

# Astronomy News

## Night Sky 2019 - September

Sunrise	Sunset	Mercury & Venus	
1 <sup>st</sup> – 6:24am 10 <sup>th</sup> – 6:38am 20 <sup>th</sup> – 6:53am 30 <sup>th</sup> – 7:09am	1 <sup>st</sup> – 7:57pm 10 <sup>th</sup> – 7:37pm 20 <sup>th</sup> – 7:15pm 30 <sup>th</sup> – 6:52pm	...are both too near and set too soon after the Sun, for observing this month.	<b>All times in notes are set for Somerton, unless stated.</b>
Moon Rise	Moon Set	Moon Rise	Moon Set
1 <sup>st</sup> – 8:47am (E) 2 <sup>nd</sup> – 10:11am 3 <sup>rd</sup> – 11:32am 4 <sup>th</sup> – 12:51pm (ESE) 5 <sup>th</sup> – 2:06pm 6 <sup>th</sup> – 3:16pm 7 <sup>th</sup> – 4:18pm 8 <sup>th</sup> – 5:11pm 9 <sup>th</sup> – 5:55pm 10 <sup>th</sup> – 6:31pm 11 <sup>th</sup> – 7:00pm 12 <sup>th</sup> – 7:25pm (ESE) 13 <sup>th</sup> – 7:45pm 14 <sup>th</sup> – 8:04pm 15 <sup>th</sup> – 8:22pm (E) 16 <sup>th</sup> – 8:40pm 17 <sup>th</sup> – 8:59pm	1 <sup>st</sup> – 9:21pm (W) 2 <sup>nd</sup> – 9:44pm 3 <sup>rd</sup> – 10:09pm 4 <sup>th</sup> – 10:36pm (WSW) 5 <sup>th</sup> – 11:07pm 6 <sup>th</sup> – 11:45pm 8 <sup>th</sup> – 12:29am 9 <sup>th</sup> – 1:21am 10 <sup>th</sup> – 2:19am 11 <sup>th</sup> – 3:22am 12 <sup>th</sup> – 4:26am (WSW) 13 <sup>th</sup> – 5:32am 14 <sup>th</sup> – 6:37am 15 <sup>th</sup> – 7:43am 16 <sup>th</sup> – 8:49am (W) 17 <sup>th</sup> – 9:55am 18 <sup>th</sup> – 11:02am	18 <sup>th</sup> – 9:20pm (ENE) 19 <sup>th</sup> – 9:45pm 20 <sup>th</sup> – 10:16pm 21 <sup>st</sup> – 10:55pm 22 <sup>nd</sup> – 11:45pm 24 <sup>th</sup> – 12:47am 25 <sup>th</sup> – 2:01am 26 <sup>th</sup> – 3:22am (ENE) 27 <sup>th</sup> – 4:47am 28 <sup>th</sup> – 6:14am 29 <sup>th</sup> – 7:40am (E) 30 <sup>th</sup> – 9:04am ----- <b>First Quarter – 6<sup>th</sup></b> <b>Full Moon – 14<sup>th</sup></b> <b>Last Quarter – 22<sup>nd</sup></b> <b>New Moon – 28<sup>th</sup></b>	19 <sup>th</sup> – 12:11pm(WNW) 20 <sup>th</sup> – 1:20pm 21 <sup>st</sup> – 2:28pm 22 <sup>nd</sup> – 3:32pm 23 <sup>rd</sup> – 4:29pm 24 <sup>th</sup> – 5:17pm 25 <sup>th</sup> – 5:56pm 26 <sup>th</sup> – 6:29pm (WNW) 27 <sup>th</sup> – 6:56pm 28 <sup>th</sup> – 7:20pm (W) 29 <sup>th</sup> – 7:43pm 30 <sup>th</sup> – 8:07pm -----
A useful site: <a href="http://www.heavens-above.com">www.heavens-above.com</a>	A S Zielonka		

During September Neptune is in a retrograde motion and travels from left to right against the background of the stars. The star its near is Phi Aquarii (4.2 mag) in Aquarius. At the beginning of the month Neptune its less than third of a degree to the left and by the 30<sup>th</sup> it will be a third of a degree to the right of Phi Aquarii. From the 14<sup>th</sup> – 16<sup>th</sup> it will be at its closest to Phi Aquarii.

The Alpha Aurigids meteor shower reaches its peak in the early hours before dawn on the 1<sup>st</sup>.

As the sky darkens on the 1<sup>st</sup> a thin crescent Moon will appear low in the west. At 8:30pm the Moon will be 7 degrees above the horizon and at 259 degrees azimuth. The star Porrima (2.7 mag) in Virgo is just 2½ degrees to the lower right of the Moon.

