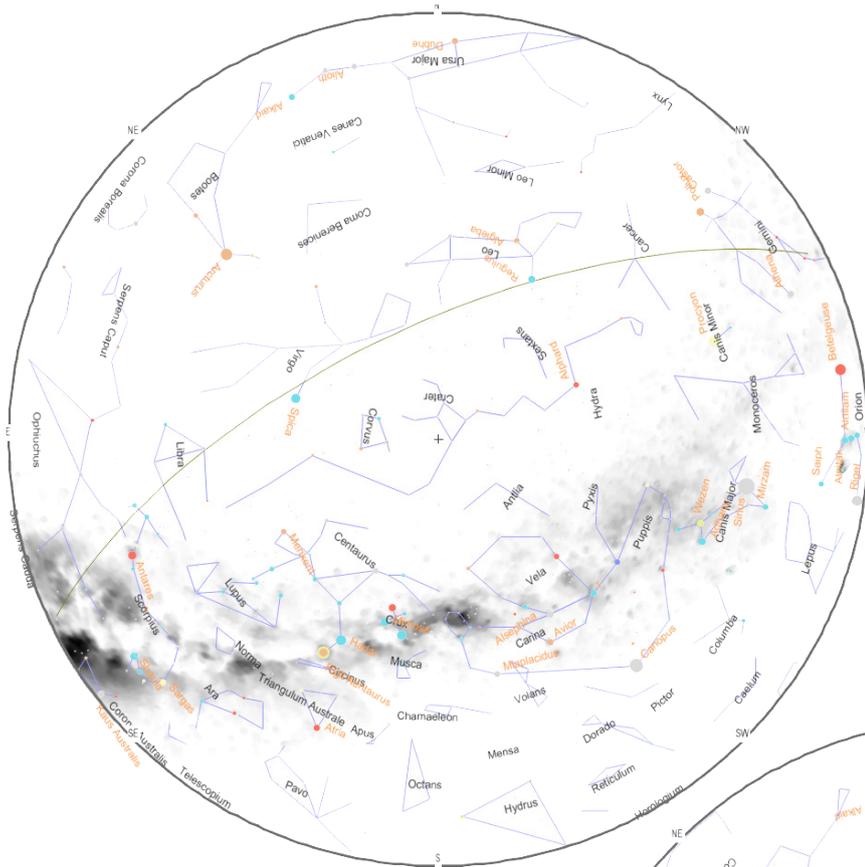


# NAMIBIA Scientific Society Wissenschaftliche Gesellschaft

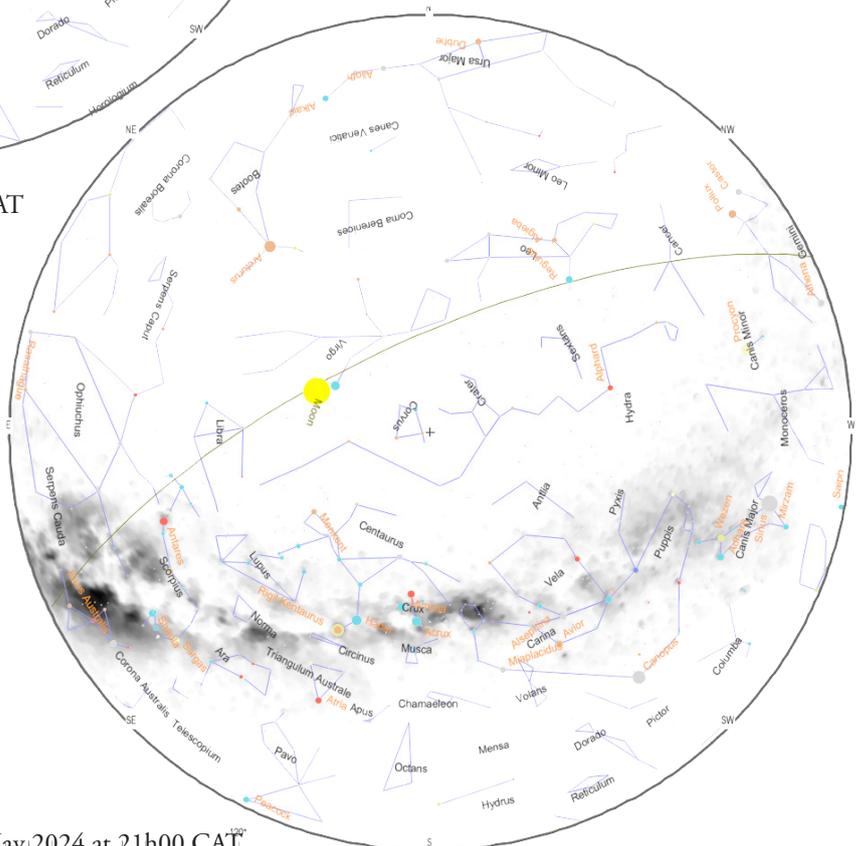
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## Astronews May 2024

