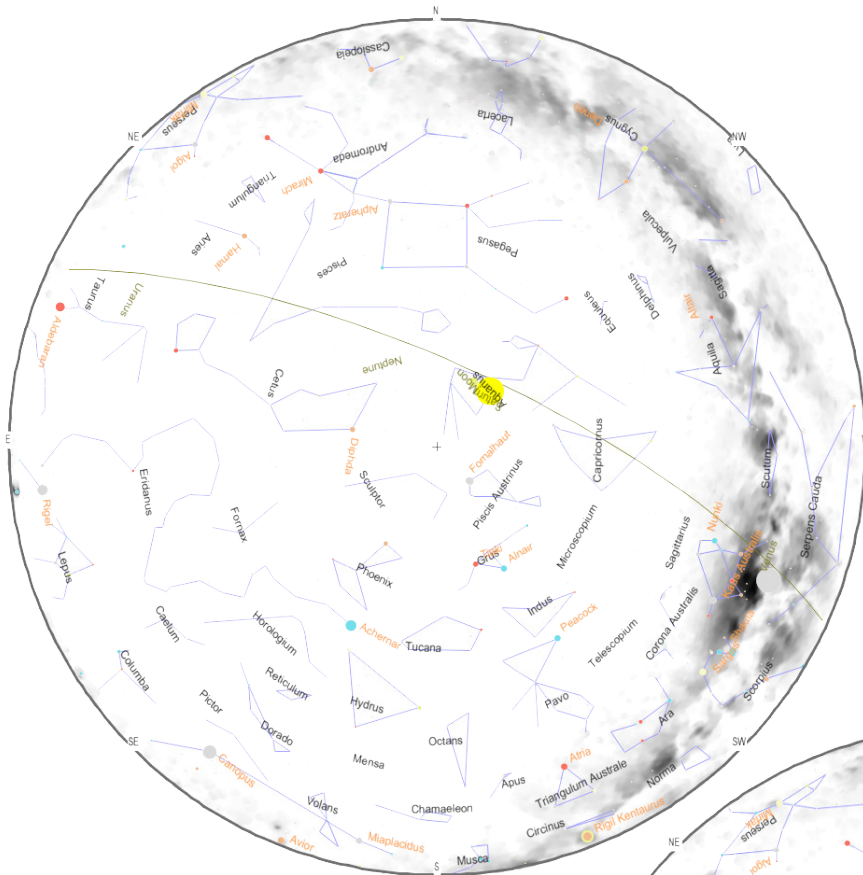


# NAMIBIA Scientific Society Wissenschaftliche Gesellschaft

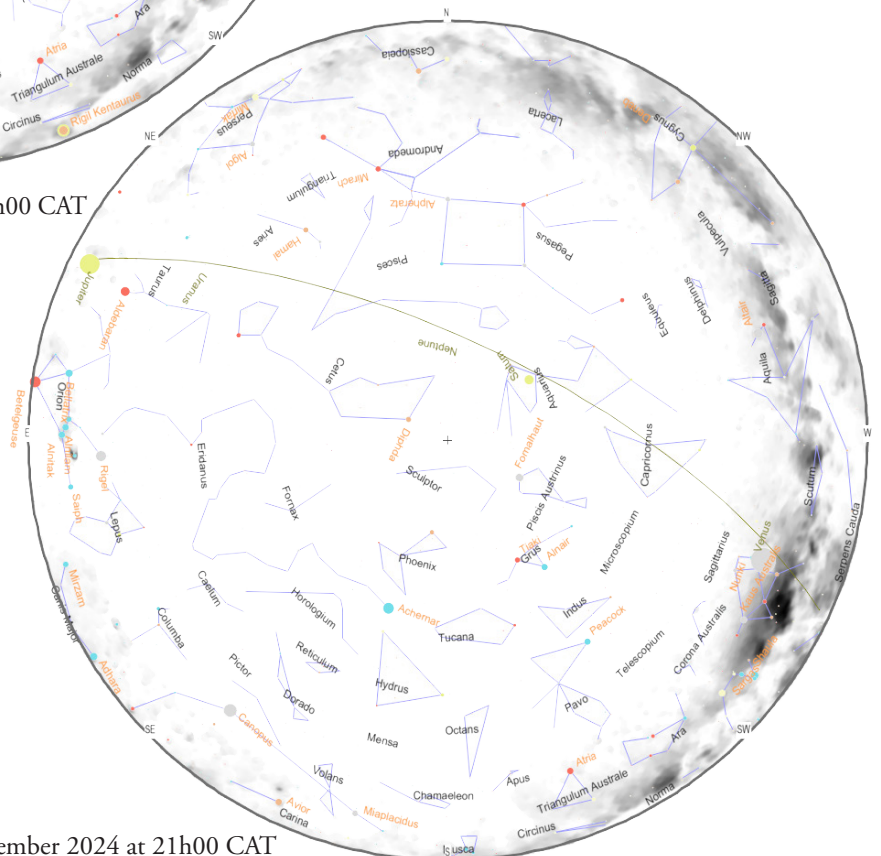
P.O. Box 67, Windhoek, Namibia • Tel.: +264-(0)61-225 372  
email: info@namscience.com • www.namscience.com  
110 Robert Mugabe Ave., Windhoek, Namibia

