

Sky News

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OPPORTUNITY MISSION COMPLETE

After fourteen years on Mars, NASA's second Mars Exploration Rover called *Opportunity* has gone silent. There has been no communication for eight months, since June 10, 2018. NASA has declared the rover "dead" or no longer functional.

A giant dust storm on Mars may have played a part. Martian dust storms can envelope the entire planet! *Opportunity* ran on solar energy. The solar panels couldn't get any sunlight throughout the storm, which lasted for months. The stored energy would have been used up trying to keep the rover warm enough to function.

Opportunity's many achievements at Mars include: 217,000 images, including 15 360° color panoramas; found hematite, an iron-rich mineral formed in water; set a Martian record of traveling 721 feet in one day; found proof of an ancient lake at Endeavour Crater. That's amazing for a rover that was originally planned for a 90-day mission that turned into more than fifteen years of discovery!

STATION TIANHE

The International Astronomical Union (IAU) has officially named five sites on Earth's moon. The IAU Working Group for Planetary System Nomenclature approved the name "**Statio Tianhe**" for the Chinese landing site on the moon. It is the first landing on the far side of the moon.

Statio Tianhe is an ancient Chinese name for the Milky Way. An old folk tale in Asia says the Milky Way is a Celestial River, separating two lovers. There are many versions of this story, this is the Chinese version. The goddess Zhinu or Zhinyu is represented by the star Vega in the constellation Lyra (the Harp). She falls in love with a humble farm boy, Niulang, who is represented by the star

Altair, in Aquila "the Eagle". Their love is forbidden and the Celestial River keeps them separated in the sky. Once a year they reunite. On the seventh night of the seventh moon, magpies form a bridge over the Celestial River and the lovers meet across it. In July, during the seventh moon, the Summer Triangle is overhead in the sky. The two stars and their constellations are located the Summer Triangle.

WHITE DWARFS CRYSTALLIZE

Astronomers believe they have evidence of white dwarf stars crystallizing, or turning into a solid, at the very end of their existence.

Stars have a "lifecycle" or pattern of sequences that occur through its formation until it's "death" or end. Depending on the size of the star, different things occur at different speeds in their "life" and with different and various final stages or "deaths".

Average-sized stars like our Sun become white dwarfs in their final stage. First, it will expand its outer layer past the orbit of Earth as it becomes a red giant star. The color will change because of the cooler expanding layer. The Sun will nova, or blow off that outer layer as the core shrinks down into a small white dwarf star. The hot white dwarf star slowly uses up its fuel and becomes darker, becoming a brown, then black dwarf star. Now astronomers believe the core cools and solidifies into crystals. It takes billions of years!

The Milky Way has millions of white dwarf stars. The oldest white dwarfs are believed to be crystallized, as it takes billions of years for the process to occur. Eventually, our Sun will turn into a giant crystal in about 10 billion years.

This edition of the
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was written by
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MARCH PLANETS

Mercury can be seen setting in the western sky for a short time after sunset, but quickly sets. Mercury passes between the Sun and Earth on the 14th. Mercury returns to view before dawn on the eastern horizon at the end March. Mercury looks like a small white star.

Mars can be seen medium-high in the western sky, moving from the constellation Aries (the Ram) into Taurus (the Bull). In late March, Mars will be near the Pleiades star cluster on the shoulder of Taurus. Mars looks like a dull, ruddy-colored star.

Jupiter can be seen rising about 2:00 a.m. in the southeastern sky in the constellation Ophiuchus (the Snake-Bearer). Jupiter rises earlier every night and can be seen until dawn. Jupiter looks like a very bright, yellow-colored star.

Saturn can be seen rising about an hour after Jupiter in the southeastern sky in the constellation Sagittarius (the Archer). Saturn rises a little earlier every night and can be seen until dawn. Saturn looks like a bright, amber-colored star.

Venus can be seen rising in the eastern sky before dawn moving from the constellation Capricornus (the Sea Goat) into Aquarius (the Water-Bearer). Venus will rise later each morning. It can be seen for less than an hour by the end of March, when Mercury appears to its left. Venus looks like a very bright white star.

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

sunrise: 6:01 a.m.

sunset: 5:56 p.m.

length of daylight: 11 hours, 55 minutes

length of darkness: 12 hours, 5 minutes

The following sources were used

for this issue of Sky News:

www.nasa.gov, www.astropixels.com,

<https://earthsky.org>,

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

Astronomy, and Sky and Telescope.

SKY DATESMarch

- 1 - Moon occults Saturn
- 2 - Moon passes 1.2° S of Venus
- 4 - Moon at apogee (farthest point from Earth) at 251,960 miles at 5:25 a.m.
- 6 - New moon at 10:04 a.m.
- Neptune in conjunction with the Sun
- 10 - **Daylight Saving Time** begins at 2:00 a.m.; set clocks ahead one hour
- 11 - Moon passes 5.8° S of Mars
- 13 - Moon passes 1.9° S of Aldebaran
- 14 - First quarter moon at 4:27 a.m.
- Mercury at inferior conjunction
- **CAS Open House** at Conway Observatory FREE viewing event at 7:30 to 9:30 p.m.
- 16 - Moon passes 0.5° S of Beehive Cluster
- 18 - Moon passes 2.6° N of Regulus
- 19 - Moon at perigee (closest point from Earth) at 222,816 miles at 1:47 a.m.
- 20 - Vernal equinox at 3:58 p.m.
- Full moon called Sap, Crow, Worm, Fish, or Lenten Moon at 7:43 p.m.
- 26 - Moon passes 1.9° N of Jupiter
- 27 - Last quarter moon at 10:10 p.m.
- 28 - Moon occults Saturn
- 29 - **VU Observatory FREE viewing** 8:30 p.m.
- **VU SARA Telescope Remote Viewing** from the Canary Islands 9:30 p.m.
- Mars passes 3.1° S of Pleiades
- 31 - Moon at apogee (farthest point from Earth) at 251,457 miles at 6:14 p.m.

NAME JUPITER MOONS

In July, 12 new moons were discovered at Jupiter by Scott Sheppard of the Carnegie Institution of Science and his co-discoverers. They have launched a contest to name five of the new moons. Be sure to read the general rules! Submit by April 15. Send the moon name and explain why you chose it using 280 characters or less, or a short video, and tweet it to @Jupiterlunacy. Be sure to include the hashtag in #NameJupitersMoons. Read about the contest at <https://earthsky.org/space/help/name-5-new-moons-of-jupiter>.