

Sky News

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FLORENCE PASSES EARTH

Asteroid Florence is passing Earth on September 1st at a safe distance of 4.4 million miles (about 18 Earth-Moon distances). It was named in honor of Florence Nightingale (1820-1920), founder of nursing. Florence is one of the largest, near-Earth asteroids. It's about 2.7 miles wide. It's the largest asteroid to pass Earth since NASA began tracking near-Earth asteroids, called NEOs, in 1998.

Florence is expected to be an excellent target for ground-based radar observations. Radar images gathered from NASA's Goldstone Solar System Radar in California and the National Science Foundation's Arecibo Observatory in Puerto Rico will show the real size of Florence. It may reveal surface details as small as 30 feet!

In late August and early September, Florence will be visible using small telescopes as it passes through the constellations of Piscis-Austrinis (Southern Fish), Capricornus (Sea-Goat), Aquarius (Water-Bearer), and Delphinus (Dolphin). Florence won't be close again until 2500.

NIGHT SNOW ON MARS

Using three computer models at one time to simulate conditions on Mars, scientists were able to explain the phenomena of heavy night snowstorms. The technique may help predict weather condition effects for planning future missions to Mars.

High thin clouds on Mars absorb heat in the day, which helps keep the atmosphere stable. After sunset, temperatures inside the clouds drop fast, at a rate of 7.2° F (4° C) every hour. As hotter air rises from the Martian surface, it combines with the cooler air dropping from the clouds. This creates a wind of 22 mph and snow-like particles, creating the heavy night snowstorms.

RAINING DIAMONDS

Researchers have simulated the conditions on Uranus and Neptune and have proven their point: it does rain solid diamonds on Uranus and Neptune!

Hydrogen and carbon are two abundant elements on the two gas giants. The theory is that methane in their atmospheres form hydrocarbon chains that form diamonds in response to the high temperatures and pressures in the gas giant atmospheres. This occurs about 5,000 miles below the outer boundary of the atmosphere. The small diamonds precipitate or rain out and sink deeper into the atmosphere, creating diamond rain.

Scientists don't know what effects the tiny, nano-diamond rains have on the lower atmosphere. Diamond rain could create friction, generate heat, and affect atmospheric circulation.

TAIKONAUT TRAINING

The European Space Agency (ESA) sent two astronauts to train with sixteen Chinese astronauts called "taikonauts" from the China Manned Space Agency for sea-survival training. The nine day training in early August was conducted off the coast of Yantai, China. Using a mock *Shenzhou* capsule, astronauts changed flight suits for insulation and buoyancy suits, leave the capsule, and jump into inflatable rafts. They practiced rescue techniques from life rafts using ships and helicopters.

In 2015, ESA and China agreed to fly ESA astronauts on the Chinese space station in 2022. Last year, extreme environment cave training in Sardinia included a multicultural crew. Joint training ventures and other opportunities will continue to help astronauts work through cultural differences, language obstacles, and develop good cooperation.

SEPTEMBER PLANETS

Jupiter can be seen low in the southwestern sky after sunset in the constellation Virgo (the Maiden). Jupiter is visible for about an hour, always staying near its bright blue star Spica (Ear of Wheat). Jupiter makes its dimmest and smallest appearance of 2017. Jupiter looks like a yellow-colored star.

Saturn can be seen low in the southern sky after sunset in the constellation Ophiuchus (the serpent-Bearer), but it looks like it's in Scorpius (the Scorpion), above its bright red star Antares (Rival of Mars). Saturn is great to view with a telescope as its tilt shows the rings very well. Saturn looks like a bright amber-colored star.

Venus can be seen rising in the eastern sky around 4:00 a.m. passing from the constellation Cancer (the Crab) into Leo (the Lion). Venus is the "Morning Star" this autumn. Venus appears later and lower every night. Venus looks like a bright white star.

Mercury rises in the predawn eastern sky in the constellation Leo (the Lion). Mercury is brightest midmonth as it reaches greatest western elongation, its highest point in the eastern sky. Mercury disappears in the sun's glare by the end of the month. Mercury looks like a small white star.

Mars can be seen rising in the eastern sky after Venus in the constellation Leo (the Lion). Mars then appears later and lower each night as it moves closer toward the sun. Mars has a ruddy red color.

SEPTEMBER SUNRISE AND SUNSET (times are for mid-month)

sunrise:	6:29 a.m.
sunset:	6:59 p.m.
length of daylight:	12 hours, 30 minutes
length of darkness:	11 hours, 30 minutes

This edition of the
Sky News
was written by
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SKY DATES

September

- 1 - Asteroid Florence passes Earth
- 2 - Venus passes 1.4° S of Beehive cluster
- Alpha Aurigid meteor shower peaks
- Soyuz MA-04 undocks from ISS
- 4 - Mercury passes 3.2° of Mars
- Neptune at opposition
- 6 - **Full moon** called Harvest, Fruit, Nut, Mulberry, or Singing Moon at 1:03 a.m.
- **Observe the Moon** night
- 8 - Asteroid Julia at opposition at 4:00 p.m.
- 9 - **VU Observatory** open 8:30 to 9:30 p.m.
- Mercury passes 0.7° S of Regulus
- 10 - Jupiter passes 2.9° N of Spica
- 12 - Mercury reaches greatest western elongation at 17.9° at 4 a.m.
- Moon passes 0.4° N of Aldebaran
- 13 - Last quarter moon at 12:25 a.m.
- Moon at perigee (closest point to Earth) at 229,820 miles at 10:04 a.m.
- Soyuz MS-06 launch to ISS
- 15 - Mercury at perihelion at 6:00 a.m.
- 16 - Moon passes 3.1° S of Beehive cluster
- Mercury passes 0.1° of Mars
- 16 - **Kemil Beach** viewing event at dusk
- 17 - Moon occults Venus at 6:56 p.m.
- Moon passes 0.1° N of Regulus
- 18 - Moon occults Mercury at 5:22 p.m.
- 19 - Venus passes 0.4° N of Regulus
- New moon at 11:30 p.m.
- 22 - Moon passes 3.7° N of Jupiter
- Autumnal equinox at 2:02 p.m.
- 23 - **VU Observatory** open 8:30 to 9:30 p.m.
- 26 - Moon passes 3.5° N of Saturn
- 27 - Moon at apogee (farthest point from Earth) at 251,250 miles at 12:49 a.m.
- First quarter moon at 8:54 p.m.
- 30 - **CAS** hosts free telescopic viewing at Indiana Dunes State Park 8-11 p.m.
- Fall Astronomy Day

The following sources were used
for this issue of *Sky News*:

www.physics.valpo.edu, www.casonline.org,
www.astropixels.com, <https://www.nasa.gov>,
www.esa.int, www.astronomy.com,
Astronomy, and *Sky and Telescope*.