

# Astronomy News

## Night Sky 2021- October

Sunrise	Sunset	Mercury Rises	Venus Sets
1 <sup>st</sup> – 7:12am	1 <sup>st</sup> – 6:48pm	15 <sup>th</sup> – 6:37am	1 <sup>st</sup> – 7:58pm
10 <sup>th</sup> – 7:26am	10 <sup>th</sup> – 6:29pm	20 <sup>th</sup> – 6:08am	10 <sup>th</sup> – 7:45pm
20 <sup>th</sup> – 7:43am	20 <sup>th</sup> – 6:08pm	25 <sup>th</sup> – 6:05am	20 <sup>th</sup> – 7:35pm
30 <sup>th</sup> – 8:00am	30 <sup>th</sup> – 5:48pm	30 <sup>th</sup> – 6:20am	30 <sup>th</sup> – 7:31pm
Moon Rise	Moon Set	Moon Rise	Moon Set
1 <sup>st</sup> – 12:24am	1 <sup>st</sup> – 5:20pm	20 <sup>th</sup> – 6:23pm	21 <sup>st</sup> – 8:25am
2 <sup>nd</sup> – 1:36am	2 <sup>nd</sup> – 5:47pm	21 <sup>st</sup> – 6:38pm	22 <sup>nd</sup> – 9:35am
3 <sup>rd</sup> – 2:53am	3 <sup>rd</sup> – 6:08pm	(ENE)	(WNW)
4 <sup>th</sup> – 4:13am	(WNW)	22 <sup>nd</sup> – 6:56pm	23 <sup>rd</sup> – 10:46am
(ENE)	4 <sup>th</sup> – 6:27pm	23 <sup>rd</sup> – 7:18pm	24 <sup>th</sup> – 11:54am
5 <sup>th</sup> – 5:34am	5 <sup>th</sup> – 6:44pm (W)	24 <sup>th</sup> – 7:46pm	25 <sup>th</sup> – 12:59pm
6 <sup>th</sup> – 6:57am (E)	6 <sup>th</sup> – 7:00pm	25 <sup>th</sup> – 8:23pm	26 <sup>th</sup> – 1:55pm
7 <sup>th</sup> – 8:22am	7 <sup>th</sup> – 7:18pm	26 <sup>th</sup> – 9:10pm	(NW)
8 <sup>th</sup> – 9:50am (ESE)	8 <sup>th</sup> – 7:39pm	(NE)	27 <sup>th</sup> – 2:42pm
9 <sup>th</sup> – 11:19am	(WSW)	27 <sup>th</sup> – 10:08pm	28 <sup>th</sup> – 3:20pm
10 <sup>th</sup> – 12:46pm	9 <sup>th</sup> – 8:05pm	28 <sup>th</sup> – 11:15pm	29 <sup>th</sup> – 3:49pm
11 <sup>th</sup> – 2:06pm	10 <sup>th</sup> – 8:40pm	30 <sup>th</sup> – 12:29am	30 <sup>th</sup> – 4:12pm
12 <sup>th</sup> – 3:12pm (SE)	11 <sup>th</sup> – 9:27pm	31 <sup>st</sup> – 1:46am	31 <sup>st</sup> – 3:31pm
13 <sup>th</sup> – 4:02pm	12 <sup>th</sup> – 10:29pm	(ENE)	(WNW)
14 <sup>th</sup> – 4:38pm	(SW)	-----	-----
15 <sup>th</sup> – 5:04pm	13 <sup>th</sup> – 11:41pm	All times	<b>Moon Phases</b>
16 <sup>th</sup> – 5:24pm	15 <sup>th</sup> – 1:00am	in notes are set	New Moon – 6 <sup>th</sup>
(ESE)	16 <sup>th</sup> – 2:19am	for	First Quarter –
17 <sup>th</sup> – 5:41pm	(WSW)	<b>Somerton</b>	13 <sup>th</sup>
18 <sup>th</sup> – 5:55pm (E)	17 <sup>th</sup> – 3:36am	unless stated	Full Moon – 20 <sup>th</sup>
19 <sup>th</sup> – 6:09pm	18 <sup>th</sup> – 4:50am		Last Quarter –
	19 <sup>th</sup> – 6:03am (W)		28 <sup>th</sup>
	20 <sup>th</sup> – 7:14am		
A useful site: <a href="http://www.heavens-above.com">www.heavens-above.com</a>	A S Zielonka		

During the evenings this month Jupiter lies just above the two stars Delta Capricorni (2.8 mag) and Nashira (3.6mag) in retrograde motion. Jupiter and the two stars form an equilateral triangle around the 3<sup>rd</sup> - 5<sup>th</sup> as well as on the 31<sup>st</sup> when its back in forward motion.

