, peaking on the 30th of July. To view the shower, look near the constellation of Capricornus for the alpha-Capricornids radiant. The best time to view the alpha-Capricornids is from around 20h00 in the east until 04h00, when they'll be in the west.

The Piscis Australis are active from the 15th of July to the 10th of August, peaking on the 28th of July. They are best viewed between 21h30 (east) and 05h00 (west), looking towards the constellation of Piscis Austrinus (the Southern Fish, not to be confused with Pisces).

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 compared 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. It has 4 million times the mass of our Sun and is 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 are also widely known as the Seven Sisters or Seven Princes or seven daughters according to the Nama people.

On the low in the ESE we see brilliant Sirius, brightest star in the night sky, among the other stars of Orion's Large Dog, while the Hare scampers between the Dog and the Hunter. Canopus, seen in the southeast on July mornings, marks 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. The stars of the Sea Goat make 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.

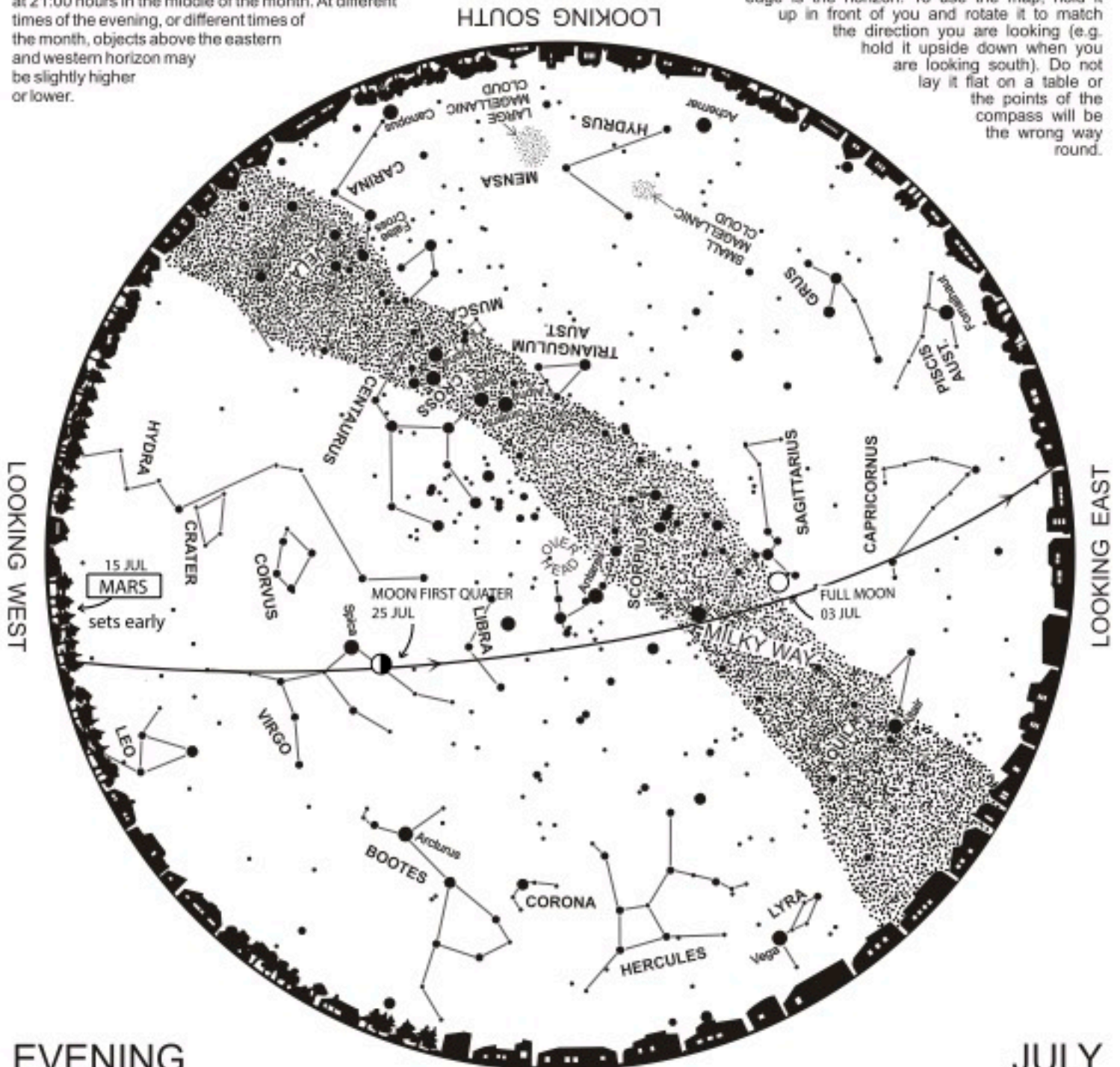
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IZIKO PLANETARIUM AND DIGITAL DOME

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

JULY 2023

Take advantage of the longer nights to do some chilly stargazing, as prominent winter constellations Scorpius (scorpion) and Sagittarius (archer) take centre stage overhead. This region reveals a treasure trove of fascinating celestial objects to explore with your binoculars. In this region, you can find the impressive open star cluster Messier 6 (Butterfly Cluster) and the globular star cluster Messier 4 (a close group of older gravitationally-bound stars). M4 is located close to the bright red star Antares in Scorpius. Closer towards Sagittarius lies Messier 8 (Lagoon Nebula), huddled among several open clusters. M8 is a beautiful emission nebula, bright enough to observe with your naked eye in dark conditions.

At the start of the month, look out for Venus and Mars in the west just after sunset. These two bright planets will appear very close to each other (in Leo, the lion). Around 20 July, they will be joined by Mercury and the waxing crescent moon. The moon will appear in the evening sky until 8 July, with the 'Meerkat Supermoon' on 3 July, and the crescent moon appearing from 19 July. A supermoon occurs when the new moon or full moon (on 3 July) coincides with perigee, when the moon is at its closest approach to Earth.