

## Astronomy News

### Night Sky 2020 - November

Sunrise	Sunset	Mercury Rises	Venus Rises
1 <sup>st</sup> – 7:04am 10 <sup>th</sup> – 7:20am 20 <sup>th</sup> – 7:36am 30 <sup>th</sup> – 7:51am	1 <sup>st</sup> – 4:44pm 10 <sup>th</sup> – 4:30pm 20 <sup>th</sup> – 4:17pm 30 <sup>th</sup> – 4:08pm	1 <sup>st</sup> – 5:51am 10 <sup>th</sup> – 5:28am 20 <sup>th</sup> – 6:03am 30 <sup>th</sup> – 6:54am	1 <sup>st</sup> – 3:49am 10 <sup>th</sup> – 4:15am 20 <sup>th</sup> – 4:45am 30 <sup>th</sup> – 5:16am
Moon Rise	Moon Set	Moon Rise	Moon Set
----- 1 <sup>st</sup> – 5:24pm (ENE) 2 <sup>nd</sup> – 5:46pm 3 <sup>rd</sup> – 6:15pm 4 <sup>th</sup> – 6:52pm 5 <sup>th</sup> – 7:40pm 6 <sup>th</sup> – 8:38pm 7 <sup>th</sup> – 9:47pm 8 <sup>th</sup> – 11:02pm 10 <sup>th</sup> – 12:22am (ENE) 11 <sup>th</sup> – 1:44am 12 <sup>th</sup> – 3:08am (E) 13 <sup>th</sup> – 4:34am 14 <sup>th</sup> – 6:03am (ESE) 15 <sup>th</sup> – 7:32am 16 <sup>th</sup> – 9:00am 17 <sup>th</sup> – 10:21am 18 <sup>th</sup> – 11:30am 19 <sup>th</sup> – 12:22pm	1 <sup>st</sup> – 7:40am (WNW) 2 <sup>nd</sup> – 8:49am 3 <sup>rd</sup> – 9:56am 4 <sup>th</sup> – 11:01am 5 <sup>th</sup> – 12:01pm 6 <sup>th</sup> – 12:52pm 7 <sup>th</sup> – 1:33pm 8 <sup>th</sup> – 2:06pm 9 <sup>th</sup> – 2:33pm (WNW) 10 <sup>th</sup> – 2:56pm 11 <sup>th</sup> – 3:16pm 12 <sup>th</sup> – 3:35pm (W) 13 <sup>th</sup> – 3:55pm 14 <sup>th</sup> – 4:18pm (WSW) 15 <sup>th</sup> – 4:46pm 16 <sup>th</sup> – 5:21pm 17 <sup>th</sup> – 6:08pm 18 <sup>th</sup> – 7:06pm 19 <sup>th</sup> – 8:14pm	20 <sup>th</sup> – 1:01pm 21 <sup>st</sup> – 1:30pm 22 <sup>nd</sup> – 1:53pm (ESE) 23 <sup>rd</sup> – 2:11pm 24 <sup>th</sup> – 2:27pm 25 <sup>th</sup> – 2:41pm (E) 26 <sup>th</sup> – 2:56pm 27 <sup>th</sup> – 3:12pm 28 <sup>th</sup> – 3:30pm (ENE) 29 <sup>th</sup> – 3:51pm 30 <sup>th</sup> – 4:17pm ----- All times in notes are set for <b>Somerton</b> unless stated	20 <sup>th</sup> – 9:27pm 21 <sup>st</sup> – 10:40pm 22 <sup>nd</sup> – 11:52pm (WSW) 24 <sup>th</sup> – 1:01am 25 <sup>th</sup> – 2:08am (W) 26 <sup>th</sup> – 3:15am 27 <sup>th</sup> – 4:22am 28 <sup>th</sup> – 5:30am (WNW) 29 <sup>th</sup> – 6:38am 30 <sup>th</sup> – 7:47am ----- <b>Moon Phases</b> Last Quarter – 8 <sup>th</sup> New Moon – 15 <sup>th</sup> First Quarter – 22 <sup>nd</sup> Full Moon – 30 <sup>th</sup>
A useful site: <a href="http://www.heavens-above.com">www.heavens-above.com</a>	A S Zielonka		