During the first half of this month the asteroid Ceres (8.3 mag) stays 2 degrees from Aldebaran (0.8 mag). Ceres will be to the lower left of Aldebaran. On the 31<sup>st</sup> at 11:00pm Ceres (7.7 mag) is just  $\frac{1}{2}$  a degree to the lower left of Aldebaran. This is a good month to follow Ceres. (For further information please see the “Asteroid “ section in the website above).

On the 1<sup>st</sup> at 5:30am the Beehive Star Cluster is 6 degrees below the crescent Moon and 1 degree to the left.

On the 2<sup>nd</sup> the Bepi Colombo mission to Mercury has its first flyby of this planet. It goes into orbit around Mercury in 2025.

At 5:30am on the 2<sup>nd</sup> the Beehive Star Cluster is 7 degrees to the right of the crescent Moon and 5 degrees above.

Venus is at aphelion on the 3<sup>rd</sup>.

An occultation of the star Eta Leonis (3.4 mag) by the Moon occurs on the 3<sup>rd</sup>. It disappears at 3:41:21am and reappears at 4:16:03am. (Please note that these times are set for Yeovilton)

At 5:15am on the 4<sup>th</sup> the star Chertan (3.3 mag) in Leo is 5 degrees to the left of a thin crescent Moon.

On the 5<sup>th</sup> at 6:00am a very thin crescent Moon will be seen low in the east at 85 degrees azimuth and just 3 degrees above the horizon.

At 7:05pm on the 7<sup>th</sup> a very thin crescent Moon may be seen low in the WSW at 251.5 degrees azimuth and 1 degree above the horizon.

The Draconids meteor shower reaches its peak on the 7<sup>th</sup>. The shower runs annually from the 6<sup>th</sup> – 10<sup>th</sup>. This year, the nearly new Moon will leave dark skies for what should be a good show. Best viewing will be in the evening from a dark location away from lights.

Mars is at superior conjunction on the 8<sup>th</sup>.

The Moon is at perigee (363,386km) on the 8<sup>th</sup> at 6:29pm. At 7:15pm a very thin crescent Moon is just 2½ degrees above the horizon at 240 degrees azimuth.

Mercury is at inferior conjunction on the 9<sup>th</sup>.

On the 9<sup>th</sup> at 7:15pm the crescent Moon is 5 degrees above the south west horizon at 226 degrees azimuth. Venus is just 2 degrees to the lower left of the Moon at 224.5 degrees azimuth amongst the stars of Scorpius. The star Dschubba (2.2 mag) is ¾ of a degree above Venus.

From the 10<sup>th</sup> - 18<sup>th</sup> around 7:15pm Venus will be low near the south west horizon passing through the constellation of Scorpius. On the 16<sup>th</sup> at 7:00pm Venus is 4 degrees above the horizon at 220 degrees azimuth with the star Antares (1 mag) just 1½ degrees below it.

At 7:30pm on the 10<sup>th</sup> the star 84405 'Hipparcus I.D.' (4.3 mag) in Ophiuchus is 4 degrees to the left of the crescent Moon.

On the 11<sup>th</sup> at 8:20pm the star Mu Sagittarii (3.8 mag) is 6 degrees above the crescent Moon.

At 8:15pm on the 12<sup>th</sup> the star Nunki (2 mag) in Sagittarius is 3 degrees to the right of the Moon. The star Tau Sagittarii (3.3 mag) is less than a degree below the Moon.

On the 13<sup>th</sup> at 10:00pm Saturn is 7½ degrees above the Moon and 3½ degrees to the left.

At 10:45pm on the 14<sup>th</sup> Saturn is 8 degrees to the left of the Moon. Jupiter is 10 degrees upper left of the Moon. All three are amongst the stars of Capricornus.

