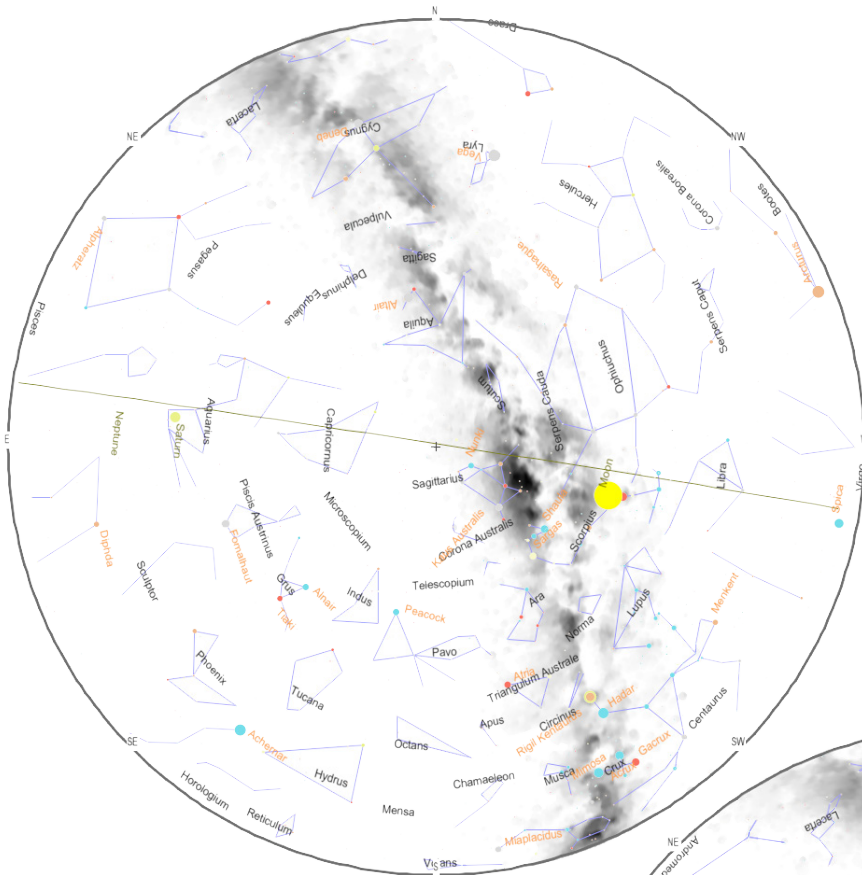
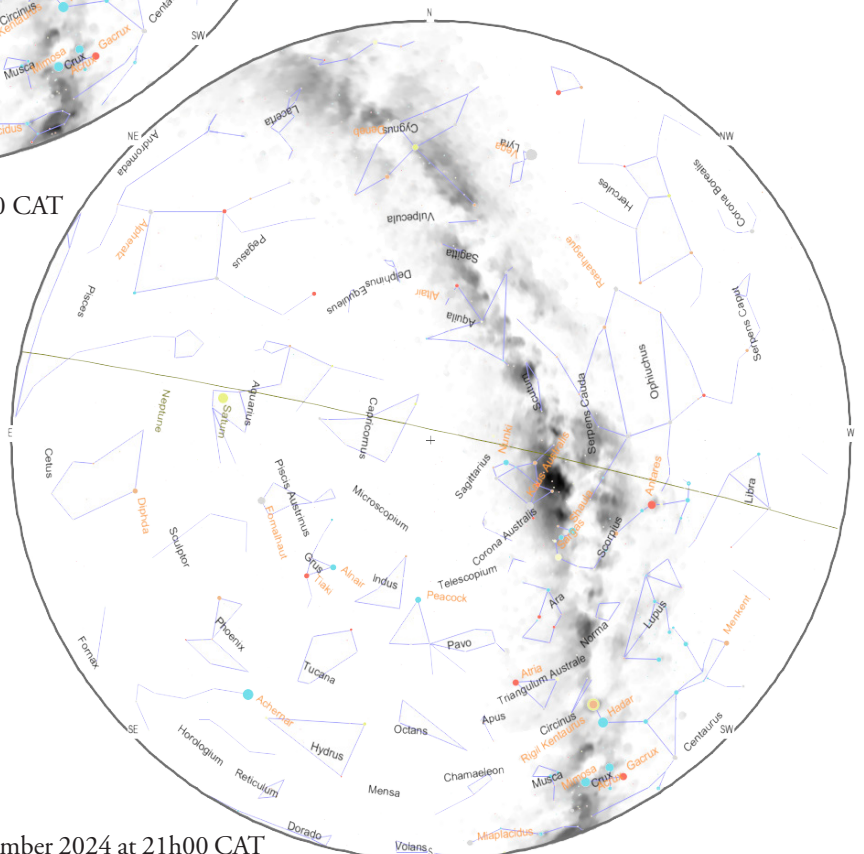


