Astronomy News

**Night Sky 2018 - October**

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| **Sunrise** | **Sunset** | **Summer Time Ends** | **Mercury Sets (SW)** |
| 1st – 7:11am  10th – 7:26am  20th – 7:43am  30th – 7:00am | 1st – 6:49pm  10th – 6:29pm  20th – 6:08pm  30th – 4:49pm | On the night of the 27th  the clocks go back  1 hour | 15th – 6:37pm  20th – 6:30pm  25th – 6:23pm  30th – 5:18pm |
| **Moon Rise** | **Moon Set** | **Moon Rise** | **Moon Set** |
| - - - - - - -  1st – 10:47pm  2nd – 11:44pm (LQ)  4th – 12:52am  5th – 2:07am  6th – 3:25am  7th – 4:46am  8th – 6:05am  9th – 7:23am (New)  10th – 8:40am  11th – 9:54am  12th – 11:06am  13th – 12:13pm  14th – 1:14pm  15th – 2:08pm  16th – 2:55pm (FQ) | 1st – 2:06pm  2nd – 3:09pm (LQ)  3rd – 4:02pm  4th – 4:47pm  5th – 5:23pm  6th – 5:54pm  7th – 6:21pm  8th – 6:46pm  9th – 7:10pm (New)  10th – 7:35pm  11th – 8:02pm  12th – 8:32pm  13th – 9:07pm  14th – 9:48pm  15th – 10:35pm  16th – 11:28pm (FQ) | 17th – 3:34pm  18th – 4:07pm  19th – 4:35pm  20th – 5:00pm  21st – 5:22pm  22nd – 5:43pm  23rd – 6:05pm  24th – 6:27pm (Full)  25th – 6:53pm  26th – 7:22pm  27th – 7:58pm  28th – 7:43pm  29th – 8:38pm  30th - 9:42pm  31st – 10:54pm | 18th – 12:26am  19th – 1:28am  20th – 2:32am  21st – 3:38am  22nd – 4:46am  23rd – 5:55am  24th – 7:07am (Full)  25th – 8:20am  26th – 9:34am  27th – 10:48am  28th – 11:00am  29th – 12:05pm  30th - 1:02pm  31st - 1:48pm  - - - - - - - |
| A useful site: [www.heavens-above.com](http://www.heavens-above.com/) | A S Zielonka |  |  |

There is a planned launch this month from Naro Space Center, South Korea. The Korea Aerospace Research Institute (KARI) plans a test launch of its KSLV-2 orbital launch vehicle in a pilot configuration intended to test the rocket’s first stage through a Sub-Orbital Test Flight. The KSLV-2 Pilot Vehicle likely flies with dummy to gather flight data during first stage flight to feed into the continued development effort of the operational three-stage version of the rocket. Once declared operational in the early 2020s, KSLV-2 is hoped to establish a very good reliability record to find its niche in the commercial launch market, specifically the launch of LEO payloads up to 2,600 Kilograms at affordable prices. For South Korea’s space aspirations, KSLV-2 will act as stepping stone – capable of launching KOMPSAT Earth Observation and Reconnaissance satellites, but falling well short of the performance needed for the launch of heavy satellites and sizeable lunar landers.

There is a planned launch this month from French Guiana of an Ariane 5 ECA rocket. It will put the BepiColombo spacecraft on a 7.2 year odyssey through the inner Solar System that will include nine planetary flybys of Earth, Venus and Mercury before the spacecraft can enter orbit around Mercury. Widely regarded as the most challenging long-term planetary project, BepiColombo sets out to collect invaluable data for the study of how rocky planets form. The BepiColombo mission consists of two orbiters – the Mercury Magnetospheric Orbiter (MMO), operated by JAXA, and the Mercury Planetary Orbiter (MPO), operated by ESA. MPO will study the surface and internal composition of Mercury while MMO will examine the planet’s magnetic field.

Mercury sets around the same time as the Sun this month and is not visible this period.

On the 1st at 6:00am the Moon will be high in the south and only 3 degrees to the lower right of the 3rd magnitude star Zeta Tauri in the constellation of Taurus.

