

# Astronomy News

## Night Sky 2022 - July

Sunrise	Sunset	Mercury Rises / Sets	Venus Rises
1 <sup>st</sup> – 5:00am 10 <sup>th</sup> – 5:08am 20 <sup>th</sup> – 5:20am 30 <sup>th</sup> – 5:33am	1 <sup>st</sup> – 9:29pm 10 <sup>th</sup> – 9:24pm 20 <sup>th</sup> – 9:14pm 30 <sup>th</sup> – 9:00pm	1 <sup>st</sup> – 3:59am 5 <sup>th</sup> – 4:08am 10 <sup>th</sup> – 4:29am 30 <sup>th</sup> – 9:37pm	1 <sup>st</sup> – 3:16am 10 <sup>th</sup> – 3:16am 20 <sup>th</sup> – 3:23am 30 <sup>th</sup> – 3:38am
Moon Rise	Moon Set	Moon Rise	Moon Set
1 <sup>st</sup> – 6:42am 2 <sup>nd</sup> – 7:52am 3 <sup>rd</sup> – 9:04am 4 <sup>th</sup> – 10:17am (ENE) 5 <sup>th</sup> – 11:29am 6 <sup>th</sup> – 12:43pm (E) 7 <sup>th</sup> – 2:00pm 8 <sup>th</sup> – 3:20pm (ESE) 9 <sup>th</sup> – 4:45pm 10 <sup>th</sup> – 6:13pm 11 <sup>th</sup> – 7:40pm 12 <sup>th</sup> – 8:57pm (SE) 13 <sup>th</sup> – 9:56pm (SE) 14 <sup>th</sup> – 10:37pm 15 <sup>th</sup> – 11:05pm 16 <sup>th</sup> – 11:26pm (ESE) 17 <sup>th</sup> – 11:43pm 18 <sup>th</sup> – 11:57pm (E) 20 <sup>th</sup> – 12:11pm	1 <sup>st</sup> – 11:32pm 2 <sup>nd</sup> – 11:54pm 4 <sup>th</sup> – 12:12am (WNW) 5 <sup>th</sup> – 12:26am 6 <sup>th</sup> – 12:40am 7 <sup>th</sup> – 12:53am (W) 8 <sup>th</sup> – 1:07am 9 <sup>th</sup> – 1:24am (WSW) 10 <sup>th</sup> – 1:46am 11 <sup>th</sup> – 2:16am 12 <sup>th</sup> – 2:59am (SW) 13 <sup>th</sup> – 4:01am (SW) 14 <sup>th</sup> – 5:21am 15 <sup>th</sup> – 6:51am 16 <sup>th</sup> – 8:21am (WSW) 17 <sup>th</sup> – 9:48am 18 <sup>th</sup> – 11:10am 19 <sup>th</sup> – 12:28pm (W) 20 <sup>th</sup> – 1:43pm	21 <sup>st</sup> – 12:25am 22 <sup>nd</sup> – 12:41am (ENE) 23 <sup>rd</sup> – 1:00am 24 <sup>th</sup> – 1:24am 25 <sup>th</sup> – 1:56am (NE) 26 <sup>th</sup> – 2:38am (NE) 27 <sup>th</sup> – 3:31am (NE) 28 <sup>th</sup> – 4:34am 29 <sup>th</sup> – 5:43am 30 <sup>th</sup> – 6:55am 31 <sup>st</sup> – 8:07am (ENE) -----  All times in notes are set for Somerton unless stated	21 <sup>st</sup> – 2:57pm (WNW) 22 <sup>nd</sup> – 4:10pm 23 <sup>rd</sup> – 5:22pm 24 <sup>th</sup> – 6:30pm 25 <sup>th</sup> – 7:32pm (NW) 26 <sup>th</sup> – 8:24pm (NW) 27 <sup>th</sup> – 9:05pm 28 <sup>th</sup> – 9:36pm 29 <sup>th</sup> – 9:59pm 30 <sup>th</sup> – 10:18pm (WNW) 31 <sup>st</sup> – 10:33pm -----  Moon Phases First Quarter – 7 <sup>th</sup> Full Moon – 13 <sup>th</sup> Last Quarter – 20 <sup>th</sup> New Moon – 28 <sup>th</sup>
A useful site: <a href="http://www.heavens-above.com">www.heavens-above.com</a>	A S Zielonka		

The first flight of NASA's X-57, a small, experimental airplane powered by electricity. The all-electric technology will make flying cleaner, quieter, and more sustainable. The flight will take place at NASA's Armstrong Flight Research Centre in California this month\*.