Astronews September 2024

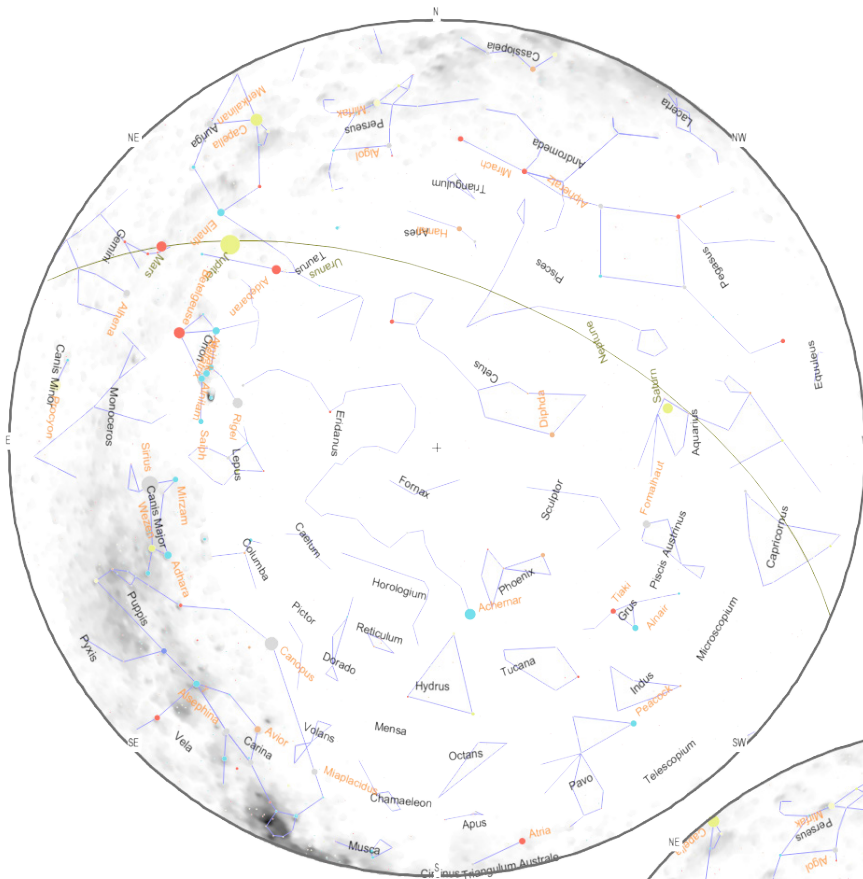
©2024 by Lutz von Dewitz for the Namibia Scientific Society