On the 15<sup>th</sup> at 9:00pm Jupiter is 6 degrees above right of the Moon. Between them and slightly nearer Jupiter is the star Delta Capricorni (2.8 mag). The star Nashira (3.6) is 1½ degrees below Jupiter.

The Parker Solar Probe has a Venus flyby on the 16<sup>th</sup>.

From the 16<sup>th</sup> - 31<sup>st</sup> around 6:45am Mercury passes through the constellation of Virgo low in the east. On the 17<sup>th</sup> at 6:45am Mercury is 3½ degrees above the horizon at 100 degrees azimuth with Porrima (2.7 mag) 2¼ degrees to the upper left. On the 20<sup>th</sup> Mercury is 5½ degrees above the horizon at 101.5 degrees azimuth with Porrima 1½ degrees upper left. On the 23<sup>rd</sup> Mercury is 6 degrees above the horizon at 102.5 degrees azimuth with Porrima 2¼ degrees above. On the 29<sup>th</sup> Mercury is 4 degrees above the horizon at 104 degrees azimuth with the star Theta Virginis (4.3 mag) just ½ a degree to its right.

At 7:00pm on the 16<sup>th</sup> the star Tau Aquarii (4 mag) is less than ½ a degree above the Moon. The star Skat is 2¼ degrees below the Moon.

There is a planned launch no earlier than October 16<sup>th</sup>\* from the Kennedy Space Centre in Florida of the " Lucy "mission. Lucy will be the first space mission to study the Trojan asteroids associated with the planet Jupiter. Lucy will complete a 12 year journey to eight different asteroids which hold vital clues to deciphering the history of the solar system.

On the 17<sup>th</sup> at 7:00pm Neptune is 5 degrees above the Moon.

Mercury is at perihelion on the 20<sup>th</sup>.

At 9:00pm on the 20<sup>th</sup> the star Omicron Piscium (4.2 mag) is 2¾ degrees above the Moon and 2 degrees to the right.

On the 21<sup>st</sup> at 9:45pm the star Mu Ceti (4.2 mag) is 3 degrees to lower right of the Moon. Following a straight line from Mu Ceti through the Moon you will

come to Uranus which is  $2\frac{1}{4}$  degrees further on. A fainter star is just below and close to Uranus.

The Orionids meteor shower reaches its peak on the night of the 21<sup>st</sup> and the morning of the 22<sup>nd</sup>. Though they can be seen from the 1<sup>st</sup> October - 6<sup>th</sup> November. The full Moon will be a problem this month though if you are patient, you should manage to see a few bright ones. Best viewing will be from a dark location after midnight.

At 11:00pm on the 22<sup>nd</sup> the Pleiades star cluster is 6 degrees to the left of the Moon and 3 degrees above.

From the 22<sup>nd</sup> - 25<sup>th</sup> Comet 67P Churyumov-Gerasimenko (11.8 mag – Sept 13<sup>th</sup>) will be passing the star Mu Geminorum (2.8 mag) in Gemini. At midnight on the 23<sup>rd</sup> Chur-Gera will be just  $\frac{1}{2}$  a degree upper left of Mu Geminorum. Its distance from Earth on this day is 0.431AU. It will be  $\frac{3}{4}$  of a degree from the Moon at midnight on the 26<sup>th</sup>. Its at perihelion on the 2<sup>nd</sup> of November when its 1.211AU from the Sun. From November 8<sup>th</sup> - 14<sup>th</sup> its at its closest to Earth at 0.418AU near the bright star Pollux.

On the 23<sup>rd</sup> at 11:00pm Aldebaran (0.8 mag) is 6 degrees below the Moon. Midway between them is the star Ain (3.5 mag).

The Moon is at apogee (405,615km) on the 24<sup>th</sup> at 4:29pm. At 11:00pm the star Elnath (1.6 mag) in Taurus is  $5\frac{1}{2}$  degrees to the left of the Moon and  $1\frac{1}{2}$  degrees above.

Mercury reaches maximum western elongation on the 25<sup>th</sup> when its 18.4 degrees from the Sun

At 11:00pm on the 25<sup>th</sup> the star 28734 'Hipparcos I.D.' (4.1 mag) in Gemini is 2 degrees to the lower right of the Moon. The star Propus (3.3 mag) is  $3\frac{3}{4}$  degrees below the Moon.

