

SKYWATCHER NEWSLETTER

LATEST NEWS

It has been a nice month for naked eye observing to watch the movement of Jupiter and Venus in the evening sky to a very close encounter. Along the lines of planetary observing, a good review of the top telescopes for viewing planets (2023) has been released by Space.com.

<https://www.space.com/best-telescopes-for-seeing-planets>

Good to see the days getting longer although there is still plenty of darkness to catch the increasing frequency of aurora, especially as we approach the Spring Equinox.

Until next month... SLK



Spot the Morning and Evening Star: Observe Venus

by David Prosper

Venus is usually the brightest planet in our skies, and is called "Earth's Twin" due to its similar size to Earth and its rocky composition. However, Venus is a nightmare version of our planet, featuring a thick, crushing atmosphere of acidic clouds, greenhouse gasses, howling winds, and intense heat at its surface.

This rocky inner world's orbit brings it closer to Earth than any of the other planets, and is the second closest to the Sun after Mercury. Like Mercury, Venus orbits between our planet and the Sun, so Earth-based observers can observe Venus in the morning before sunrise, or in the evening after sunset – but never high in the sky in the middle of the evening, unlike the outer planets. Since Venus is so striking in its twilight appearances, the planet features heavily in sky mythologies worldwide. Venus's bright morning and evening appearances are the origin for its dual nicknames: the Morning Star, and the Evening Star. Some ancient astronomers never made the connection, and assumed the Evening Star and Morning Star were two unrelated objects! Observers can even spot Venus during the daytime, if the sky is very clear and the planet is bright enough. Venus also has phases, similar to the Moon and Mercury. Galileo's observations of Venus's phases helped turn the astronomy world upside down in the early 1600s, and you can see them yourself using a telescope or even a



The top layers of Venus's cloud pop in this contrast-enhanced image, reprocessed with modern techniques from Mariner 10 data.

surprisingly low-power pair of binoculars. Warning: Please be very careful when observing Venus with a telescope in the early morning or daytime. Never allow the Sun to enter your instrument's field of view, as you could be permanently blinded.

Venus's other moniker of "Earth's Twin" is a bit misleading. In terms of their surface temperatures and atmospheres, Venus and Earth are extremely different! The surface of Venus is warmer than that of Mercury, despite Mercury being many millions of miles closer to the Sun. While Mercury is still a scorching 800 degrees Fahrenheit (427 degrees Celsius), Venus is even hotter: 900 degrees Fahrenheit (482 degrees Celsius). The vast amount of carbon dioxide in the thick Venusian atmosphere acts as an insulating blanket that retains much of the Sun's heat, creating the runaway greenhouse effect that dominates its present-day climate. The Venusian surface is a crushing 90 Earth atmospheres on top of its absurd temperatures. These extreme conditions mean that the mission life of any past Venusian robotic landers were measured in hours at best – and usually minutes! However, conditions in Venus's upper atmosphere may be much more hospitable, with temperatures and pressures at 30 miles (50 km) above the surface that are much more Earth-like in temperature and pressure. Studies of the Venusian atmosphere, including seasonal appearances of dark streaks and faint signals of suggestive chemistry, intrigue researchers with the possibility that some sort of life may persist in its clouds. But far more evidence is needed to confirm such a claim, since non-biological factors like volcanism and other processes could also be the

source for these signals.

Venus's thick sulfuric acid clouds block direct visual observations of its surface from optical telescopes on Earth. Multiwavelength observations from space probes show evidence of active volcanoes and possibly some sort of plate tectonics, but followup missions will be needed to confirm the presence of active volcanism, plate tectonics, and any possible signs of life. In order to do so, NASA is sending two new missions to Venus by the end of this decade: the orbiter VERITAS, which will map the surface in high detail and study the chemistry of its rocks and volcanoes, and DAVINCI+, which will study its atmosphere and possible tectonic surface features via a "descent sphere" that will plunge into Venus's clouds. Follow their development and discover more about Venus at solarsystem.nasa.gov/venus, and of course, continue your exploration of the universe at nasa.gov.