From the 1<sup>st</sup> – 4<sup>th</sup> Mars passes close to the star Omicron Piscium (4.2 mag) in the ESE. At 4:30am on the 2<sup>nd</sup> Omicron Piscium is just ¼ of a degree above Mars.

On the 1<sup>st</sup> at 10:30pm the Beehive star cluster is 4 degrees below the crescent Moon and 1 degree to the right.

At 10.30pm on the 2<sup>nd</sup> the stars Kappa Leonis (4.4 mag) and Lambda Leonis (4.3 mag) point the way to the Moon. Lambda Leonis is 5 degrees to the right of the Moon and 2 degrees above.

On the 3<sup>rd</sup> at 10:00pm the star Regulus (1.3 mag) in Leo is 5½ degrees to the lower right of the crescent Moon.

At 11:30pm on the 4<sup>th</sup> the star Iota Leonis (4 mag) is 2½ degrees above the crescent Moon.

On the 5<sup>th</sup> at 11:30pm the star Zavijava (3.5 mag) in Virgo is 3 degrees below the crescent Moon and 2 degrees to the right.

At 11:30pm on the 6<sup>th</sup> the star Porrima (2.7 mag) in Virgo is 2½ degrees to the right of the crescent Moon.

On the 7<sup>th</sup> at 10:30pm the star Spica (2.7 mag) in Virgo is 3½ degrees below the Moon and 1¼ degrees to the right.

At 10:30pm on the 8<sup>th</sup> the star Zubenelgenubi (2.7 mag) in Libra is 5¾ degrees to the left of the Moon.

On the 9<sup>th</sup> at 10:30pm the star Gamma Librae (3.9 mag) is 5½ degrees above the Moon and 2 degrees to the left.

Mercury is at perihelion on the 10<sup>th</sup>.

At 10:30pm on the 10<sup>th</sup> the star Sigma Scorpii (2.9 mag) is 1½ degrees below the Moon and ½ a degree to the right. The star Antares (1 mag) is 2 degrees to the lower left of Sigma Scorpii.

On the 11<sup>th</sup> at 10:30pm the star Theta Ophiuchi (3.2 mag) is 2½ degrees to the upper right of the Moon.

At 10:30pm on the 12<sup>th</sup> the star Phi Sagittarii (3.1 mag) is 2¼ degrees to the left of the Moon.

From the 12<sup>th</sup> – 16<sup>th</sup> Venus passes close to the star Zeta Tauri (2.9 mag). On the 14<sup>th</sup> at 4:30am Zeta Tauri is just 1½ degrees to the lower right of Venus low in the ENE.

The Moon is at perigee (357,264km) on the 13<sup>th</sup> at 10:06am. At 11:30pm the star numbered 98688 (4.4 mag) in the Hipparcus catalog is 3½ degrees to the left of the Moon and 2¾ degrees below.

On the 14<sup>th</sup> at midnight the star Psi Capricorni (4.1 mag) is 2½ degrees to the right of the Moon and ½ a degree below.

At midnight on the 15<sup>th</sup> Saturn is 5 degrees above the Moon in the south east. The star Delta Capricorni (2.8 mag) is just 1½ degrees to the lower right of Saturn. At 4:00am the following morning Saturn is 5 degrees above right of the Moon.

Mercury is at superior conjunction on the 16<sup>th</sup>.

From the 17<sup>th</sup> – 25<sup>th</sup> Venus passes along a row of stars in Gemini low in the ENE. At 4:30am on the 19<sup>th</sup> the star 28734 (4.1 mag) in the Hipparcus catalog is just ¾ a degree above Venus. On the 21<sup>st</sup> at 4:30am the star Propus (3.3 mag) is just ½ of a degree to the right of Venus. At 4:30am on the 22<sup>nd</sup> the star Mu Geminorum (2.8 mag) is just ½ a degree below Venus. On the 25<sup>th</sup> at 4:30am Venus is approximately midway between the stars Mebsuta (3 mag) and Nu Geminorum (4.1 mag).