At 6:30am on the 1st Comet 21P Giacobini-Zinner is in the constellation of Monoceros which is to the left of Orion and above Canis Major. There are no bright stars to guide where it is. Its last observed magnitude was 7.5 (August). Its distance from us is 0.459AU. (For further information please see the comet section in the website above)

At 6:00am on the 2nd the Moon will be less than ½ degree above the 4th magnitude star Nu Geminorum in the constellation of Gemini.

The Capricornids meteor shower reaches their peak in the early hours before dawn on the 3rd.

On the 3rd at 6:15pm the Moon will be 3 degrees below left of the 3.5 magnitude star Wasat in the constellation of Gemini.

On the 4th the astronauts A.J. (Drew) Feustel and Ricky Arnold, and crewmate Oleg Artemyev of the Russian space agency Roscosmos will undock from their Soyuz spacecraft from the International Space Station (ISS) and land in Kazakhstan.

From the 5th - 10th the asteroid Vesta will be in the location of Saturn passing very near the 2.8 magnitude star Kaus Borealis in Sagittarius. Its moving from right to left and on the 7th it will be less than ¼ of a degree below the star. (For further information please see the “Asteroid” and “Constellation” section in the website above)

There is a scheduled launch on the 6th\* between 4:00am – 5:30am\* from Cape Canaveral. The Northrop Grumman Pegasus XL rocket will launch the Ionospheric Connection Explorer (ICON) to study the frontier of space: the dynamic zone high in our atmosphere where Earth weather and space weather meet.

At 5:00am on the 6th when the thin crescent Moon is low in the east its just 4 degrees to the lower left of the 1st magnitude star Regulus in the constellation of Leo.

The Camelopardalids meteor shower reaches their peak just before dawn on the 6th.

On the 8th at 6:30am a very thin crescent Moon will be due east and just 3 degrees above the horizon.

The Draconids meteor shower reaches their peak on the night of the 8th soon after midnight.

On the 10th at 6:10pm a very thin crescent Moon is just 3 degrees above the WSW horizon with Jupiter 17 degrees to the left and 5 degrees above the horizon.

There is a scheduled launch on the 11th\* at 8:40am\* of a Russian Soyuz FG rocket from Kasakhstan. It will put the crewed Soyuz MS-10 spacecraft into orbit for a same-day rendezvous with the ISS to bring the Expedition 57/58 crew to their orbital home and workplace for a half-year mission. Its crew are Aleksey Ovchinin, Nikolai Tikhonov and Nick Hague (see below for details). Russia’s trusted Soyuz FG rocket will operate for nine minutes to deliver the spacecraft into a 200-Kilometer orbit from where it will maneuver up into the Station’s orbit of 400 Kilometers for a fully automated link-up. The 7,200-Kilogram Soyuz MS-10 spacecraft will remain docked to the Poisk Module throughout the crew’s stay on the ISS to act as life boat and return them to Earth at the end of their flight via parachute-assisted landing in Kazakhstan.

At 6:15pm on the 11th a thin crescent Moon is 5½ degrees above the horizon with Jupiter 4½ degrees to the lower left of it and just 3½ degrees above the horizon in the south west.

On the 12th at 7:15pm the crescent Moon is 2½ degrees above the 2.5 magnitude star Acrab in the constellation of Scorpius. Jupiter is 10 degrees to the lower right of the Moon and 3 degrees above the horizon.

At 7:15pm on the 13th the Moon is 4½ degrees below the 2.4 magnitude star Sabik in the constellation of Ophiuchus with Saturn 17 degrees to the left of the Moon.

At 9:00pm on the 14th the Moon will be 4 degrees to the right of Saturn. The 3.8 magnitude star Mu Sagittarii in Sagittarius is only 1¾ degrees to the upper right of Saturn.

On the 15th the Moon will be 8 degrees to the upper left of Saturn low in the SSW.

Mercury reaches aphelion (its most distant from the Sun in its orbit) on the 16th.

At 7:10pm on the 16th the Moon will be 18 degrees above the horizon and due south. Its about midway between Mars to the left and Saturn to the right.

On the 17th at 10:30pm the Moon will be 7½ degrees to the lower right of Mars. The 4th magnitude star Theta Capricorni in Capricorn is just 2½ degrees above right of Mars.