There is a planned launch (No earlier than November)\* of SpaceX Crew-1 to the ISS. Crew Dragon commander **Michael Hopkins**, pilot **Victor Glover**, mission specialist **Shannon Walker** of NASA and Japan Aerospace Exploration Agency (JAXA) mission specialist **Soichi Noguchi** will launch on the Crew-1 mission from Kennedy Space Centre in Florida. (For further information please last months newsletter).

This month Jupiter gets 3 degrees closer to Saturn. By the end of this month they will be just 2¼ degrees apart. At 6:00pm on the 30<sup>th</sup> Jupiter is 9½ degrees above the horizon in the south west at 216.5 degrees azimuth.

On the 1<sup>st</sup> at 9:00pm the star 16369 'Hipparcos Catalogue ID' (4.1 mag) is 3 degrees lower right of the moon. The Pleiades star cluster is 9½ degrees to the upper right of the moon.

From the 1<sup>st</sup> – 3<sup>rd</sup> Comet 88P Howell (9.5 mag – Oct 18<sup>th</sup>) will be passing close to the star Nunki (2nd mag) in Sagittarius. On the 2<sup>nd</sup> at 7:00pm their just ½ a degree apart. (For further information on this comet or others listed, please see the 'Comet' section in the website above)

From the 1<sup>st</sup> - 4<sup>th</sup> Mercury passes close to the star Spica (1st mag) in Virgo. On the 2<sup>nd</sup> at 6:15am low in the ESE Spica will be 4 degrees to the right of Mercury. Mercury is at 109.5 degrees azimuth and they are both 4½ degrees above the horizon. Mercury is at perihelion on the 2<sup>nd</sup>.

At 2:00am on the night of 2<sup>nd</sup> the star Ain (3.5mag) in Taurus is 1¼ degrees to the lower left of the moon.

On November 2<sup>nd</sup> at 4:00am Vesta will be 5 degrees from Regulus towards the star Chertan (3.3 mag). (For details on this or others, please see the “Asteroid” section in the website above).

Comet C/2020 P1 Neowise (10.1 mag – Oct 5<sup>th</sup>) is in the constellation of Bootes this month. On the 3<sup>rd</sup> at 6:30am the stars Spica (1st mag) and Zeta Virginis (3.3 mag) in Virgo point the way to Neowise. Its position is approximately midway between the stars Muphrid (2.6 mag) in Bootes and Zeta Virginis.

From the 4<sup>th</sup> - 6<sup>th</sup> Venus passes close to the star Porrima (2.7 mag) in Virgo. On the 5<sup>th</sup> at 6:15am in the ESE Porrima is just 1 degree above left of Venus.

On the 4<sup>th</sup> at 6:00am the star Zeta Tauri (2.9mag) in Taurus is 4 degrees to the left of the moon and 1 degree above.

At 6:00am on the 5<sup>th</sup> the Star Propus (3.3mag) in Gemini is 1¾ degrees below the moon and ¾ of a degree to the left.

On the 6<sup>th</sup> at 6:00am the star Wasat (3.5mag) in Gemini is 3 degrees to the left of the moon and 1 degree below.

At 9:00pm on the 6<sup>th</sup> the star Kappa Geminorum (3.5mag) in Gemini is just 1¾ degrees above the moon low in the north east, then at 11:45pm Castor (1.5mag) and Pollux (1.1mag) point the way to the moon.

On the 7<sup>th</sup> at 11:00pm the Beehive Star Cluster is 3 degrees to the right of the moon.

At 6:30am on the 9<sup>th</sup> the star Eta Leonis (3.4mag) in Leo is 2 degrees to the left of the moon.