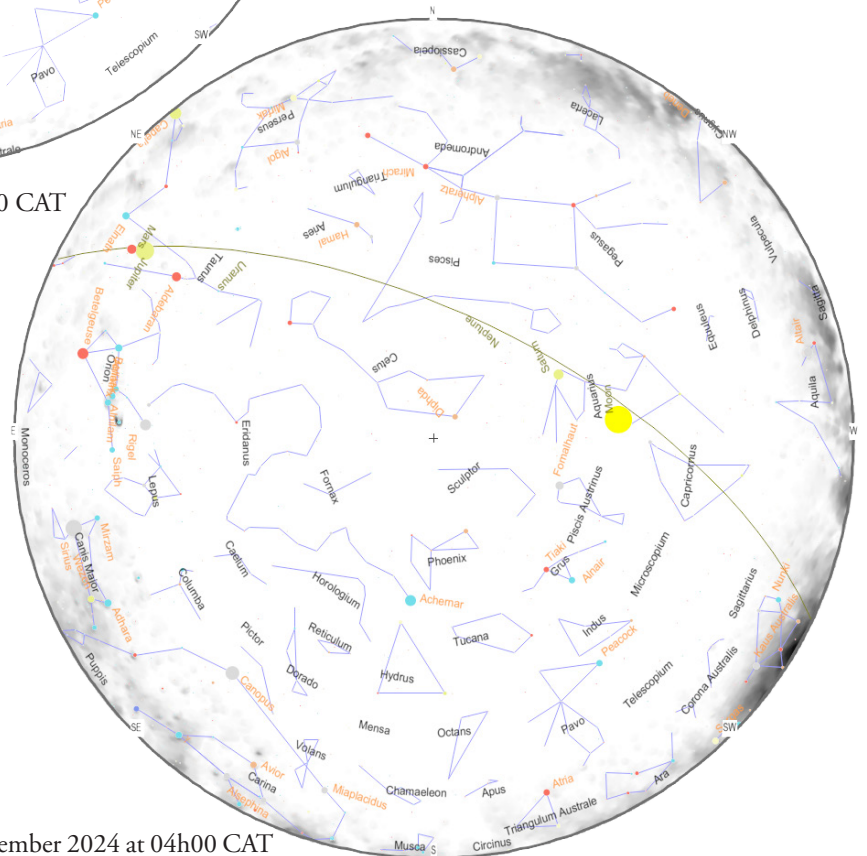
Skychart at Windhoek on 10 September 2024 at 21h00 CAT



Skychart at Windhoek on 20 September 2024 at 21h00 CAT



Skychart at Windhoek on 10 September 2024 at 04h00 CAT



Skychart at Windhoek on 20 September 2024 at 04h00 CAT

We have included the morning sky in the Astronews. For the early risers, you can observe the rising of the summer constellations. In addition to some of the Planet especially Jupiter. On 14 August there will be a close approach of Mars and Jupiter passing within 18.4 arcminutes of each other.

Moon Phases

03 Sep 2024	New Moon
11 Sep 2024	First Quarter
18 Sep 2024	Full Moon
24 Sep 2024	Last Quarter

Solar System

Planet Visibility	Rise	Culm.	Set
15 Sep 2024			
Mercury	06:09	11:55	17:41
Venus	08:10	14:25	20:39
Mars	02:16	07:37	12:58
Jupiter	01:06	06:29	11:53
Saturn	18:07	00:22	06:38

Mercury is not observable since it passed in front of the Sun at an inferior solar conjunction. It is very close to the Sun, at a separation of only 7° from it.

Venus will become visible at around 18:52 (CAT), 16° above your western horizon, as dusk fades to darkness. It will then sink towards the horizon, setting 1 hour and 30 minutes after the Sun.

Mars is visible in the dawn sky, rising at 02:16 (CAT) and reaching an altitude of 40° above the north-eastern horizon before fading from view as dawn breaks.

Jupiter is visible in the morning sky, becoming accessible around 01:47. It will then reach its highest point in the sky at 06:29, 45° above your northern horizon before fading from view in the morning sky.

Saturn is visible in the evening sky, becoming accessible around 19:12 (CAT), 15° above your eastern horizon, as dusk fades to darkness. It will then reach its highest point in the sky at just past midnight. It will continue to be observable until around dawn.