There is a scheduled launch on the 18th\* of an Atlas V 531 rocket from Cape Canaveral, Florida. It will launch the Advanced Extremely High Frequency Communications Satellite (AEHF-4) for the U.S. Air Force, joining three satellites launched earlier to provide the backbone of the Department of Defence’s military satellite communications architecture. Outfitted with state of the art encryption and anti-jamming features, the AEHF system delivers everything from low data rate mobile communications to extreme data rate capabilities to ground, sea and airborne assets. Built by Lockheed Martin, the fourth AEHF satellite will complete the baseline constellation capable of providing global coverage with another two satellites headed into orbit in 2018/19 to complete the system.

At 9:00pm on the 18th the Moon is in the south with Mars 3½ degrees to the lower right of it. The 4.2 magnitude star Iota Capricorni is just 1 degree above the Moon.

On the 20th at 10:40pm Neptune is 3½ degrees directly above the Moon. The 3.7 magnitude star Lambda Aquarii in Aquarius is just 2½ degrees to the lower right of Neptune and 3½ degrees to the upper right of the Moon.

The Orionids meteor shower reaches their peak in the early evening of the 21st.

On the 24th at 10:00pm Uranus is 6 degrees above the Moon and 2 degrees to the right. Its also at opposition and is at its best to view this month around midnight in the south.

Comet 64P Swift-Gehrels is at its nearest to Earth (0.445AU) from the 24th - 30th in the constellation of Andromeda. It reaches perihelion on the 3rd November when its 1.393AU from the Sun. Its last observable magnitude was 13. (For further information please see the “Comet” section in the website above)

Venus is at inferior conjunction on the 26th and is not visible this month.

At 9:00pm on the 26th the 3.4 magnitude star Lambda Tauri in Taurus is just 3 degrees to the lower right of the Moon.

On the 27th at 6:00am the 3.6 magnitude star Gamma Tauri in Taurus is 1½ degrees to the left of the Moon.

Jupiter and Mercury are only 3 degrees apart around the 28th and are setting too soon after the Sun for observing.

Around midnight on the 29th there is a very close conjunction between the 4th magnitude star Mekbuda in Gemini and the Moon. There might even be an occultation of the star.

On the night of the 30th at 12:30am in the east, the bright stars Castor and Pollux in Gemini point directly to the Moon.

There is a scheduled launch on the night of the 30th\* at 12:53am\* of a Soyuz FG rocket from Kazakhstan. It will be tasked with lifting the Progress MS-10 cargo spacecraft into orbit for a supplies delivery to the ISS. The mission was switched from a Soyuz 2-1A rocket to the Soyuz FG version to free up a 2-1A vehicle for the inaugural flight of the crewed Soyuz MS spacecraft on the modernized Soyuz 2 in 2019.

At 7:00pm on the 31st the 3.6 magnitude star Nashira in Capricornus will be 1 degree to the left of Mars in the south.

\* = Dates and times are subject to change.

Facts: The celestial big dog Canis Major, along with Canis Minor are often depicted accompanying the great hunter Orion. Ancient Greek poet Aratus, the forgotten bard of stargazers, wrote of Canis Major as Orion's guard dog. Canis Major was also one of Ptolemy's original 48 constellations from the 2nd century AD, though it was named much earlier.

News: NASA's Dawn spacecraft has been zipping through the Asteroid Belt for almost a decade. It discovered water on Vesta and the ice volcanoes on the surface of Ceres. But now its time is coming to an end. NASA as announced that the spacecraft will probably shut down in the coming months.

Nick Hague (American) aged 42. He is a Lieutenant Colonel in the US air Force. From 2012 until 2013 Hague worked in the Department of Defense as Deputy Chief of the Joint Improvised Explosive Device Defeat Organization. He is the first astronaut of the 2013 class to be selected for a mission.

Alexey Ovchinin (Russian) aged 47 is married to Svetlana and has a daughter called Yana. Ovchinin's first space flight was on March 18th 2016 when he was the commander of the Expedition 47/48. He spent 172 days in orbit.

Nikolay Tikhonov (Russian) aged 36 is married. He was selected as a backup flight engineer for Soyuz MS-02 mission.