Mars is at superior conjunction (with the Sun) on the 2<sup>nd</sup>.

On the 2<sup>nd</sup> at 8:30pm the crescent Moon is 7 degrees above Spica (1st mag) and 7 degrees below left of Zeta Virginis (3.3 mag) which are both in the constellation of Virgo.

At 9:15pm on the 3<sup>rd</sup> the star Zubenelgenubi (2.7 mag) in Libra is just 3½ degrees to the lower left of the crescent Moon.

Comet C/2018 R3 Lemmon is just half a degree from Regulus in Leo on the 3<sup>rd</sup>. Its distance from Earth is 2.808 Astronomical Units (AU). Its last observed magnitude was 14 on July 22<sup>nd</sup>. (for further information please see the "Comet" section in the website above)

Mercury is at superior conjunction on the 4<sup>th</sup>.

Comet C/2018 W2 Africano is at perihelion on the 5<sup>th</sup>. On this day it will be half a degree from the star Tau Persei (3.9 mag) in Perseus. Its distance from Earth is 0.854 Astronomical Units (AU). Its last observed magnitude was 11 on Aug 19th. (for further information please see the "Comet" section in the website above)

On the 5<sup>th</sup> at 10:15pm Jupiter is 6 degrees left of the Moon, low in the south west.

At 9:30pm on the 6<sup>th</sup> Jupiter is 7 degrees to the lower right of the Moon. The star Xi Ophiuchi (4.3 mag) in Ophiuchus is 1½ degrees to the right of the Moon.

On the 7<sup>th</sup> at 11:30pm the Moon is in the south west with Saturn 8 degrees above left of it. The star Omicron Sagittarii (3.7 mag) is 1¼ degrees upper left of Saturn.

An occultation of Saturn by the Moon occurs on the 8<sup>th</sup>. It will be visible from most of Australia and the equatorial islands to the north.

At 9:30pm on the 8<sup>th</sup> in the south, Saturn is 3½ degrees to the right of the Moon. The star Pi Sagittarii (2.8 mag) is 2.5 degrees above right of the Moon.

An occultation of Pluto by the Moon occurs on the 9<sup>th</sup>. It will be visible from the northern half of South America.

On the 10<sup>th</sup>\* there is a planned launch from Tanegashima Space Center, Japan. The Japan Aerospace Exploration Agency (JAXA) H-IIB rocket with the H-II Transfer Vehicle-8 (HTV8) cargo ship will deliver supplies to the International Space Station (ISS).

Neptune is at opposition on the 10<sup>th</sup>. For those who have high magnification telescopes, this month is best time to view Neptune.

On the 11<sup>th</sup> at 10:00pm the star Delta Capricorni (2.8 mag) is just 1½ degrees above the Moon.

At 10:00pm on the 13<sup>th</sup> Neptune is 4¼ degrees directly above the Moon. Neptune is also very close and to the left of the star Phi Aquarii (4.2 mag) in Aquarius. The star Psi Aquarii (4.4 mag) is 1¼ degrees upper right of the Moon with a fainter star midway between.

On the 14<sup>th</sup> at midnight the star Iota Ceti (3.5mag) in Cetus is 4½ degrees to the lower left of the Moon.

At midnight on the 16<sup>th</sup> the star Nu Piscium (4.4 mag) in Pisces is 1½ degrees above left of the Moon.

On the night of 17<sup>th</sup> at 1:00am Uranus is 5 degrees above the Moon.

At 11:00pm on the 19<sup>th</sup> the star Lambda Tauri (3.4 mag) is 3½ degrees below right of the Moon.

On the 20<sup>th</sup> at 11:00pm the star Aldebaran (1st mag) in Taurus is 4¼ degrees to the right of the Moon low in the ENE.

At midnight on the 21<sup>st</sup> the star Zeta Tauri (2.9 mag) is 2½ degrees above right of the Moon.

On the 24<sup>th</sup> at 5:30am the stars Castor and Pollux point the way to the crescent Moon in the eastern sky.

There is a planned launch aboard a Soyuz spacecraft on the 25<sup>th</sup>\* to the International Space Station (ISS). Its crew are: NASA astronaut **Jessica Meir**, Roscosmos cosmonaut **Oleg Skripochka** and United Arab Emirates **Hazza Ali Al Mansouri** who will stay on the ISS till Spring 2020. (See "ISS News" below for further details)

At 5:30am on the 26<sup>th</sup> in the east, the crescent Moon is 3¾ degrees above left of the star Regulus with the star Eta Leonis (3.4mag) in Leo 2 degrees to the left of the Moon.