## Astronews November 2024

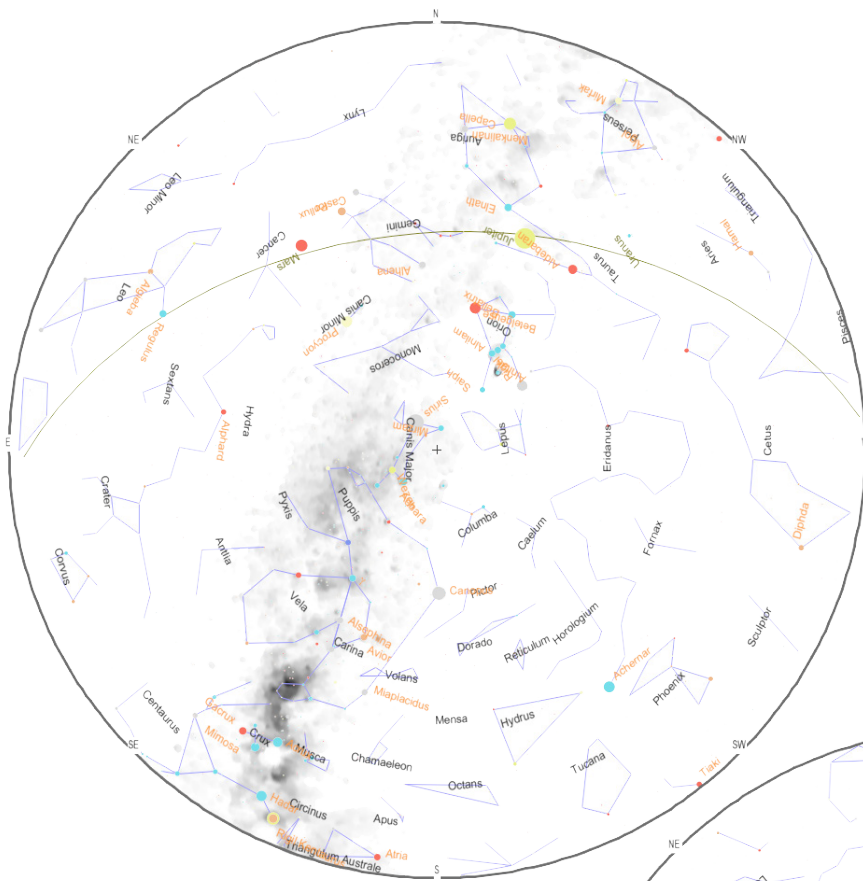
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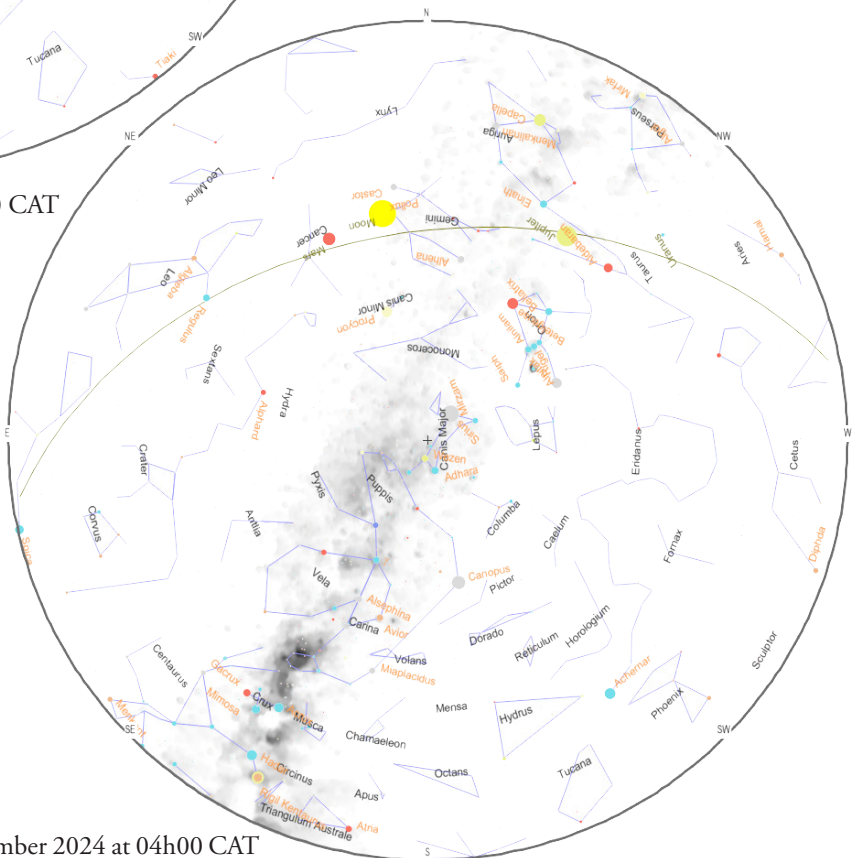
Skychart at Windhoek on 10 November 2024 at 21h00 CAT



