Astronomy News

Night Sky 2022 - November

Sunrise	Sunset	Mercury	Venus
1st – 7:03am 10th – 7:19am 20th – 7:36am 30th – 7:51am	1st – 4:45pm 10th – 4:30pm 20th – 4:17pm 30th – 4:08pm	Not visible this month	Not visible this month
Moon Rise	**Moon Set**	**Moon Rise**	**Moon Set**
1st – 2:38pm 2nd – 3:01pm 3rd – 3:19pm (ESE) 4th – 3:33pm 5th – 3:46pm (E) 6th – 4:00pm 7th – 4:14pm (ENE) 8th – 4:31pm 9th – 4:52pm 10th – 5:20pm 11th – 5:57pm (NE) 12th – 6:45pm (NE) 13th – 7:44pm (NE) 14th – 8:50pm 15th – 10:01pm 16th – 11:13pm (ENE) 18th – 12:26am 19th – 1:40am 20th – 2:55am (E)	1st – 11:07pm 3rd – 12:32am (WSW) 4th – 1:55am 5th – 3:15am (W) 6th – 4:34am 7th – 5:52am 8th – 7:10am (WNW) 9th – 8:27am 10th – 9:42am 11th – 10:51am (NW) 12th – 11:50am (NW) 13th – 12:37pm (NW) 14th – 1:12pm 15th – 1:38pm 16th – 1:58pm 17th – 2:14pm (WNW) 18th – 2:28pm 19th – 2:41pm (W) 20th – 2:53pm	21st – 4:13am 22nd – 5:35am (ESE) 23rd – 7:02am 24th – 8:31am 25th – 9:57am 26th – 11:10am (SE) 27th – 12:04pm (SE) 28th – 12:41pm 29th – 1:07pm 30th – 1:26pm (ESE) ---------- All times in notes are set for Somerton unless stated	21st – 3:07pm 22nd – 3:24pm (WSW) 23rd – 3:46pm 24th – 4:17pm 25th – 5:02pm (SW) 26th – 6:05pm (SW) 27th – 7:25pm 28th – 8:52pm 29th – 10:20pm (WSW) 30th – 11:44pm ---------- Moon Phases First Quarter 1st Full Moon 8th Last Quarter 16th New Moon 23rd First Quarter 30th
A useful site: www.heavens-above.com	A S Zielonka		

The Orionids meteor shower can be seen up and till the 7th.

From the 30th Oct – 3rd Nov the asteroid Ceres (8.7 mag) passes close to the star Chertan (3.3 mag) in Leo. During this period Ceres will be just 1¼ degrees from Chertan. (For further information on this asteroid or others please see the "Asteroid" section of the website above).

From the 31st Oct – 7th Nov the asteroid 2 Pallas (8.3 mag) passes close to the star Omicron Canis Majoris (3.02 mag) in Canis Major low in the SSW. On the 4th at 6:00am Pallas will be just 1¼ degrees to the upper left of Omicron Canis Majoris which is 9 degrees lower left of the bright star Sirius (-1.44 mag).

Around the 1st at 8pm facing south and looking almost overhead you will see the star Scheat (2.44 mag) in Pegasus. It's the top righthand star of the square of Pegasus and is red / orange in colour and 196 light years from Earth.

There is a scheduled launch on the 1st* from Vandenberg Space Force Base in California of the National Oceanic and Atmospheric Administration (NOAA) Joint Polar Satellite System-2 (JPSS-2) weather and climate satellite mission with NASA's Low-Earth Orbit Test of an Inflatable Decelerator (LOFTID) demonstration. JPSS-2 will capture data to improve weather forecasts, helping scientists predict and prepare for extreme weather events and climate change.

On the 1st around 7:40pm Saturn is 5½ degrees above the First Quarter Moon. The star Zeta Capricorni (3.7 mag) is 1¼ degrees to the left of the Moon and ½ a degree below. The star Iota Capricorni (4.2 mag) is 1 degree below right of Saturn.

At 6:00pm on the 2nd the star Delta Capricorni (2.8 mag) is 6 degrees to the right of the Moon and 3 degrees above.

On the 3rd at 10:15pm the star Psi Aquarii (4.2 mag) is 1½ degrees above the Moon. A companion star with the same name (4.4 mag) is just to the left of it. Neptune is 8 degrees above the Moon and 3 degrees to the left.

At 8:45pm on the 4th Jupiter is 3¼ degrees above the Moon. Neptune is 6¼ degrees to the right of the Moon and 1¼ degrees above.

