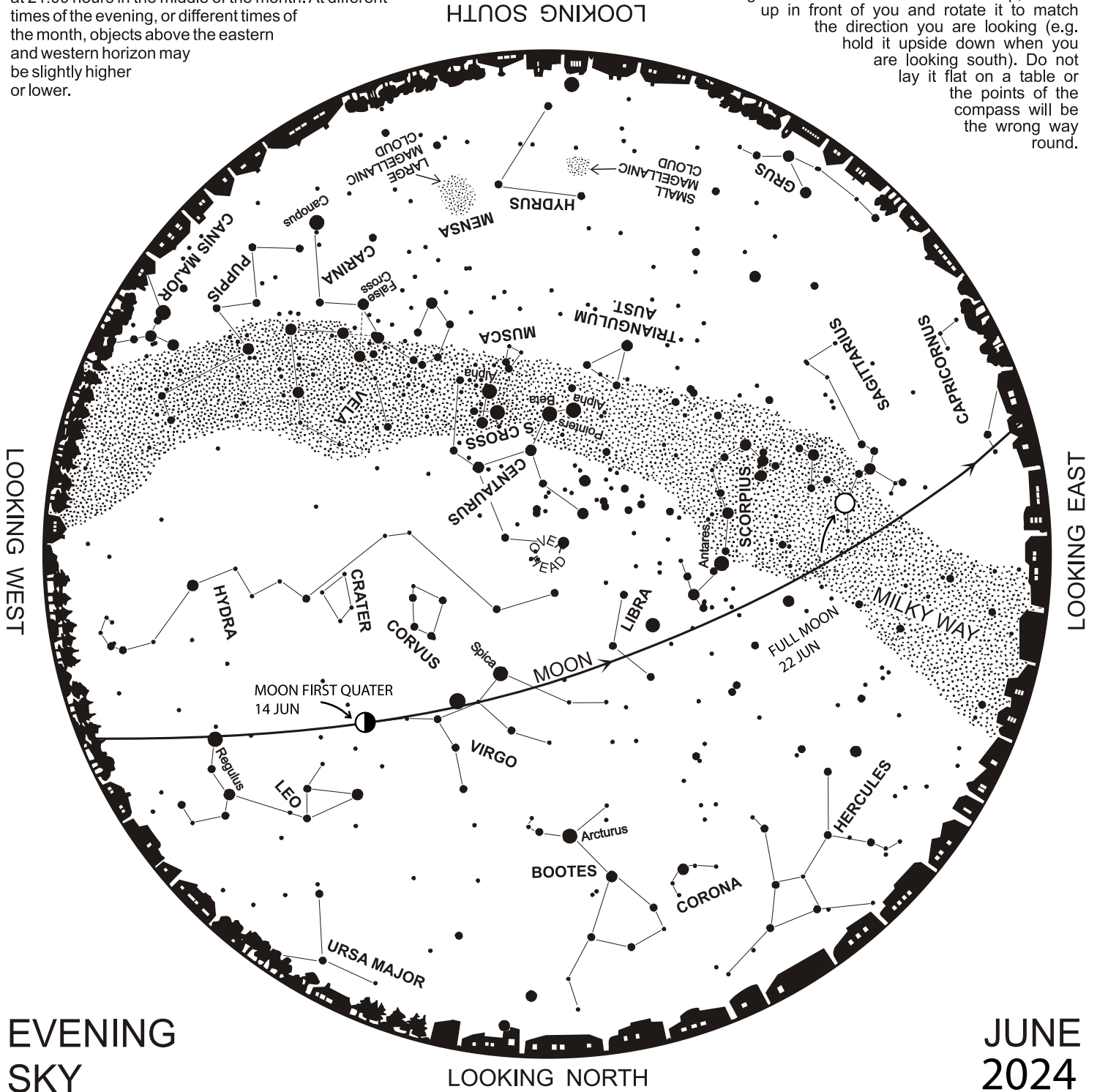


# IZIKO PLANETARIUM AND DIGITAL DOME

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.



As we move towards the longest night in South Africa (Winter Solstice on 20 June, 22:51 SAST), the prominent constellation Scorpius (scorpion) 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 'Sagittarius A\*', the supermassive black hole at the centre 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 under dark conditions.

Look towards the east just before sunrise to see Saturn, Mars, and Jupiter. A faint Mercury also lies near to the horizon during the first week in June (and close to Jupiter on 4 June). In South Africa, we call the Full Moon (on 22 June) the 'Sister's Moon' because this month the beautiful 'Pleiades' open star cluster (also known as 'isiLimela' or 'Seven Sisters') reappears in our night skies, rising just before sunrise after several months' absence. In African starlore, the reappearance of these 'digging stars' in Southern Africa heralded the start of the growing season.



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### What's Up – June 2024

#### What's Up – June

##### Sun and Moon

The New Moon occurs on the 6<sup>th</sup> of June at 14h37 and the First Quarter Moon falls on the 14<sup>th</sup> of June at 07h18. The Full Moon occurs on the 22<sup>nd</sup> of June at 03h07 and the Last Quarter Moon falls on the 28<sup>th</sup> of June at 23h53.

The Moon will be at perigee (closest approach to Earth) on the 27<sup>th</sup> of June at 13h30 at a distance of about 369 286 km. The Moon will be at apogee (furthest from Earth) at a distance of about 404 077 km on the 14<sup>th</sup> of June at 15h35.

The Winter Solstice will occur on the 20<sup>th</sup> of June at 22h50. This is the time when the Sun passes through the ecliptic plane from north to south. From then on, the days will start getting longer again on the southern hemisphere, whereas on the northern hemisphere they start getting shorter. The solstice also marks the beginning of winter on the southern (and summer on the northern) hemisphere.

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

Mars and Saturn can still be observed in the early morning skies before sunrise, with Saturn near the stars of the constellation Aquarius and Mars near the stars of the constellation Pisces (beginning of the month) and Aries (end of the month). Mars will be near the Moon on the 3<sup>rd</sup> of June. The Moon will be near Saturn on the 27<sup>th</sup> of June. Jupiter is also visible as the bright morning star near the stars of the constellation Taurus, from the second week of June. Mercury is also visible in the first week of June before sunrise near the stars of the constellation Taurus. Mercury will be close to Jupiter on the 4<sup>th</sup> of June. The last time Mercury was this close to Jupiter was in 2006 and the next pairing will be in 2059.

No planets are visible after sunset this month except Mercury, which can be observed in the north west near the stars of the constellation Gemini only in the very last days of June. Saturn is visible at midnight only from the beginning of the second half of this month.

There are no major meteor showers this month.

##### 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 in the early evening sky. Alphard is an orange giant star, 175 light years away and 400 times as bright as our Sun. If Alphard was 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 – 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 is 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 (Pisces) 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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