Skychart at Windhoek on 20 November 2024 at 21h00 CAT



Skychart at Windhoek on 10 November 2024 at 04h00 CAT



Skychart at Windhoek on 20 November 2024 at 04h00 CAT

### Moon Phases

01 Nov 2024	New Moon
09 Nov 2024	First Quarter
15 Nov 2024	Full Moon
23 Nov 2024	Last Quarter

### Solar System

Planet Visibility	Rise	Culm.	Set
15 Nov 2024			
Mercury	07:17	14:05	20:53
Venus	08:37	15:26	22:15
Mars	00:09	05:35	11:00
Jupiter	21:01	02:25	07:48
Saturn	13:51	20:08	02:25

**Mercury** recently passed behind the Sun and will become visible at around 19:30 at about 12° above your western horizon setting 1 hour and 20 minutes after the Sun. On 15 November Mercury will be at the highest altitude in the evening sky.

**Venus** is currently a prominent feature of the evening sky. It will become visible at around 19:00 setting 3 hours after the Sun. On 5 November The Moon and Venus will make a close approach, passing within 3° of each other. The Moon will be 3 days old.

**Mars** is currently visible as a morning object rising shortly after Midnight and reaching an altitude of 44° above the northern horizon before fading from view at dawn.

**Jupiter** is currently approaching opposition and becoming accessible around 23:00. It will reach its highest point in the sky at 03:30, 45° above your northern horizon. Jupiter will reach opposition, when it lies opposite to the Sun in the sky on 7 November. It will lie at a distance of 4 Astronomical Units or 600 million kilometres from Earth.

**Saturn** is currently an early evening object. It will then reach its highest point in the sky at 20:30, 76° above your northern horizon. It will continue to be observable until around 01:30 when it sinks below the western horizon.

### Other Occurrences

The Leonid meteor shower will be active from 6 November to 30 November, producing its peak rate of meteors around 17 November.

There will be a chance of seeing Leonid meteors whenever the shower's radiant point – in the constellation Leo – is above the horizon, with the number of visible meteors

increasing the higher the radiant point is in the sky.