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Skychart at Windhoek on 10 May 2024 at 21h00 CAT



Skychart at Windhoek on 20 May 2024 at 21h00 CAT

### Moon Phases

01 May 2024	Last Quarter
08 May 2024	New Moon
15 May 2024	First Quarter
23 May 2024	Full Moon
30 May 2024	Last Quarter

### Solar System

Planet Visibility	Rise	Culm.	Set
15 May 2024			
Mercury	05:15	11:08	16:57
Venus	06:48	12:22	17:57
Mars	04:01	09:58	17:57
Jupiter	07:26	12:56	18:26
Saturn	02:20	08:34	14:47

**Mercury** is visible as a morning object, having recently passed the greatest elongation west. From Windhoek, it is visible in the dawn sky, rising at 05:19 – 1 hour and 55 minutes before the Sun – and reaching an altitude of 19° above the eastern horizon.

On Friday 10 May, Mercury will reach its highest point in the sky in its Apr–Jun 2024 morning apparition. It will be shining brightly at mag 0.4.

**Venus** will soon pass behind the Sun. From Namibia, it is not observable since it is very close to the Sun.

**Mars** is visible in the dawn sky, rising at 04:01 and reaching an altitude of 35° above the eastern horizon before fading from view at dawn.

**Jupiter** passes behind the Sun at solar conjunction and is currently not visible.

**Saturn** recently passed behind the Sun at solar conjunction. From Windhoek, however, it is visible rising at just after two in the morning, before fading from view as dawn breaks.

### Other Occurrences

Crux and the Pointer Stars (alpha and beta Centauri) will be high in the Zenith around midnight this Month. With Arcturus bright in the northwest. Look out for Corona Borealis, The Northern Crown as described in the Constellation of the month.

No Planets will be visible in the evening and night sky.

Look out for Moon, Saturn, Mars and Mercury in a line in that order on the morning of 3 May.

The  $\eta$ -Aquariid meteor shower will be active from 19 April to 28 May, producing its peak rate of meteors around 5 May. Seen from central Namibia the shower will not be visible before around 02:25 each night, when its radiant point rises above your eastern horizon. It will then remain active until dawn breaks around 06:46.

# Constellation of the Month

by Simon van der Lingen

## Crux and Corona Borealis

Most readers will know Crux as The Southern Cross, but as with most other constellations, the Latin form is officially used. This iconic constellation appears on the flags of five Southern Hemisphere nations (Australia, New Zealand, Papua New Guinea, Samoa and Brazil) and despite being the smallest of all 88 constellations, is central to a very rich and exciting part of our night sky.