On the 17<sup>th</sup> at 4:30am the star Tau Aquarii (4 mag) is 2¼ degrees to the right of the Moon and 1¼ degrees below.

The Perseids meteor shower can be seen from the 17<sup>th</sup> July – 24<sup>th</sup> August. They reach their peak on the 12<sup>th</sup> / 13<sup>th</sup> August. This is associated with Comet Swift-Tuttle.

At 4:30am on the 18<sup>th</sup> Neptune is 3¾ degrees above the Moon and 1 degree to the right. Jupiter is 14 degrees to the upper left of the Moon.

On the 19<sup>th</sup> at 4:30am Jupiter is just 2¾ degrees upper right of the Moon.

Pluto is at opposition on the 20<sup>th</sup>. At 1:18am Pluto is at 16.1 degrees above the horizon, and due south.

At 4:30am on the 20<sup>th</sup> Jupiter is 13½ degrees to the right of the last quarter Moon.

On the 21<sup>st</sup> at 4:30am Mars is 5¾ degrees to the left of the crescent Moon and 1 degree below.

At 4:30am on the 22<sup>nd</sup> Mars is 5½ degrees to the right of the crescent Moon and 1 degree above. Uranus is just 1¼ degrees to the left of the Moon and a ¼ of a degree above.

On the 23<sup>rd</sup> at 4:30am the Pleiades star cluster is just 4 degrees upper left of the crescent Moon. Uranus is 10 degrees to the right of the Moon and 5 degrees above.

At 4:30am on the 24<sup>th</sup> the star Tau Tauri (4.2 mag) is just ¾ of a degree below left of the crescent Moon. The star Aldebaran (0.8 mag) is 7 degrees below right of the Moon.

On the 25<sup>th</sup> at 4:30am the crescent Moon is approximately midway between the stars Elnath (1.6 mag) and Zeta Tauri (2.9 mag) in Taurus. Elnath is 4 degrees to the upper left of the Moon. Venus is 17 degrees to the lower left of the Moon.

From the 25<sup>th</sup> – 31<sup>st</sup> Comet C/2017 K2 Panstarrs (9.8 mag – June 12<sup>th</sup>) passes close to the star Zeta Ophiuchi (2.5 mag). On the 28<sup>th</sup> from 10:00pm in the SSW Comet Panstarrs is 1½ degrees to the upper right of Zeta Ophiuchi. (For further information on this comet or others please see the “Comet” section in the website above).

At 5:00am on the 26<sup>th</sup> Venus is 5½ degrees below a thin crescent Moon and ¾ of a degree to the left. The Moon is at apogee (406,275km) at 11:23am. They are in the constellation of Gemini.

On the 27<sup>th</sup> at 4:30am a very thin crescent Moon will be seen low in the north east. Venus is 7 degrees to the right of the Moon and 1½ degrees above. At the time given, the Moon will be 6 degrees above the horizon at 55.5 degrees azimuth.

At 9:30pm on the 29<sup>th</sup> a very thin crescent Moon may be seen low in the WNW. At 9:25pm the Moon is 4½ degrees above the horizon at 296 degrees azimuth. Mercury is 3 degrees to the lower left of the Moon. Mercury is just 2 degrees above the horizon at 293.5 degrees azimuth.

The Delta Aquarids meteor shower reach their peak on the 30<sup>th</sup>, though they can be seen from the 12<sup>th</sup> July – 23<sup>rd</sup> August.

The Alpha Capricornids meteor shower reach their peak also on the 30<sup>th</sup>, and can be seen from the 3<sup>rd</sup> July – 15<sup>th</sup> August. These are likely to be yellow slow fireballs.

On the 30<sup>th</sup> at 9:29pm the star Regulus is 3¾ degrees directly below a thin crescent Moon in the WNW. The star Eta Leonis (3.4 mag) is 3 degrees to the right of the Moon. The Moon is 7 degrees above the horizon at 285 degrees azimuth. Mercury is 2 degrees above the horizon at 293 degrees azimuth.

At 10:00pm on the 31<sup>st</sup> the star Iota Leonis (4 mag) is 5 degrees to the upper left of the Moon.