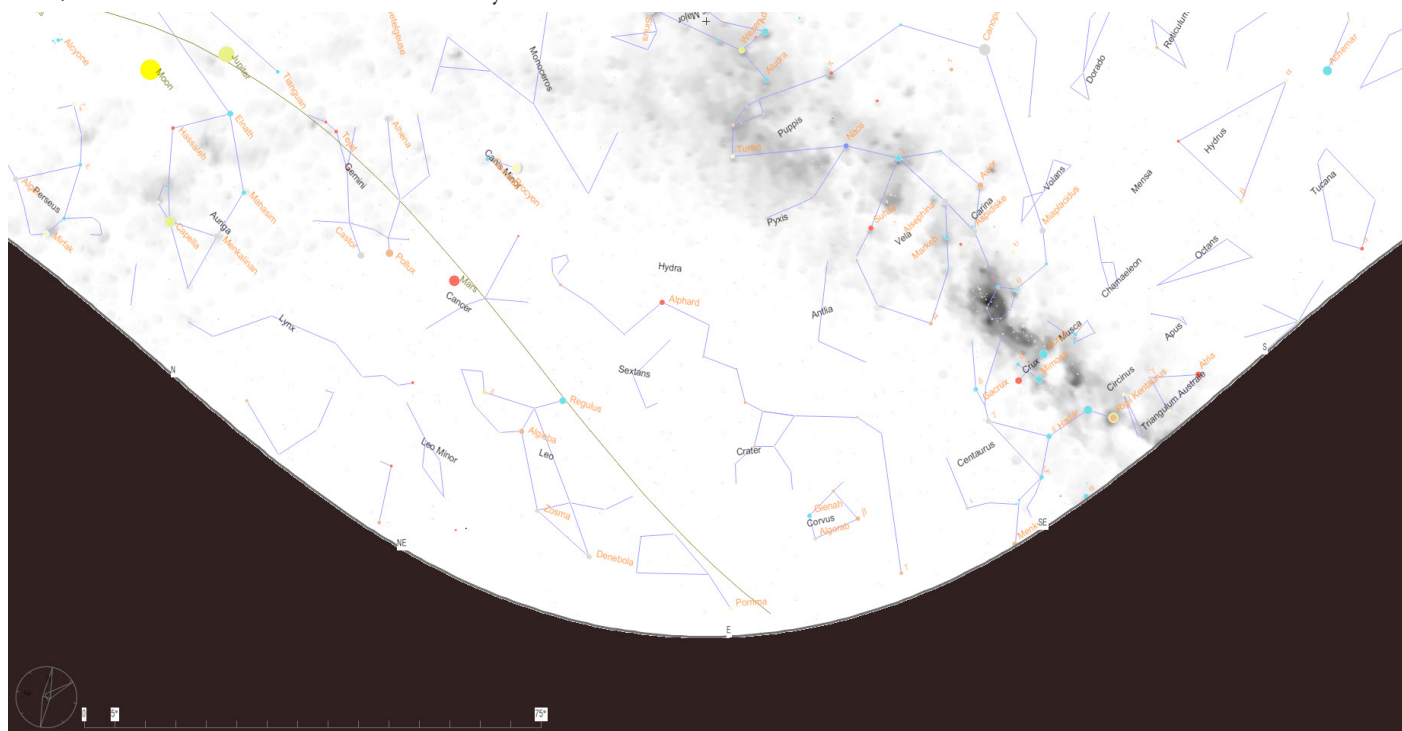
Seen from Namibia, the shower will not be visible before around 01:48 each night when its radiant point rises above your eastern horizon. It will then remain active until dawn breaks around 05:33.

### The origin of the shower

Meteor showers arise when the Earth passes through streams of debris left behind in the wake of comets and asteroids. Over time, the pieces of grit-like debris in these streams distribute themselves along the length of the parent object's orbit around the solar system.

Shooting stars are seen whenever one of these pieces of debris collides with the Earth's atmosphere, typically burning up at an altitude of around 70 to 100 km.

The parent body responsible for creating the Leonid shower has been identified as Comet 55P/Tempel-Tuttle.



## Pegasus

### Constellation of the Month

by Simon van der Lingen

Andromeda Galaxy is one of my favourite celestial targets at this time of year, but you need a good Northern horizon and a dark, moon-free night to see it. Looking at something like a fuzzy rugby ball, it's mind-blowing to grasp that you are looking at a cool one trillion stars, and back in time 2 ½ million years! An astronomer somewhere in Andromeda tonight would watch early humans learn to chip flints to make crude axes and blades.

Andromeda Galaxy, M31 in Charles Messier's catalogue of fuzzy objects, or NGC 224 in the New General Catalogue is the closest

major galaxy to us, and consequently, the most widely studied. Andromeda has many more stars than our Milky Way, is somewhat heavier and has an unexpectedly high number of young, blue stars, suggesting a merger between two smaller galaxies just a few brief billion years ago. Some astronomers believe that Andromeda in its current form may be younger than the Earth! Many readers will know that Andromeda and Milky Way are rushing towards each other and will collide in about 4.5 billion years – about the same moment when our Sun is due to swell into a Red Giant, enveloping Mercury and Venus and deep-frying

the Earth. It's going to be an interesting moment to be alive! Although such a collision would be unlikely to directly impact our Solar System (there's an awful lot of space between stars), it would lead to a rash of new star formation. Recent good news from the amazing Gaia Space Telescope is that the odds of a collision are no more than 50:50, but even a near miss would twist and deform the Milky Way.