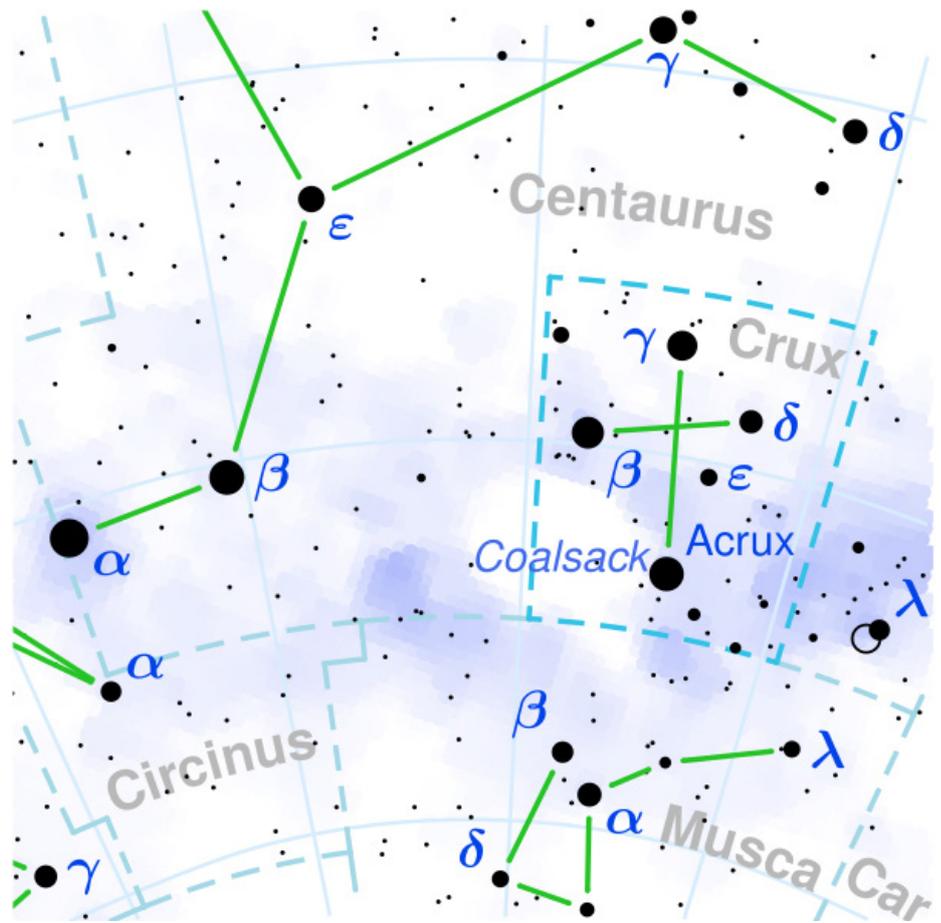
Acrux, or  $\alpha$  Crucis, at the foot of the cross, is the brightest of the four stars making up the cross but is really a system of at least 5 stars. The two brightest are close enough to each other to need a telescope to separate them.

Mimosa, or  $\beta$  Crucis is a binary star system, two Giant stars which are probably closer together than Jupiter is to the Sun. Very close to Mimosa is Herschel's Jewel Box, a very young Open Cluster formed only 16 million years ago and contains some of the brightest stars in the Milky Way. The brightest is a star 29 times as massive and 80,000 times as bright as our Sun. The Jewel Box is visible to the naked eye, but is beautiful when seen through binoculars, appearing as a group of different coloured, bright stars forming the letter "A" on its side.

Gacrux, or  $\gamma$  Crucis is visibly reddish, a Red Giant about 50% heavier than our Sun, but which has expanded to 120 times the Sun's diameter before it dies and forms a White Dwarf.

Imai, the faintest of the 4 stars of the Southern Cross is in reality the brightest and heaviest; a giant star 9 times more massive, and 10,000 times brighter than our Sun, but much further away than the other three.

At the base of the Cross, the Coalsack Nebula blots out a patch of the Milky Way. It is a Dark Nebula of hydrogen gas and dust particles coated with ice and frozen carbon monoxide, blocking almost all the light from the stars behind it. The Coalsack is huge, 50–70 light years from side to side. Although it is currently cold and inert, someday it will begin to collapse and will form thousands of stars in one or more Globular Clusters. Look carefully at the Coalsack on a dark night with a pair of binoculars to find bands and "ribs" within it.



Crux is surrounded on three sides by the constellation Centaurus. It is difficult to make out the shape of the Centaur, but the two bright stars that make up his back feet are easy to find and serve as the Pointers for the Southern Cross. The dimmer of the pair,  $\beta$  Centauri, is a system of 3 giant stars; two stars each about 10 times as massive as our Sun, which circle each other, with a third star orbiting the pair. Alpha Centauri, also a 3-star system, appears significantly brighter because it is much closer. It is the closest star system to our Sun, only 4.2 light years distant, and the Red Dwarf star orbiting the two primary members is the closest single star to us and, accordingly, has been named Proxima Centauri.