LOCAL EVENTS

Mar 15 - CADAS - Hugh Allen Spectroscopy : Cracking starlight's hidden code

Apr 4 - WAS - Mary Macintyre – Reflection, Refraction & Excitation: The Hunt for Atmospheric Optics

Apr 19 - CADAS - TBA

May 2 - WAS - John Rogers – Jupiter and Juno

May 17 - CADAS - Ask the Panel

June 6 - WAS - David Smith – (Buglife) Bugs, the First Astronomers

VISIT OUR WEBSITE FOR THE LATEST CLUB INFORMATION

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2 March 2023 Spaceweather.com

SOLAR CYCLE UPDATE

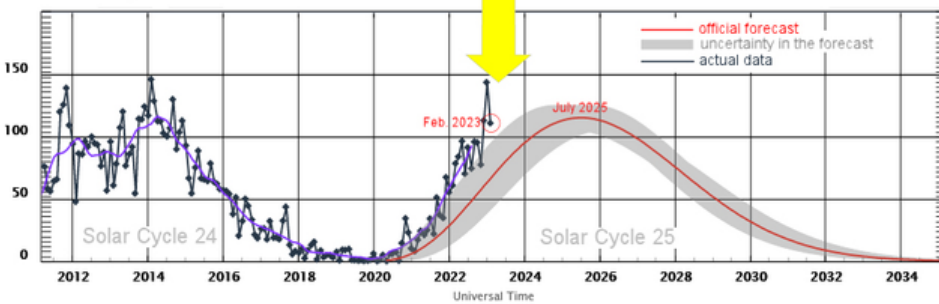
FEBRUARY WAS ANOTHER STRONG MONTH FOR SOLAR CYCLE 25. ACCORDING TO NOAA, THE AVERAGE SUNSPOT NUMBER WAS AMONG THE HIGHEST OF THE PAST 10 YEARS:

ORIGINALLY, FORECASTERS THOUGHT SOLAR CYCLE 25 WOULD BE ABOUT THE SAME AS SOLAR CYCLE 24, ONE OF THE WEAKEST SOLAR CYCLES IN A CENTURY. FEBRUARY'S SUNSPOT NUMBERS ARE THE LATEST SIGN THAT SOLAR CYCLE 25 WILL EXCEED PREDICTIONS. IN FACT, SOLAR CYCLE 25 HAS OUTPERFORMED THE OFFICIAL FORECAST FOR MORE THAN 24 MONTHS IN A ROW.

SOLAR MAXIMUM IS NOT EXPECTED UNTIL 2024 OR 2025, SO THE SOLAR CYCLE HAS PLENTY OF TIME TO STRENGTHEN EVEN MORE, BRINGING X-FLARES, GEOMAGNETIC STORMS AND AURORAS.

Sunspot Counts: 2011 - 2023

You are here



Mercury Isn't Alone in Orbit, and Scientists Don't Know Why

27 Feb 2023

A cloud of cosmic dust traces the innermost planet's path around the Sun. And although other planets, like Earth and Venus, also have dusty companions on their circumsolar journeys, Mercury really should not.

In a new study published in the Planetary Science Journal, scientists tried to trace the genesis of Mercury's dust. And although they still don't know how this improbable cloud formed, they do know that it probably has a different origin story than the one escorting our own planet.

The ring near Mercury is young, so to test the theory, the team needed to find evidence of collisions that are relatively recent. "We concluded that nothing could survive there for longer than 20 million years," said Petr Pokorný of Catholic University of America and NASA Goddard Space Flight Center, who led the study.

Using data from NASA's MESSENGER (Mercury Surface, Space Environment, Geochemistry, and Ranging) spacecraft, the team identified two craters larger than 40 kilometers in diameter on Mercury's surface that might be younger than 50 million years. Perhaps collateral debris from these strikes billowed out into space. "At the moment, the story doesn't hold that well."

To test whether that was plausible, the authors constructed a simplified model of an impact and showed that in principle, this scenario could work. But, still, a closer inspection revealed that the details don't add up. "At the moment, the story doesn't hold that well," Pokorný said.

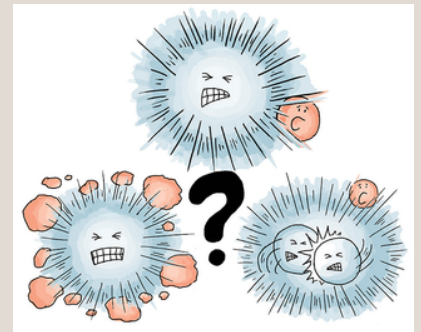
For example, scientists estimated that the ring's mass is equivalent to an asteroid that is 1-1.5 kilometers wide. These two impacts alone could not account for all of the dust in orbit.