From the 4th – 10th the asteroid 3 Juno (8.9 mag) passes close to the star Tau Aquarii (4.05 mag). On the 7th at 9:00pm Juno is 1¼ degrees above right of Tau Aquarii in the SSW.

On the 5th at 6:00pm Jupiter is 11 degrees to the right of the Moon and 4 degrees above.

There is a planned launch on the 6th* at 12:50am of NASA's Northrop Grumman CRS-18 Cargo launch to the International Space Station (ISS) from NASA's Wallops Flight Facility on Wallops Island in Virginia.

At 9:00pm on the 6th the star Nu Piscium (4.4 mag) is 2½ degrees below the Moon.

On the 7th at 11:00pm Uranus is 7 degrees to the left of the Moon and 2¼ degrees above. The star Mu Ceti (4.2 mag) in Cetus is 5¼ degrees to the lower left of the Moon.

There is a Total Lunar Eclipse on the 8th, which unfortunately is not visible from the majority of Europe and all of Africa. The greatest eclipse occurs at 10:59:08.8am.

Mercury is at superior conjunction on the 8th.

At 11:00pm on the 8th Uranus is 5½ degrees to the right of the Moon. The Pleiades star cluster is 8 degrees to the right of the Moon and 3½ degrees above.

Uranus is at opposition on the 9th and is at its best to view this month.

On the 9th at 7:00pm the star 19038 (4.3 mag) in Taurus is less than ½ a degree to the upper left of the Moon, then an hour later its approximately the same distance from the Moon to the upper right. The Pleiades star cluster is 5 degrees above the Moon and 2 degrees to the right. (All numbered stars are from the Hipparcos catalogue).

At 11:00pm on the 10th the star Elnath (1.6 mag) in Taurus is 5½ degrees to the left of the Moon and ½ a degree below. Mars is 7 degrees to the lower left of the Moon. The star Zeta Tauri (2.9 mag) is three degrees to the lower right of Mars.

On the 11th at 7:00pm Mars will be 4 degrees to the right of the Moon in the east.

The Taurids reach their peak on the 12th/13th though they can be seen up to December 10th.

At 9:00pm on the 12th the star Mebsuta (3 mag) in Gemini is 2 degrees to the right of the Moon and ½ a degree below.

On the 13th at 11:00pm the star Kappa Geminorum (3.5 mag) is 1½ degrees to the lower right of the Moon.

There is a planned launch on the 14th* at 7:07am of the Artemis 1 mission from the Kennedy Space Centre, Cape Canaveral, Florida. The first in a series of increasingly complex missions, Artemis 1 will be carrying the Orion spacecraft which is an uncrewed flight test that will provide a foundation for human deep space exploration, and demonstrate our commitment and capability to extend human existence to the Moon and beyond. During this flight, the spacecraft will travel 280,000 miles from Earth, thousands of miles beyond the Moon over the course of about a three-week mission. Orion will stay in space longer than any ship for astronauts has done without docking to a space station and return home faster and hotter than ever before.

The Moon is at apogee (404,921km) on the 14th at 6:41am. At 11:00pm the Pleiades star cluster is 4 degrees to the lower right of the Moon.

During the evenings of the 14th and 15th in the east Mars will be approximately midway between the stars Elnath (1.6 mag) and Zeta Tauri (2.9 mag).

On the 15th at midnight the star Lambda Leonis (4.3 mag) is 3 degrees to the upper left of the Moon.

At midnight on the 16th the star Eta Leonis (3.4 mag) is 2½ degrees to the upper right of the Moon… …then at 6:00am on the following morning of the 17th the star Regulus (1.3 mag) is 4¾ degrees to the right of the Moon and 2¼ degrees below.

The Leonids meteor shower reach their peak on the 17th/18th though they can be seen from the 6th – 30th. They originate from Comet Temel-Tuttle.

On the 18th at 6:00am the star Iota Leonis (4 mag) is 3¼ degrees to the left of the crescent Moon.

Mercury is at aphelion on the 19th.

At 6:00am on the 19th the star Zavijava (3.5 mag) in Virgo is 2½ degrees to the right of the crescent Moon and 1 degree below.

On the 20th at 6:00am the star Porrima (2.7 mag) in Virgo is just 1 degree above the crescent Moon.

At 6:00am on the 21st the star Spica (1 mag) in Virgo is 3¼ degrees to the lower right of a thin crescent Moon.

On the 22nd at 6:45am a very thin crescent Moon will be seen low in the south east. It will be 8 degrees above the horizon at 125 degrees azimuth.

At 4:35pm on the 25th a thin crescent Moon will be seen low in the south west. It will be 2 degrees above the horizon at 218 degrees azimuth.