From the 31<sup>st</sup> July – 4<sup>th</sup> August Mars passes close to Uranus. On the 2<sup>nd</sup> at 4:30am in the ESE Uranus will be just 1¼ degrees above Mars and ½ a degree to the left.

\*= Dates and times are subject to change.

News: NASA's James Webb Space Telescope, a partnership with European Space Agency (ESA) and the Canadian Space Agency (CSA), will release its first full-colour images and spectroscopic data this Summer.

After launching on Dec 25<sup>th</sup> last year, Webb has been going through a six-month period of preparation. The first images and data will, for the first time, demonstrate Webb at its full power, ready to begin its science mission and unfold the infrared universe.

In the short time since its launch in February 2020, the Solar Orbiter has already returned some incredible photos and data of the Sun. The joint ESA-NASA mission is expected to have its biggest scientific breakthroughs when it tilts its orbit to be able to see the Sun's poles – a region that we've never photographed – but it has already revealed never-before-seen phenomena like the miniature explosions on the Sun's surface called solar campfires.

A magnitude 5 quake shook the surface of Mars on the 4<sup>th</sup> May, the strongest temblor ever detected not only on Mars but on any planet besides Earth. The marsquake, detected by NASA's InSight lander, surpassed the previous record-holder a 4.2-magnitude quake that took place in August 2021.

Since the arrival of NASA's Perseverance on Mars on 18<sup>th</sup> February 2021, the rover has surveyed its home in Jezero Crater, deployed the Ingenuity helicopter, and begun to analyze and cache samples for a future sample-return mission. But while geology and astrobiology feature in its primary mission, Perseverance is also proving to be a first-rate interplanetary meteorologist. Recently, researchers have revealed some of the amazing dust storm activity the rover is capturing in Jezero Crater. Jezero's a good place to watch this process in action because it sits near the dust storm track that runs north to south across the planet. Perseverance has witnessed hundreds of dust devils across the crater, at the rate of four per sol and a peak rate of one per hour around local noon. The rough surface of the crater floor – including the treacherous Séítah dunes – make it an ideal source for dust-lifting events. Indeed, large gust-lifting events, rare as they are, kick far more dust into the air than the smaller daily whirlwinds. Astronomers have witnessed dust storms over Mars for almost as long as they've been observing the planet.

Pianist Jeffrey Biegel's longtime dream was to bring to life an updated version of Holst's - *The Planets*, infusing the music with current scientific understanding. Biegel was born deaf, and until the age of three, when corrective surgery allowed him to hear for the first time, his world was very closed. He relied on other means of expression and communication, and so music became his first language. As a result, his projects often have an "out of the box" element. Biegel's vision of a revamped *Planets* features the pianist as a space traveler journeying through the Solar System. Jeffrey Biegel and composer Daniel Perttu (Professor of Music Theory and composition at Westminster College) teamed up to produce "A Planets Odyssey". Shortly after meeting Perttu, Biegel realized that he'd found the person who could help bring his project to fruition. Perttu loved the idea, and so the pair embarked on their collaboration. *A Planets Odyssey*, isn't your typical three-movement concerto. Instead, it's in a theme-and-variations form. "It begins with the Big Bang, followed by the pianist introducing the main theme of the concerto", Perttu explains. "This theme is then varied as the pianist visits each planet and is inspired by the unique properties of each planet". Like Holst, Perttu skips the Earth. But unlike Holst, these planets are featured in their order from the Sun. And more importantly, Perttu focuses solely on the science. Perttu picked a few characteristics of each planet for inspiration and transformed those into sonic visions. For example, Mercury, subject of the first variation, is the innermost and smallest of the solar system's planets and experiences extremes in temperature. It also has virtually no atmosphere. So Perttu drew on those characteristics to produce a variation that conveys the imagery of a "stark, extreme kind of place". Holst's seven-movement orchestral suite *The Planets* premiered in London in 1918. Now, a little more than a century later, a modern version on the theme saw first light on Sunday 22<sup>nd</sup> May 2022. But while Holst turned to astrology for inspiration, composer Daniel Perttu turned to astronomy.

Facts: The Hubble Space Telescope reached the age of 32 back in April of this year.