Mercury reaches maximum western elongation from the Sun on the 10<sup>th</sup>.

There is a planned launch on the 10<sup>th</sup> at 7:31pm from Vandenberg Air Force base in California of the Sentinel-6 Michael Freilich Satellite. This ocean observation satellite is part of the Sentinel-6/Jason-CS mission. This U.S.- European collaboration will add to a longterm sea level dataset.

The Taurids meteor shower reach their peak on the 10<sup>th</sup>/11<sup>th</sup> November, though they can be seen from the 19<sup>th</sup> October - 9<sup>th</sup> December.

On the 11<sup>th</sup> at 6:30am the star Denebola (2.1mag) in Leo is 8½ degrees above left of the crescent moon.

From the 12<sup>th</sup> - 21<sup>st</sup> Comet 88P Howell (9.5 mag – Oct 18<sup>th</sup>) will be passing below Jupiter and Saturn (from right to left). On the 19<sup>th</sup> Howell will be just 1½ degrees below right of the Crescent moon.

At 6:30am on the 12<sup>th</sup> the star Porrima (2.7mag) in Virgo is just 2 degrees to the lower right of the crescent moon with Venus 10 degrees to the lower left.

On the 13<sup>th</sup> at 6:30am Venus is 5½ degrees above right of a thin crescent moon. Mercury is 8½ degrees to the lower left of the moon and 8 degrees above the horizon at 117 degrees azimuth.

From the 13<sup>th</sup> - 14<sup>th</sup> Comet C/2020 M3 Atlas (8th mag - Oct 20<sup>th</sup>) is 0.358AU and closest to the earth. Its also in the constellation of Orion. On the 15<sup>th</sup> its less than ½ a degree from the star Bellatrix (1.6 mag). On the 14<sup>th</sup> at 6.30am Mercury is 6 degrees upper right of a very thin crescent moon which is 3 degrees above the ESE horizon at 113 degrees azimuth. The moon is at perigee (357,837km) on the 14<sup>th</sup> at 11:44am.

From the 15<sup>th</sup> - 19<sup>th</sup> Venus passes close to the star Spica (1st mag) in Virgo. On the 17<sup>th</sup> at 6:15am Spica is 4 degrees to the upper left of Venus.

On the 16<sup>th</sup> at 4:50pm a very thin crescent moon will be seen low in the south west. It will be 3 degrees above the horizon at 236.5 azimuth.

Comet C/2020 S3 Erasmus (10.7 mag – Oct 20<sup>th</sup>) is at perihelion on December 13<sup>th</sup> when it will be just 0.423AU from the Sun. On the 16<sup>th</sup> Erasmus is less than a ¼ of a degree from the star Gienah (2.5 mag) in the constellation of Corvus.

At 5:00pm on the 17<sup>th</sup> a thin crescent moon will be seen in the south west. It will be 6 degrees above the horizon at 215.5 degrees azimuth.

Comet 156P Russell-Linear (11.5 mag – Oct 18<sup>th</sup>) is at perihelion on the 17<sup>th</sup>. From the 27<sup>th</sup> – 29<sup>th</sup> it passes close to the star Omega Piscium (4th mag) in Pisces. At 7:45pm on the 28<sup>th</sup> its less than a ¼ of a degree from it and due south. Its also 15 degrees to the right of Mars.

The Leonids meteor shower reach their peak on the 17<sup>th</sup>/18<sup>th</sup> though they can be seen from the 5<sup>th</sup> – 29<sup>th</sup>.

On the 18<sup>th</sup> at 5:00pm the star Nunki (2 mag) in Sagittarius is 1¾ degrees to the lower right of the crescent moon. Jupiter is 10 degrees upper left of the moon with Saturn is 3½ degrees left of Jupiter.

At 5:00pm on the 19<sup>th</sup> Saturn is 4 degrees above the crescent moon. Jupiter is 5¼ degrees to the upper right of the moon.