On the 26<sup>th</sup> at 10:30pm the star Mebsuta (3 mag) in Gemini is 3 degrees to the upper right of the Moon.

At 11:30pm on the 27<sup>th</sup> the star Kappa Geminorum (3.5 mag) is  $1\frac{3}{4}$  degrees upper right of the Moon.

On the night of the 28<sup>th</sup> at 12:30am the Beehive Star Cluster is 3 degrees to the right of the Moon and 1 degree below.

Venus reaches maximum eastern elongation on the 29<sup>th</sup> when its 47 degrees from the Sun.

At 1:00am on the night of the 29<sup>th</sup> the star Epsilon Leonis (2.9 mag) is 4 degrees to the left of the crescent Moon and 3 degrees above.

On the 31<sup>st</sup> at 6:00am the crescent Moon is approximately midway between the stars Chertan (3.3 mag) and Regulus (1.3 mag) in Leo.

There is a planned launch on the 31<sup>st</sup>\* from Kennedy Space centre to the International Space Station (ISS). NASA's SpaceX Crew-3 mission will launch four astronauts aboard a Crew Dragon spacecraft on a Falcon 9 rocket. Assigned to the mission are NASA astronauts **Raja Chari**, **Tom Marshburn** and **Kayla Barron**. Also with them is the European Space Agency (ESA) astronaut **Matthias Maurer**. (See below for further details)

- = Dates and times are subject to change.

News: The launch of the James Webb Space Telescope (JWST) is now scheduled for December 18<sup>th</sup>. It will be placed 960,000 miles from Earth at Lagrange point (L2) which is directly opposite the Sun and known as an halo orbit. Since L2 is just an equilibrium point with no gravitational pull, a halo orbit is not an orbit in the usual sense: the JWST will actually be in orbit around the Sun, but stays in the vicinity of the L2 point.

It was announced on the 7<sup>th</sup> September that the Perseverance rover had successfully collected two pencil-size cores from Jezero Crater on Mars. The holes were drilled September 1<sup>st</sup> and the 7<sup>th</sup>.

Four amateur astronauts have splashed down successfully in the Atlantic ocean after spending three days in space. They are the first private, all-civilian team ever to orbit the Earth. The Inspirational4 crew left on a SpaceX capsule from Florida on Wednesday 15<sup>th</sup> September and landed off the state's coast on Saturday 18<sup>th</sup>.

ISS News: **Raja Chari** (b.1977) is married to Holly Schaffter and have three children. In June 2017 he was selected for NASA Astronaut Group 22 to begin two years of training to become an astronaut. In December 2020 he was selected to be a part of the Artemis Team, a group of astronauts “to help pave

the way for the next lunar missions including sending the first woman and next man to walk on the lunar surface in 2024". He will be the first NASA rookie to command a spaceflight in this current mission since Joe Engle, who commanded the Space Shuttle Columbia in 1981.

**Tom Marshburn** (b.1960) is an American physician and a NASA astronaut. He is a veteran of two spaceflights to the International Space Station (ISS). During his first spaceflight in 2009 he took part in three spacewalks. During his second spaceflight in 2012/2013 Christopher Cassidy and himself performed an unplanned spacewalk to replace a pump controller box suspected to be the source of an ammonia coolant leak. Two days later Marshburn and his crew returned to Earth on May 13<sup>th</sup>.

**Kayla Barron** (b.1987) is married to Tom, who is a U.S. Army Special Forces officer. Kayla is an American submarine warfare officer, engineer and a NASA astronaut. Following her submarine assignment on USS Maine she was Flag Aide to the superintendent at the Naval Academy until her selection as an astronaut.

**Matthias Maurer** (b.1970) is a German European Space Agency (ESA) astronaut and materials scientist. He is fluent in three other languages (English, Spanish and French). He has also taken intensive language training in Russian and Chinese for his astronaut training. On the 28<sup>th</sup> July 2020 he was announced as a backup crew member for Thomas Pesquet on SpaceX Crew-2 to the ISS. The current mission will make him the twelfth German astronaut.

Facts: Valentina Tereshkova was the first woman to go into space. In 1963 she spent almost three days in space and orbited Earth 48 times in her space capsule, Vostok 6. It was her only trip into space. She later toured the world to promote Soviet science and became involved in Soviet politics.