Andromeda Galaxy has a special place in history too. In 1925, Edwin Hubble, using Henrietta Levitt's groundbreaking work on Cepheid Variables, proved that Androme-

da was far enough away that it couldn't be a part of the Milky Way. This conclusively put paid to the prevailing view that we lived in an "Island Universe" of stars drifting in an infinity of emptiness. Lacking any means of determining their distance, what we now recognise as separate galaxies were regarded as nebulae within the Milky Way. Hubble's work paved the way for the classification of billions more galaxies and laid the foundation for our current understanding of an expanding universe.

To find Andromeda, first find the Great Square of Pegasus, and look for the most north-easterly star in the asterism, Alpheratz. From Alpheratz, follow a gentle curve to the North East past Delta Andromeda, then to bright Mirach, then move North West past two dim stars and you're there! Andromeda looks great on a dark night through a pair of binoculars.

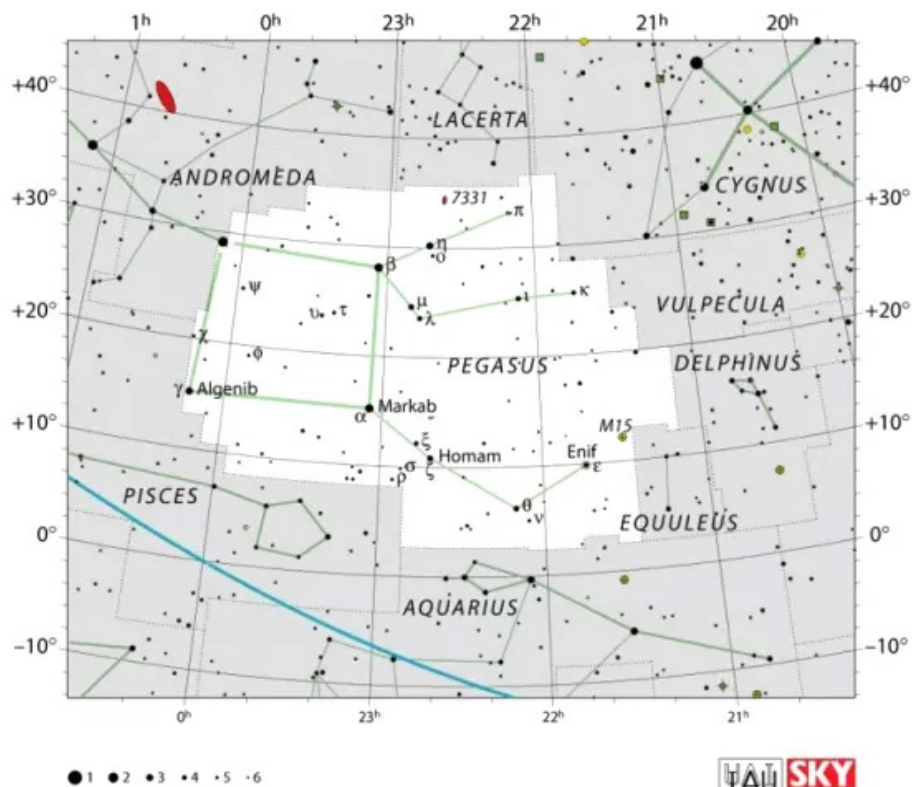
Once you can find the Great Square of Pegasus, finding the front legs, neck and head of the great horse is relatively straightforward. Before constellation boundaries were formalised by the IAU in 1930, Alpheratz was shared by both Pegasus and Andromeda. Its excision from Pegasus detracts from the Winged Horse depiction without, in my opinion, making Andromeda look any more like a Chained Woman. With the loss of her belly, (Alpheratz translates from Arabic as "The Navel of the Mare"), the brightest star in Pegasus becomes Enif, a variable orange supergiant about twelve times more massive than our Sun, marking the horse's muzzle.

Just visible to a keen naked eye, 51 Pegasi is the first Sun-like star discovered to host a planet. The planet 51 Pegasi b is however nothing like Earth – instead, it's a Gas Giant half as massive as Jupiter but with an orbit smaller than Mercury's; the first of the so-called "Hot Jupiters". Not perhaps a great candidate in the search for extraterrestrial life.

Pegasus is home to the distant and powerful quasar Q2237+030. The quasar's light is distorted by a galaxy in front of it, whose gravity bends space so that we see four separate images of the quasar.

This phenomenon was predicted by Einstein's theories on gravity's effect on light and this example is known as Einstein's Cross, in honour of his contributions.

Easily recognisable to casual astronomers, Pegasus serves as a helpful landmark with a collection of fascinating celestial wonders.



**Credits**

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