Nesvorný doesn't believe that smaller asteroid impacts would solve the problem, anyway. The model presented in the recent study predicted that only a sliver of ejecta from the planet's surface would transfer into orbit.

A more sophisticated model might favor a more efficient transfer, he said. If so, then perhaps the two massive impacts identified by the team are sufficient to explain the ring. For now, though, the case remains open.

—Jure Japelj, Science Writer

Full article can be read at: <https://tinyurl.com/2r7kuw46>



WAC Upcoming Events

APRIL 14 - ASK THE PANEL (FACE TO FACE AND ZOOM)

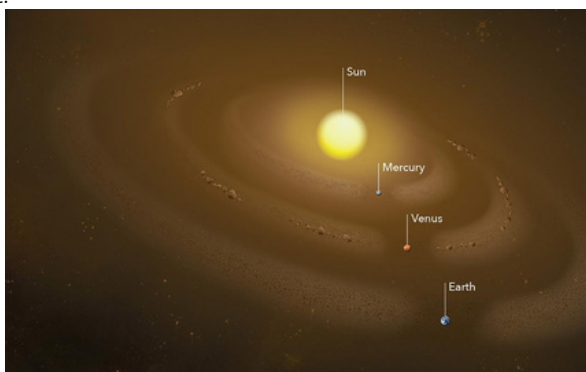
MAY 12 - AGM FOLLOWED BY JAMES FRADGLEY: THE ANGULAR MOMENTUM PROBLEM (FACE TO FACE AND ZOOM)

JUNE 9 - BOB MIZON: ASTERISMS: JEWELS OF THE NIGHT SKY (FACE TO FACE AND ZOOM)

JULY 14 - JULIAN ONIONS: COLD DARK MATTER - IS IT COLD, IS IT DARK AND IS IT MATTER? (FACE TO FACE AND ZOOM)

AUG 11 - MEMBERS VIEWING EVENING FOR THE PERSEID METEORS AND SUMMER CONSTELLATIONS.

MORE TO COME!!

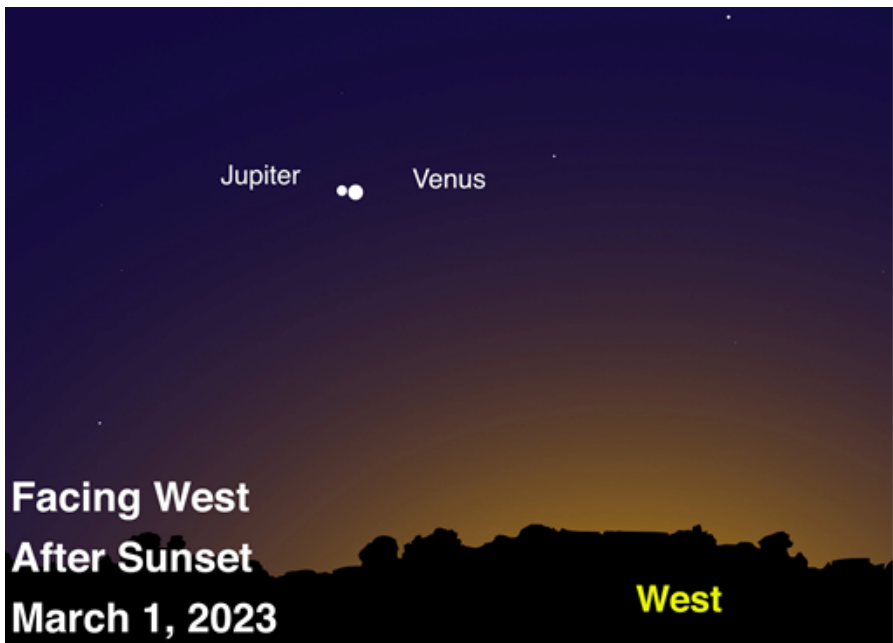


PRACTICAL OBSERVING



Left: The view expected on the 10 Mar from Weymouth <https://stellarium-web.org/>

Below left: View of Jupiter and Venus on 13 Feb and (below right) on the 8 Mar from Aberdeen. Interesting to watch the movement of the planets during this close encounter! ~S L Karl



1 MAR 2023 JUPITER AND VENUS 0.5 DEGREES APART. TAKEN BY BEN SUTHERLAND - ABERDEENSHIRE

VENUS AND JUPITER CONTINUE TO MOVE CLOSER TOGETHER IN THE EVENING SKY THIS MONTH. JUPITER WILL CONTINUE ITS DESCENT TOWARDS THE HORIZON WHILE VENUS WILL CONTINUE TO CLIMB AND WILL BE VISIBLE IN THE EVENINGS THOUGH MID-SUMMER OF 2023. IT'S A GREAT YEAR FOR VENUS FANS!