Other Occurrences

Saturn in opposition on 9 September

Saturn will reach opposition, lying opposite to the Sun in the sky, in the constellation Aquarius. From Namibia it will be visible for much of the night, reaching its highest point in the sky around midnight local time.

Partial Lunar Eclipse on 18 September

The Moon will pass through the Earth's shadow mostly the penumbra between

04:14 and 05:16 CAT, creating a partial lunar eclipse. From central Namibia, one might see a fine sliver of the Earth's shadow on the moon.

Comet C/2023 A3 (Tsuchinshan-ATLAS)

The comet is brightening but not visible from Namibia. Predictions show that it will become visible from 21 October in the constellation of Ophiuchus with a Magnitude of about 4.8. More about Comets this month by Simon van der Lingen.

Constellation (Comet) of the Month

by Simon van der Lingen

Comet C/2023 A3 (Tsuchinshan-ATLAS)

Comet C/2023 A3 (Tsuchinshan-ATLAS) is attracting a great deal of attention in the popular astronomy section of the media at the moment, in some cases being billed as “the comet of the century”. It seems like a good idea to see what we know about this comet in particular and about comets in general.

The clumsy name already tells us quite a bit. The Comet names always start with a P or a C, P indicating that the beast in question is a Periodic comet that will return regularly, and must therefore have originated in the Kuiper Belt, which lies 30 to 50 AU from the Sun. 1 AU is the distance between the Sun and the Earth, so 30 AU is pretty far – Voyager 1, launched in 1977 is currently the furthest man-made object from the Sun and is now just inside the Kuiper Belt. It's travelling fast enough that it's not in orbit around the sun and will just keep on heading outward. By definition, Periodic comets have an orbit of less than 200 years – Halley's Comet is the most famous Periodic Comet, taking between 72 and 80 years to orbit.

Comets prefixed with a “C” are non-periodic (C for non-periodic?), meaning that they are not expected to return to the inner solar system within a human lifetime – technically, comets with an orbit longer than 200 years, so someone somewhere was feeling optimistic. Non-periodic comets are thought to originate within the Oort Cloud, a shell of icy rocks surrounding the Solar System, starting (probably) 2,000 AU from the Sun and ending anywhere between 10 and 100,000 AU away, about halfway to the next star. C-type comets typically take between thousands and mil-



Halley's Comet 1910 Image from Library of Congress

lions of years per orbit; some, like Voyager 1, will loop around the Sun, travel back to the Oort Cloud and just keep going. Current measurements of its progress indicate we might see it next in about 80,000 years, all going well.

2023 A3 indicates that it was the 3rd comet to be discovered in the first half of January 2023, independently and simultaneously by the Purple Mountain (Tsuchinshan) Observatory in China and the ATLAS (Asteroid Terrestrial-Impact Last Alert System) Observatory in Sutherland, South Africa! when it was magnitude 18.1 (very faint indeed) and about 7.3 AU from the Sun, somewhat closer to Saturn's orbit than Jupiter's.

Comets are of particular interest to planetary scientists – they are, literally, leftovers from the earliest days of the formation of

the solar system that has been kept in a deep freeze far from the Sun for billions of years. The Deep Impact probe smashed a washing machine-sized impactor onto the surface of Comet 9P/Tempel 1 in 2005 just to see what would happen, and discovered some surprising information about the structure and chemical composition of this comet, at least. JPL carried out a less destructive mission in 2014 when the Rosetta spacecraft gently landed the Philae probe on the surface of Comet 67P/Churyumov-Gerasimenko. The mission was only partially successful as the lander bounced its way into a cave that shaded its solar panels from sunlight, but it was able to send back information about the surface of the comet and the organic compounds present. The surprising brew of ammonia, hydrogen cyanide and hydrogen sulphide became the inspiration for a limited run of perfume approximating the smell of urine, almonds and rotten eggs.

