

What's Up – June 2021

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Sun and Moon

The Last Quarter Moon falls on the 2nd of June at 09h24. The New Moon occurs on the 10th of June at 12h52 and the First Quarter Moon falls on the 18th of June at 05h54. The Full Moon falls on the 24th of June at 20h39. On the 23rd of June at 11h54, the Moon will be at perigee (closest approach to Earth) at a distance of about 359 956 km. The Moon will be at apogee (furthest from Earth) at a distance of about 406 228 km on the 8th of June at 04h27.

There will be an annular solar eclipse on the 10th of June, however it will not be visible in Africa. It will be observable in Greenland, Northern Canada and Russia.

The Winter Solstice will occur on the 21st of June at 05h32.

Planetary and Other Events – Morning and Evening

Venus still dazzles the sky just after sunset and is located near the stars of the constellation Gemini at the beginning of the month and near the stars of the constellation Cancer by month end. Mercury may be glimpsed on the western horizon on the first few days of this month. It reaches inferior conjunction and surfaces in the morning skies before sunrise in the last week of the month. Mars is located near the stars of the constellation Gemini in the night sky. Jupiter and Saturn can be spotted near the stars of the constellations Aquarius and Capricornus respectively. Uranus and Neptune are visible this month.

Two meteor showers are active in June, the theta Ophiuchids and the June Lyrids. Observing prospects for both these showers are good. The theta Ophiuchids are active from the 8th of June to the 16th of June, peaking on the 13th of June. They are best viewed between 20:00 PM and 05:30 AM looking between the constellations of Sagittarius, Scorpius and Ophiuchus. The June Lyrids are active from the 11th of June to the 21st of June, peaking on the 16th. They are best viewed between 23:30 PM and 02:00 AM low down between NW and NE. They will appear to come from the general direction of the constellation Lyra (low in the North), but the longest trails will be visible about ¼ of the sky from here, either NW or NE, or higher in the north.

The Evening Sky Stars

Leo the Lion's upside down question mark should be easy to spot in the NW early in the evening, with the right triangle of the Lion's hindquarters and tail following in the NNW. Bright orange Arcturus guards the Great Bear (invisible from the Cape except for its feet) from the NE, with the dimmer semicircle of the Northern Crown a bit to the right for an observer looking N. Snaking its way across the sky above the constellations of the Lion, the Virgin and the Crow is the great water monster Hydra, with lonely Alphard at its heart fairly high in the NW at evening's beginning. Alphard is an orange giant star, 175 light years away and 400 times as bright as our Sun. If Alphard were at the centre of our solar system, it would extend halfway to the orbit of Mercury, and we would be toast. Arcturus is a similar star, also an orange giant, which appears brighter in our skies because it's only 37 light years away – but it is really only half as bright as Alphard. It's always a good idea to remember that the universe is

NOT two-dimensional, but that stars are at varying distances from us!

By month's end the Milky Way follows a path from west to ESE across the southern sky, with the bright stars Sirius and Canopus nearby in the W and SW, and the Large Dog, the great ship Argo, the Cross, the Fly, the Centaur, the Wolf, and the Scorpion tangled in the Milky Way itself. By late June the centre of our Milky Way has begun to rise even in early evening, and by late evening in winter the Milky Way is at its most majestic, with the centre of the galaxy passing nearly overhead. Notice the way the brighter stars are mostly in a belt almost, but not quite, coinciding with the Milky Way. This is 'Gould's Belt', showing where young stars in our part of the galaxy have been forming in the last few million years. From outside, our Milky Way galaxy would look like a glowing pancake with a lump in the middle, but the pancake would not be perfectly flat – some parts would appear slightly tilted or warped. Below the Milky Way are the bright stars Canopus in the SW and Achernar (very low in the SSW), the 'horn' and 'little horn' stars of African legend.

The Morning Sky Stars

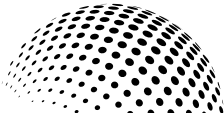
By morning, the Milky Way has nearly set, running near the horizon from north around through the west into the south. Deneb shines in the NW predawn skies of early June, marking the top of the Northern Cross, with bright Vega near the northwestern horizon. In the WNW, Altair is the brightest of the stars of Aquila the Eagle, flying southward through the Milky Way. Low in the WSW and SW are the stars of the Archer and the Scorpion, with the stars of the Pointers and the Cross low in the SSW and S as seen from the Cape. From northern South Africa they will typically be invisible.

Almost overhead in the predawn sky at the beginning of the month is the Southern Fish with its brightish star Fomalhaut ('mouth of the fish'), the 18th brightest star in the night sky. It's only 25 light years away and about 16 times brighter than our sun. Around it is a celestial doughnut, a giant disk of icy dust four times the diameter of our solar system. But the centre, around the star itself, is largely free of this material, possibly because planet formation has swept this area clean.

To the south of Fomalhaut are the stars of the Crane, with bright Achernar a bit further southeast. Canopus rises low in the SE before the Sun in early June, and by late June, bright Sirius is visible low in the ESE as well, while Orion can be seen low in the east before sunrise.

High in the northern sky are the stars of the Great Square of Pegasus. The Fishes are above and to the right of the Square (tied together by their tails). Beyond the Fishes, high in the NNE sky, is the Whale. With the Water Bearer and the Sea Goat to the SW of Pegasus, and the Southern Fish nearly overhead, this is a fairly waterlogged part of the sky!