From the 21<sup>st</sup> – 23<sup>rd</sup> Mercury passes close to the star Zubenelgenubi (2.7 mag) in Libra. On the 22<sup>nd</sup> at 6:45am Mercury will be 1¼ degrees to the upper left of the star. Mercury is 4¼ degrees above the horizon and at 121 degrees azimuth.

On the 21<sup>st</sup> at 8:00pm the star Delta Capricorni (2.8 mag) in Capricorn is just 3¼ degrees to the right of the moon and 1 degree above.

At 8:00pm on the 22<sup>nd</sup> the star Tau Aquarii (4 mag) in Aquarius is 1 degree to the upper left of the moon. An occultation of this star by the moon occurs at 10:10:54pm approx. (This time is set for Langport).

From the 22<sup>nd</sup> – 25<sup>th</sup> the asteroid Ceres will pass within 1½ degrees to the star Skat (3.2 mag) in Aquarius.

On the 23<sup>rd</sup> at 9:00pm Neptune is 5¼ degrees to the upper right of the moon. Neptune is also just 1 degree to the upper left of the star Phi Aquarii (4.2 mag) in Aquarius.

At 6:00pm on the 24<sup>th</sup> the star Iota Ceti (3.5 mag) in Cetus is 4¼ degrees below the moon.

On the 25<sup>th</sup> at midnight Mars is 5 degrees to the upper right of the moon.

At 6:00pm on the 26<sup>th</sup> the star Nu Piscium (4.4 mag) in Pisces is less than half a degree to the upper left of the moon.

The moon is at apogee (405,894km) on the 27<sup>th</sup> at 12:29am. At 6:00pm Uranus is 3½ degrees above the moon and 1½ degrees to the left. At midnight the star Mu Ceti (4.2 mag) in Cetus is 3 degrees to the left of the moon with Uranus 3¾ degrees to the right and 1½ degrees above.

On the 28<sup>th</sup> at midnight the star 16369 "Hipparcos Cat ID" (4.1 mag) in Taurus is 3 degrees below left of the moon.

At 7:00am on the 30<sup>th</sup> low in the WNW the star Ain (3.5mag) is 2 degrees to the left of the moon and 1 degree above. Aldebaran (0.8 mag) is 5 degrees to the left of the moon.

There is a Penumbral Lunar Eclipse on the 30<sup>th</sup>. As the penumbral phase starts at 7:32:21am (and the moon setting at 7:47am) its unlikely any of it will be seen from the UK. This is the last and longest lunar eclipse of the year. The penumbral phase will last 4 hours 20mins 59secs. Greatest eclipse is at 9:42:49am.

\* = Dates and times are subject to change.

News: **Solar Orbiter:** The science payload is composed of 10 instruments.

8/10) STIX – Spectrometer Telescope for Imaging X-rays (Switzerland): Provides imaging spectroscopy of solar thermal and non-thermal X-ray emission from 4 to 150 keV. STIX provides quantitative

information on the timing, location, intensity and spectra of accelerated electrons as well as of high-temperature thermal plasmas, mostly associated with flares and /or microflares.

News: It was announced on 19<sup>th</sup> October by astrophysicist Neil deGrasse Tyson that an asteroid called 2018 VP1 is scheduled to zip past Earth this month, on the 2<sup>nd</sup>. Researchers discovered 2018 VP1 using telescopes at the Zwicky Transient Facility at Caltech's Palomar Observatory in California. Because of its small size, scientists have had a tough time keeping track of the object and plotting its trajectory. It currently has a 0.41 percent chance of entering our planet's atmosphere but if it did, it would disintegrate due to its extremely small size.

Facts: The closest ever recorded approach by an asteroid occurred on August 16<sup>th</sup>, when 2020 QG flew 1,830 miles above the surface of the Earth. Scientists at Zwicky spotted the SUV-sized asteroid about 6 hours after the close call as it zipped away from Earth.