NASA is planning an interstellar mission to  $\alpha$  Centauri in the 2060's. A conventional rocket would take perhaps 20,000 years to make the one-way journey, but the concept under consideration includes launching thousands of miniaturised spacecraft, each the size of a credit card, pulled by a reflective sail and propelled by banks of powerful lasers probably in orbit around the Earth. The fuel supply in conventional rockets typically lasts only a few minutes, but the lasers would be able to accelerate the tiny craft for long enough that they would reach

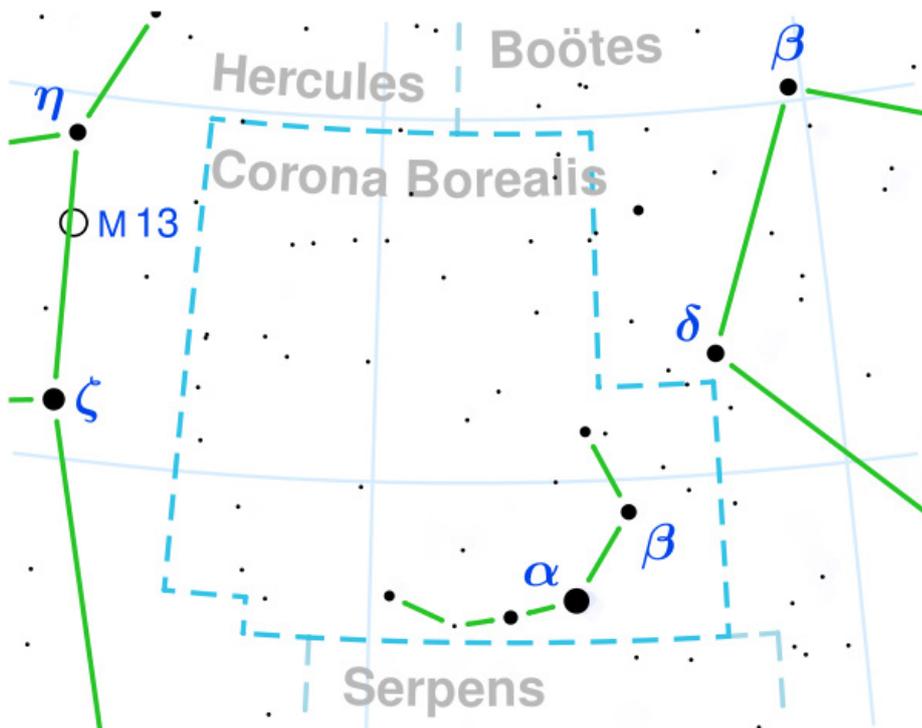


25% of the speed of light, reducing the journey to about 16 years.

Close to Crux in the constellation of Carina lies a second, larger cross, the Diamond Cross. Look at the head of the Diamond Cross through a pair of binoculars to find yet another beautiful Open Cluster. Officially known as the Theta Carina Cluster or IC202, it is better known as the Southern Pleiades. Continue in the same direction from Crux to find the False Cross. Use a star chart and binoculars to find Open Clusters IC2391 and NGC2516 nearby.

Famously, a little elementary geometry can help us use the Southern Cross to find Celestial South, the southern point about which the sky appears to revolve. Draw an imaginary straight line from Gacrux to Acrux, then extend it  $4\frac{1}{2}$  times. This point marks Celestial South. To check, draw another imaginary line between the two pointers, bisect it at right angles and follow the bisection line to where it intersects the line already imagined through the Cross. This intersection should also be at the  $4\frac{1}{2}$ -length point.

Let's switch for a moment to the other side of the night sky and look for Corona Borealis, the Northern Crown. Clear above the north-eastern horizon by about 22h00 from mid-April onward, south and east from the tie-shaped constellation, Boötes and the star, Arcturus, the Northern Crown is distinctive and looks, to us, like an upside down cup.



The star chart shows the position of a White Dwarf called T Corona Borealis, normally invisible to us, that is expected to flare up into a nova some time very soon. A White Dwarf is not a star, but the remains of a burnt-out star, where the Hydrogen core has been transformed to Helium, and then to Carbon. This is the eventual fate of our own Sun. A White Dwarf is very dense, typically weighing approximately 1 solar mass but condensed into a ball about the size of the Earth. Gravity is very strong near

the surface and if it is near enough to a larger companion star, it will steal enough matter, mainly Hydrogen, from its companion, that its surface will periodically flare into nuclear fusion for a few weeks. In the case of T Corona Borealis this will make it temporarily as bright as the brightest star in the constellation. In this case, this happens approximately every 70 years and astronomers have noted signs that it is about to happen again, most likely between now and September. Formation of a nova of this type

should not be confused with a supernova, which is far, far brighter and much more violent. It is worth finding and regularly checking Corona Borealis so that we can identify the nova when it happens.

**Credits**

SkyChart: Cartes du Ciel/Wikipedia, Data: <https://in-the-sky.org> / ASSA Sky Guide 2024, Pictures: Wikipedia