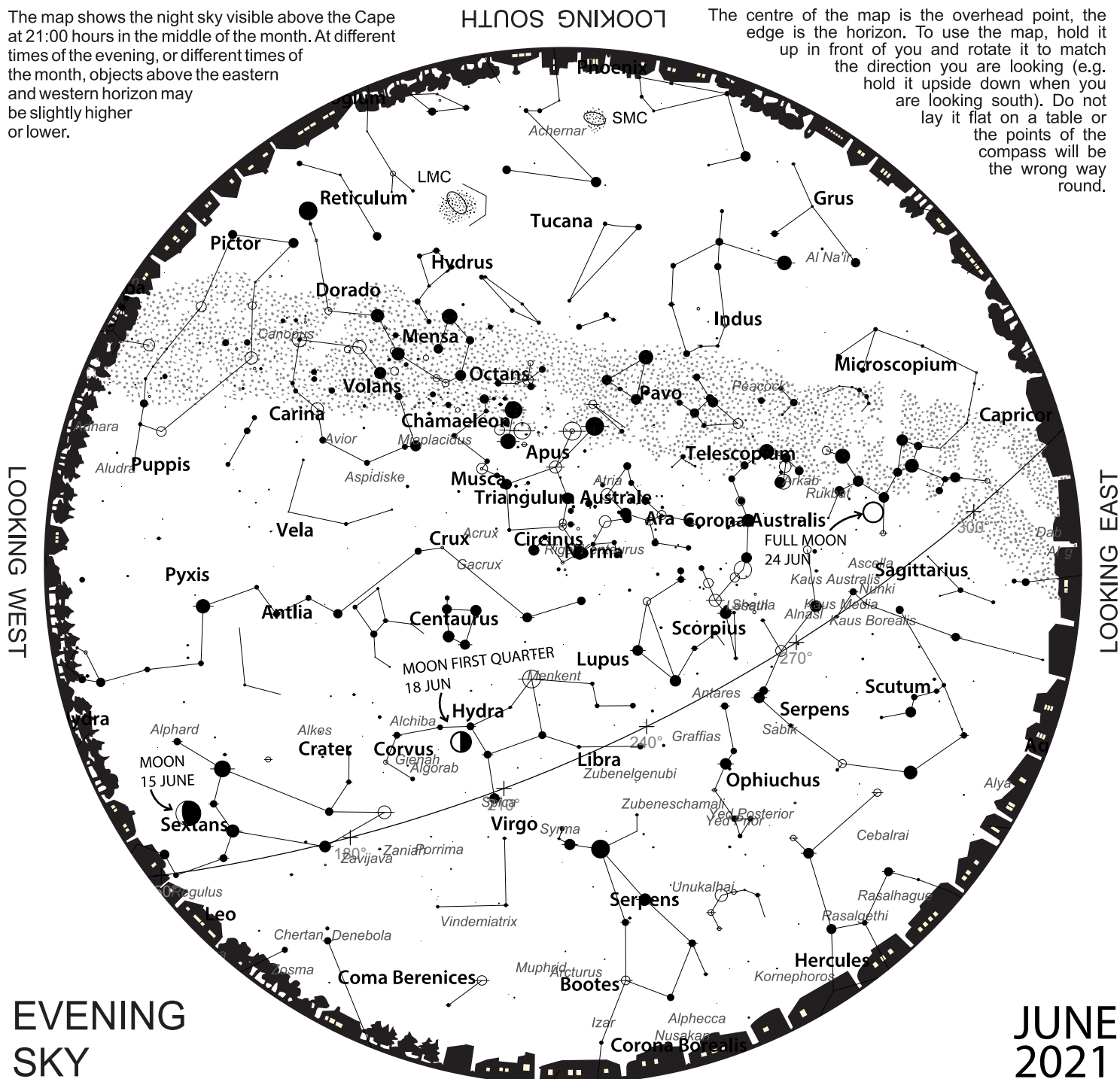
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31 May 2021

STARS	SYMBOLS			
● <1	● Multiple star	□ Dark nebula	△ Radio source	 IZIKO PLANETARIUM AND DIGITAL DOME
● 1.5	○ Variable star	⊕ Globular cluster	✕ X-ray source	
● 2	☄ Comet	○ Open cluster	○ Other object	
● 2.5	○ Galaxy	⊙ Planetary nebula		
● 3	□ Bright nebula	⊞ Quasar		

Local Time: 21:00:00 15-Jun-2021 UTC: 19:00:00 15-Jun-2021 Sidereal Time: 13:50:59
Location: 33° 55' 48" S 18° 28' 12" E RA: 13h50m59s Dec: -33° 55' Field: 180.0° Julian Day: 2459381.2917

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.



As we move towards Winter Solstice in South Africa (21 June), the prominent constellation Scorpius (scorpion) with its recognizable curved asterism (pattern) of stars rises early in the east. Between Scorpius and nearby Sagittarius (Archer) look out for dark dust lanes in a broader region of the Milky Way (requires dark conditions). This area encompasses the hidden supermassive black hole at the center of our Galaxy. Moving southwards, the Southern Cross (made up of Crux and the Pointer Stars: Alpha and Beta Centauri) are prominent overhead. Closer to the southern horizon, you may be able to make out the Large and Small Magellanic Clouds (LMC, SMC) - two neighboring irregular dwarf galaxies visible to the naked eye.

Venus can be seen as a bright object close to the western horizon with Mars just above it. Both planets set soon after sunset with Saturn and Jupiter rising around midnight. The moon is in the evening from 12 June onwards. In South Africa, we call the Full Moon (24 June) the 'Sister's Moon' because this month the beautiful open star cluster the Pleiades (isiLimela or 'Seven Sisters') reappears in our skies, rising just before sunrise after several months absence (visit <https://cfah.org.za/fullmoon/> to find out more). In African starlore, the reappearance of these 'digging stars' in Southern Africa heralded the start of the growing season.