David Levy (the Levy in Comet Shoemaker-Levy) famously said, “Comets are like cats: they have tails, and they do precisely what they want” and all the forecasters are being careful to hedge their bets, but C/2023 A3 is predicted to approach the Sun close to Mercury’s orbit, meaning that enough ice and dust will be expelled from the comet’s surface that it will produce a very spectacular tail (except for one grumpy boffin who warned that it will probably be close enough to the Sun to disintegrate and produce no tail at all!) Also, the comet has not brightened as much as predicted – it’s either saving the best to last, or it won’t be as good as hoped. More optimistic forecasts suggest it might reach Magnitude 2, about as bright as the star, Nunki, marking the top of the Teapot in Sagittarius.

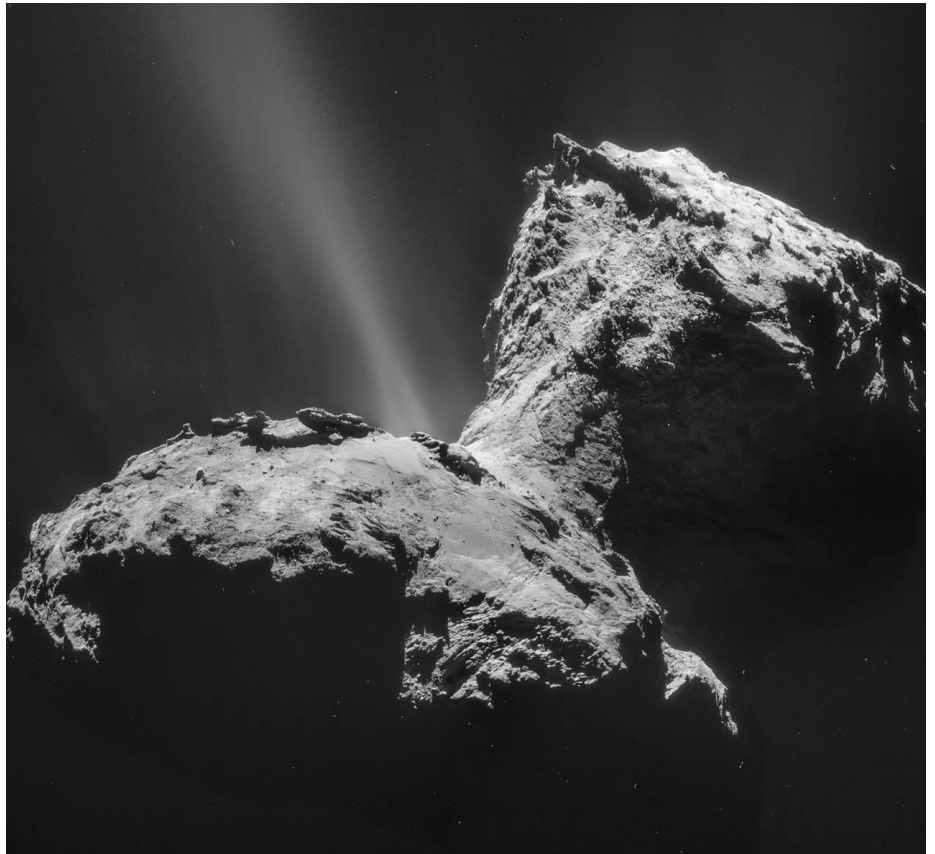
C/2023 A3 will be most clearly visible from the Northern Hemisphere but should be brightest in the Constellation of Virgo, around late September. Virgo is best viewed in May and June, by the end of August it sets shortly after sunset and rises just before dawn, so the comet will not be ideally positioned for us to see. So, for us in Namibia, it might be visible in the western sky early evening in late August, or perhaps early morning. It might be very bright, not very bright or possibly not even exist by then! I look forward to seeing what late September brings!

Credits

SkyChart: Cartes du Ciel / Wikipedia

Data: <https://in-the-sky.org/> / ASSA Sky Guide 2024

Pictures: Wikipedia



Comet 67P/Churyumov-Gerasimenko on 31 Jan 2015