The Moon is at perigee (362,826km) on the 26th at 1:32am. At 4:45pm the star Nunki (2 mag) in Sagittarius is just 2¼ degrees above the crescent Moon low in the SSW.

At 6:00pm on the 27th the star 98688 (4.4 mag) in Sagittarius is just 1¼ degrees below left of the crescent Moon low in the SSW.

On the 28th at 6:00pm the star 104234 (4.4 mag) in Capricornus is 2 degrees to the lower left of the crescent Moon. Saturn is 9½ degrees above left of the Moon.

At 6:00pm on the 29th the star Delta Capricorni (2.8 mag) is 4 degrees upper right of the Moon. Saturn is 7½ degrees to the right of the Moon and 1½ degrees above. The star Nashira (3.6 mag) is 2½ degrees to the left of Saturn.

On the 30th around 7:00pm the star Tau Aquarii (4 mag) is 2 degrees to the lower right of the First Quarter Moon. The star Skat (3.2 mag) is 3¼ degrees below the Moon.

*= Dates and times are subject to change.

News: Comet C/2022 E3 ZTF (currently 11.3 mag) is at perihelion (1.112AU) on the 12th January. On the 1st February it is at its closest to Earth at 0.284AU (26,412,000 million miles). When its at its closest to Earth it's in the constellation of Camelopardalis, which is in the northern hemisphere. More on this later

On Monday 26th September NASA's Double Asteroid Redirection Test (DART) smashed nearly head-on into Dimorphos, the satellite of asteroid 65803 Didymos. Before the impact, Dimorphos – which is just 160 metres wide – circled Didymos once every 11 hours and 55 minutes. On the 11th October NASA officials confirmed that an orbit now takes only 11 hours and 23 minutes. Dimorphos is now just a little bit closer to Didymos now. It now shows that we can use kinetic impactor to nudge a hazardous asteroid's path – and keep Earth out of harm's way. Many of you probably saw it on the news at the time.

SOFIA – the world's only airborne telescope – has reached the end of its flight plan. Although the Stratospheric Observatory for Infrared Astronomy was designed to have a 20-year-lifetime, NASA decommissioned it after only 8 years, citing its high cost and low scientific output. The abrupt ending left many scientists angry, devastated and empty handed. Several projects remain unfinished. "It's the end of an era – the end of a very rich history of airborne astronomy" says Jim De Buizer, SOFIA's planning and scheduling manager who has flown on SOFIA more than 50 times, including the first-light flight.

On September 29th the Juno probe passed within 222 miles (358km) of Europa's icy surface. This manoeuvre will shorten Juno's orbit from 43 days down to 38. This will be the closest pass of Europa since the Galileo mission's 218 miles (351km) pass on January 3rd 2000.

New evidence shows a planet coming together in the dusty disk of material orbiting the Sun-like star LkCa 15. This isn't the first time that astronomers have reported evidence of a planet in LkCa 15's disk. In 2012 researchers reported signs of a planet forming in the system. At only a couple of million years old, it would have been the youngest planet found yet. And a follow-up-study in 2015 found bright spots corresponding to three Jupiter-size planets growing in the system, referred to as LkCa 15b, c, and d. But follow-up studies found only a dusty inner disk where those infant planets would have been. Nevertheless, gaps and asymmetries in the disk structures still suggest the presence of protoplanets. So even though the previously proposed candidates were disproven, the hunt for real planets in the disk will continue.

China has launched a solar observatory to study solar flares and eruptions, and their connection with the Sun's magnetic field. The Advanced Space-based Solar Observatory (ASO-S) lifted off atop a Long March 2D rocket from the Jiuquan Satellite Launch Centre in the Gobi Desert on the 8th October. ASO-S is planned to operate at 720km (447 miles) above the Earth's surface in a Sun-synchronous orbit that will allow it to observe the Sun at all times. Its primary, four-year mission is timed to make the most of the 2024-2025 solar maximum, when the Sun is at its most active during its 11-year cycle.

China now, have the FAST radio telescope operational, see https://fast.bao.ac.cn/. Fast is now probably the largest single dish radio telescope at 500 metres in diameter and is built in a depression in the earth like the famous Arecibo dish which collapsed due to very poor maintenance. Sadly, the Arecibo will not be rebuilt.

Facts: Ceres is the largest object in the asteroid belt and was classified as a dwarf planet back in 2006. Given its distance and size – Ceres is about 50 times smaller than the Moon – our knowledge of its surface features was sketchy until NASA's Dawn mission arrived in 2015.