

Sky News

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January, 2019

Volume 31, number 5

ASTRONOMY HIGHLIGHTS FOR 2019

MOON & ECLIPSES. A total lunar eclipse will be visible from NW Indiana on January 21st. A partial lunar eclipse occurs on December 26th and can be seen from Asia. Two solar eclipses cannot be seen from NW Indiana occur on January 6th and July 2nd. There are three “Supermoons” this year, on January 6th, February 19th, and March 21st. There is one traditional Blue Moon on May 18th.

METEOR SHOWERS Meteor showers with favorable viewing conditions during their peaks are: Quadrantids on January 3/4, Eta Aquarids on May 5/6, Delta Aquarids on July 28/29, and Ursids on 12/22. The Orionids may be good even with the full moon so close.

PLANETS Planets in opposition (opposite the sun in our sky) are best for viewing and can be seen from sunset to sunrise. This year they are: Jupiter on June 10, Saturn on July 9th, Neptune on September 9th, and Uranus on October 27th. A very rare transition of Mercury across the face of the Sun will occur on November 11th. Jupiter and Venus have two close passes by each other on January 22nd in the eastern predawn sky and November 24th in the evening sky.

SPECIAL EVENTS: Spring Astronomy Week is May 6th to the 12th, with Astronomy Day on May 11th. Fall Astronomy week is September 30 to October 7th, with Astronomy Say on October 5th. Calumet Astronomical Society (CAS) will have FREE Telescopic Viewing Events at Conway Observatory in Lowell from January through November. Special viewings include January 21st at Lemon Lake County Park to watch the total lunar eclipse from 9:30 to midnight. On November 11th, the Mercury transit can be viewed at Conway from 6:30 a.m. until noon. Most events are early evening. Check their website at www.casonline.org. Kemil Beach is offering free viewings on the second

Tuesday of each month, weather permitting. During the spring and fall semesters, Valparaiso University (VU) Observatory has telescopic viewings from their observatory. Lectures are presented occasionally by scholars from around the world. For updates and lecture information each semester, visit their website at www.valpo.edu/physics and click on “Astronomy Outreach & Open House Schedule.” All viewing events and lectures are FREE and open to the public.

FAR SIDE OF THE MOON

The China National Space Administration (CNSA) launched a Long March 3B carrier rocket from the Xichang Satellite Launch Center in the Sichuan province on December 7, 2018. The Chang’e 4 mission is to safely soft-land a lander and rover on the rugged landscape on the farside, or backside, of the Moon in early January 2019. The farside never faces Earth, so China has a communication satellite in place called Queqiao (Magpie Bridge). It will relay signals between the farside of the Moon and Earth.

The landing is a daring feat. Nobody has ever landed on the farside of the Moon. The plan is to land inside Von Karman, a 115 mile (186 kilometer) wide crater, located in the South Pole-Aitkin basin, which is the largest impact structure in our Solar System. The rover will probe the landing site with ground-penetrating radar, measure the mineral composition, and look for water. The lander will conduct experiments. A small greenhouse inside the lander will try to grow seeds of potatoes and thale-cress.

The following sources were used

for this issue of *Sky News*:

www.nasa.gov, www.esa.int,

<http://www.astropixels.com>,

<http://spaceweather.com>,

<http://www.xinhuanet.com>,

www.physics.valpo.edu, www.casonline.org,

Astronomy, and Sky and Telescope.

JANUARY PLANETS

Mars can be seen in southern sky after sunset moving eastward through the constellation Pisces (the Fish). Mars sets before midnight. Mars is the only evening planet all month! Mars looks like a ruddy-colored star.

Venus can be seen this month rising in the early morning eastern sky in the constellation Libra (the Scales). Venus rises about 3:30 a.m. early in the month, but rises later and appears lower in the sky every night. Venus passes Jupiter on the 25th. Venus looks like a very bright white star.

Jupiter rises about 5:00 a.m. in the southeastern sky in the constellation Virgo (the Maiden). Jupiter rises earlier and moves a little higher every night. Jupiter looks like a bright, yellow-colored star.

Saturn can be seen rising in the predawn southeastern sky in the constellation Ophiuchus (the Serpent Bearer). Saturn will rise earlier and appear higher in the sky through the month. Saturn joins the line of Jupiter, Moon, and Venus on February 1st. Saturn looks like an amber-colored star.

Mercury can be seen only in the first few days of January rising about 6:00 a.m. in the predawn southeastern sky in the constellation Sagittarius (the Archer). Mercury passes behind the Sun (superior conjunction) on the 29th. Mercury will reappear in the evening sky in February. Mercury looks like a small white star.

SKY DATES

January

- 1 - Moon passes 1.3° N of Venus
- Saturn in conjunction at 11:00 p.m.
- 2 - Earth at perihelion (closest point to the sun) at .98330 AUs or 91,403,554 miles
- 3 - Moon passes 3.1° N of Jupiter
- **Quadrantid** meteor shower peaks under great conditions; look to Bootes after midnight for 40 or more fast blue meteors
- 4 - Latest sunrise for 40° N latitude
- 5 - New moon at 7:28 p.m.
- 6 - Partial solar eclipse at 7:41 p.m. seen from Russia and Asia
- Venus at greatest western elongation at 47°
- 8 - Latest onset of morning twilight
- Moon at apogee (farthest point from Earth) at 251,792 miles at 10:29 p.m.
- 12 - Mercury at aphelion
- Moon passes 5.3° S of Mars
- 14 - First quarter moon at 12:45 a.m.
- 17 - Moon passes 1.6° N of Aldebaran
- 20 - **CAS** at Lemon Lake 9:30 to midnight
- **Total lunar eclipse** at 11:12 p.m.
- **Full Moon** called Snow Moon, Hunger Moon, Trapper's Moon, or Raccoon Moon at 11:16 p.m.
- First **Supermoon** of 2019
- 21 - Moon passes 0.6° S of Beehive cluster
- Moon at perigee (closest point to Earth) at 221,554 miles at 1:58 p.m.
- 22 - Moon passes 2.5° N of Regulus
- 25 - Jupiter/Moon/Venus early morning line
- 27 - Last quarter moon at 3:10 p.m.
- 29 - Mercury at superior conjunction
- 30 - Moon passes 2.8° N of Jupiter
- 31 - Moon occults Venus

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

sunrise:	7:14 a.m.
sunset:	4:44 p.m.
length of daylight:	9 hours, 30 minutes
length of darkness:	14 hours, 30 minutes

This edition of the
Sky News
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DEEPEST VOLCANO

An undersea volcano in the western Pacific Ocean erupted, deeper than any known before, near Guam and the Mariana Islands. The **Mariana back-arc** is a zone of sea floor with active volcanos located inside of the **Mariana Trench**. The Mariana Trench is the deepest part of the ocean. The new lava flowed widely, spreading over a 4.5 mile area. The lava flow ranges from 130 to 450 feet thick.