

# Sky News

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## WILD BLUE COMET

Comet PanSTARRS, or C/2016 R2, is currently located way beyond the orbit of Mars. Its behavior is like a comet much closer to the Sun. Its appearance is blue in color. Austrian astrophotographer Michael Jager has recorded this unusual behavior. After recording 850 comets, he's never seen one like this.

PanSTARRS images show jets waving wildly around the comet's core and clouds of gas billowing through the comet's tail. Most comets don't have a volatile reaction to the Sun until they are much closer. Why is this happening?

PanSTARRS has a tremendous amount of ionized carbon monoxide, or CO, emanating from it. Carbon monoxide **sublimates**, or changes from a solid state to a gaseous state, at very low temperatures. The chemical make-up of PanSTARRS is allowing the comet to be visible with the tail and coma already developing at its tremendous distance from the Sun. Only a little bit of sunlight turns the frozen solid CO to gas clouds and jets that emanate from the icy body. It also gives the comet a blue appearance.

PanSTARRS will make its closest approach to the Sun in May 2018 at a distance of 2.6 AU. It will pass between the orbits of Mars and Jupiter at **perihelion**, its closest point to the Sun. Its **aphelion**, or farthest point, reaches out past the orbit of Pluto. The last high CO comet was Humason in 1962, so they are a very rare sight. To see its orbital path and learn more, go to <https://theskylive.com/c2016r2-info>.

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

[www.jpl.nasa.gov](http://www.jpl.nasa.gov), [paul.w.chodas@jpl.nasa.gov](mailto:paul.w.chodas@jpl.nasa.gov),  
<http://spaceweather.com> (January 11, 2018)  
[www.ustrpixels.com](http://www.ustrpixels.com), [www.smithsonianmag.com](http://www.smithsonianmag.com)  
*Astronomy*, and *Sky and Telescope*.

## LARGEST UNDERWATER CAVE

Underwater cavern explorers on the Yucatan Peninsula have discovered a connecting passage between two huge underwater cavern systems. The 215-mile-long underground labyrinth is the largest flooded system known on Earth. It's part of the Great Maya Aquifer project. The cave system has more than 100 pre-Hispanic archaeological sites from the ancient Mayan culture. There are many unknown and extinct plant and animal species that are being discovered in the submerged world. The oldest human skeleton discovered in the Americas was found in Sac Actun, a segment of the cavern.

Researchers believe that all the large flooded cave systems in the area, including the Ox Bel Ha, Sac Actun, Koal Baal, and Dos Ojos, are all connected and part of the Great Maya Aquifer. Ancient Mayans treated certain caves as sacred pilgrimage sites for priests to communicate with gods. The Midnight Terror Cave in Belize was used for sacrifice. Almost ten thousand bones of children under 14 years old were found. They had been sacrificed to Chaac, the god of rain, lightning, and water.

## MARTIAN STORMS & WATER LOSS

Scientists have discovered a link between dust storms and water vapor loss. Water is mixed into the air mass rising with the dust during the spring/summer stormy seasons in the northern hemisphere on Mars. The water vapor rises especially high during severe, long lasting dust storms. Usually, it reaches to mid-levels from 30 to 60 miles above the Martian surface. During severe storms, the water vapor goes higher and a hundred times denser than normal amounts. Hydrogen in its gaseous state can drift from the top of the atmosphere into space. The next dust storm season will begin this summer and last into early 2019.

## FEBRUARY PLANETS

**Venus** is hard to see in the glow of the setting sun very low in the western sky. Venus will be easier to see by the end of February as it sets about an hour after the Sun. Venus returns for the spring and summer as the “Evening Star”. Venus looks like a very bright white star.

**Mercury** cannot be seen as it reaches superior conjunction, passing behind the Sun on February 17<sup>th</sup>. Mercury may reappear in the evening sky at the very end of February, passing close to Venus low on the horizon. Mercury looks like a small white star.

**Jupiter** can be seen rising in the southeastern sky in the constellation Libra (the Scales). Jupiter rises about 2:00 early in February and by midnight at the end of the month. Jupiter can be seen medium-high in the southern sky before dawn. Jupiter looks like a very bright, yellow-colored star.

**Mars** can be seen rising after Jupiter in the southeastern sky in the constellation Scorpius (the Scorpion). Mars is moving away from Jupiter, rising only a half hour earlier by the end of February. Mars looks like a bright, ruddy-colored star.

**Saturn** rises in the southeastern predawn sky in the constellation Sagittarius (the Archer). Saturn rises about 5:00 and by 3:00 a.m. at the end of the month. Saturn looks like a bright, amber-colored star.

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## FEBRUARY SUNRISE AND SUNSET (times are for mid-month)

sunrise:	6:45 a.m.
sunset:	5:23 p.m.
length of daylight:	10 hours, 22 minutes
length of darkness:	13 hours, 38 minutes

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This edition of the  
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was written by  
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## SKY DATES

### February

- 1 - Moon passes 0.9° N of Regulus
- 2 - Candlemas, a cross-quarter day
- 7 - Last quarter moon at 9:54 a.m.
- Moon passes 4.3° N of Jupiter
- 8 - Moon passes 4.4° N of Mars
- Alpha Centaurid meteor shower
- 9 - VU Observatory 8:30 to 9:30 p.m.
- 11 - Moon at apogee (farthest point from Earth) at 255,591 miles at 8:16 a.m.
- Moon passes 2.5° N of Saturn
- Mars passes 5.0° N of Antares
- 15 - New Moon at 3:05 p.m.
- Partial solar eclipse; visible far south
- 17 - Mercury at superior conjunction
- 18 - Mercury at its brightest
- 20 - PanSTARRS at perihelion at 3.73 AU
- 21 - Heinze at perihelion at .58 AU
- 23 - First quarter moon at 2:09 a.m.
- Moon passes 0.7° N of Aldebaran
- VU Public Lecture 7:30 to 8:30 p.m.
- VU Observatory 8:30 to 9:30 p.m.
- 27 - Moon at perigee (closest point to Earth) at 229,280 miles at 8:48 a.m.
- Moon passes 2.3° S of Beehive cluster
- 28 - Moon passes 0.9° N of Regulus

## CNEOS

In 1998, the Jet Propulsion Laboratory (JPL) officially began the NEO Program Office for computing high-precision orbits for Near-Earth objects (NEOs) and assessing them for future collisions with Earth. The need to fund the study of NEOs was created when an asteroid appeared to be on a collision course with Earth in March 1998. By June, NEO Program Office was formed.

When NASA created the Planetary Defense Coordination Office (PDCO), they changed the NEO to the Center for Near Earth Object Studies or CNEOS. Advanced computer procedures allowed more monitoring of NEOs. See their websites at <https://cneos.jpl.nasa.gov> or <http://ssd.jpl.nasa.gov>.