Comet C/2018 N2 Asassn travels from the constellations Aries to Triangulum this month. Its at perihelion in November. On the 27<sup>th</sup> when in Triangulum its 2.309AU from the Earth. Its last observed magnitude was 12.5 on Aug 19th. (for further information please see the "Comet" section in the website above)

On the 29<sup>th</sup> at 7:30pm a very thin crescent Moon may be seen low in the west at 262 azimuth and just 1 degree above the horizon.

On the 30<sup>th</sup> at 6:30am Mars will be low in the east at 89 degrees azimuth and just 1½ degrees above the horizon.

At 7:30pm on the 30<sup>th</sup> a thin crescent Moon will be due WSW and 4½ degrees above the horizon.

\* = Dates and times are subject to change.

### ISS News:

**Jessica Ulrika Meir** (b1977) is a Swedish-American astronaut and an Assistant Professor of Anesthesia at Harvard Medical School, Massachusetts General Hospital, Boston. She has studied the diving physiology and behavior of emperor penguins in Antarctica, and the physiology of bar-headed geese, which are able to migrate over the Himalayas. In June 2013 she was named an astronaut candidate by NASA.

**Oleg Skripochka** (b1969) was a member (Flight Engineer) of the International Space Station (ISS) expedition 25/26, that was launched on the 7<sup>th</sup> October 2010. He returned to space on the 19<sup>th</sup> March 2016, as part of the Expedition 47/48 crew. In his first mission to space, he, with fellow astronauts performed three EVA's outside the ISS. This will be his third visit to the ISS.

**Hazza Ali Abdan Khalfan Al Mansouri** (b1987) has a Bachelor's Degree in Aviation Science and Military Aviation from the Khalifa bin Zayed Air College. He has 14 years of military aviation experience, and has completed training programmes both inside and outside the country. In 2016, Al Mansouri qualified to be the first Emirati astronaut in space.

**News:** On the 16<sup>th</sup> August NASA announced that they've narrowed down the potential landing sites on the asteroid 101955 Bennu to four locations. The site selection comes after a careful survey of Bennu's jumbled surface. At approximately 0.3 mile (0.5km) in diameter, tiny Bennu presents a unique challenge for an asteroid to approach. Each site has its pros and cons:

**Nightingale** is located the farthest north, in a small crater that's encompassed by a larger, 140 metre wide crater. The sampling area shows the lowest albedo and surface temperature of the four sites, suggesting the presence of dark, fine-grain material suitable for collection.

**Kingfisher** is located near the asteroid's equatorial region. The site is in a small, 8 metre crater that's surrounded by boulders, but the crater floor itself is clear of large rocks. The site also shows a strong spectral signature that indicates the presence of hydrated material.

**Osprey** is also located in Bennu's equatorial region, inside a crater that spans 20 metres. The surrounding area displays diverse rock types, so the site itself may also be diverse. Of the four sites, Osprey shows the strongest signs of carbon-rich material.

**Sandpiper** is the farthest south of all four sites, and is located inside a 63 metre wide crater. There are hydrated minerals at the site, so it may have pristine, water-rich material.

The team will announce the two final sites – a primary and a backup – in December. The Osiris-REX spacecraft will touchdown at one of these sites next year and collect a sample.

Osiris-REX is the third mission in NASA's New Frontiers program, after New Horizons and Juno. The next New Frontiers mission is the **Dragonfly** mission to Saturn's moon Titan, expected to launch in 2026.

**Facts:** In 1966, Fred Wallace Haise jr was one of 19 new astronauts selected for NASA Astronaut Group 5. He had already been working with NASA for several years as a civilian research pilot. He was the first astronaut among his class to be assigned to a mission, serving as backup Lunar Module Pilot for both Apollo 8 and Apollo 11. He was selected to become the sixth human to walk on the Moon during the Apollo 13 mission, behind Jim Lovell who was to be fifth. Alan Shepard and Edgar Mitchell eventually became the fifth and sixth during the Apollo 14 mission.

He was originally chosen to command the second Space Shuttle mission, which would have delivered a booster module that would have boosted the Skylab space station to a higher orbit, preserving it for future use. However, delays in the shuttle program development as well as an unexpected increase in Skylab's orbital decay led to the mission being abandoned. Skylab was destroyed upon entering the Earth's atmosphere in July 1979, while the Space Shuttle did not

launch until April 1981. (I actually saw the break up of Skylab on that evening from my parents home in High Wycombe).