Skymaps.com—Feel free to download the full article directly each month.

The Evening Sky Map

FREE - EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

Sky Calendar - March 2023

Get Sky Calendar on Twitter
<http://twitter.com/skymaps>

- 2 Venus 0.5° NNW of Jupiter at 6h UT (31° from Sun, evening sky).
Mags. -4.0 and -2.1.
- 3 Moon at apogee (farthest from Earth) at 18h UT (distance 405,889km; angular size 29.4').
- 4 Moon near Beehive cluster M44 at 8h UT (evening sky).
- 6 Moon near Regulus at 5h UT (evening sky).
- 7 Full Moon at 12:42 UT.
- 10 Moon near Spica at 14h UT (morning sky).
- 14 Moon near Antares at 2h UT (morning sky).
- 15 Last Quarter Moon at 2:09 UT.
- 17 Mercury at superior conjunction with the Sun at 11h UT. The inner planet passes into the evening sky.
- 19 Moon at perigee (closest to Earth) at 15:10 UT (distance 362,696km; angular size 32.9').
- 19 Moon near Saturn at 18h UT (morning sky). Mag. 0.9.
- 20 Dwarf planet 1 Ceres at opposition at 21h UT.
Mag. -6.9.
- 20 Vernal equinox at 21:23 UT. The time when the Sun reaches the point along the ecliptic where it crosses into the northern celestial hemisphere marking the start of spring in the Northern Hemisphere and autumn in the Southern Hemisphere.
- 21 New Moon at 17:26 UT. Start of lunation 1240.
- 22 Moon near Jupiter at 21h UT (evening sky). Mag. -2.1. Occultation visible from northern South America.
- 24 Moon near Venus at 11h UT (36° from Sun, evening sky). Mag. -4.0. Look out for this spectacular sight! Occultation visible from parts of Asia and Africa.
- 26 Moon near the Pleiades at 2h UT (evening sky).
- 28 Moon near Mars at 14h UT (evening sky). Mag. 0.9.
- 29 First Quarter Moon at 2:32 UT.
- 31 Moon at apogee (farthest from Earth) at 11h UT (distance 404,919km; angular size 29.5').
- 31 Moon near Beehive cluster M44 at 15h UT (evening sky).

More sky events and links at <http://Skymaps.com/skycalendar/>
All times in Universal Time (UT). (USA Eastern Summer Time = UT - 4 hours.)

NORTHERN HEMISPHERE
MARCH 2023

SKY MAP SHOWS HOW THE NIGHT SKY LOOKS
EARLY MAR 9 PM LATE MAR 8 PM
Add 1 hour for Daylight Saving
A SKY MAP DRAWN FOR A LATITUDE OF 40° NORTH AND IS SUITABLE FOR LATITUDES UP TO 15° NORTH OR SOUTH OF THIS

WWW.SKYMAPS.COM
Use the Big Dipper (or Plough) located in the north eastern sky to find Polaris, the North star.
The Sickle is an easy to find star pattern that forms the head and chest of Leo (The Lion).
The constellation Argo represents the ship of a seafaring hero.
The constellation Centaurus Major (The Great Dog) is dominated by Sirius, the Dog Star, the brightest star in the night sky.
The Winter Triangle is made up of Sirius, Rigel, Aldebaran, Capella, Castor & Pollux, and Procyon.
The ecliptic is the part of the sky directly overhead (zenith) and the outer circles are the horizon.

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Instructions: The sky map shows the compass directions are indicated along the horizon circle (for example 'North'). Turn the sky map around the north central pole (top). Only align the map with the horizon. The center of the map is the part of the sky directly overhead (zenith) and the outer circles are the horizon.

Star Magnitudes -1 0 1 2 3 4

Symbols

- Galaxy
- Double Star
- Variable Star
- Diffuse Nebula
- Planetary Nebula
- Open Star Cluster
- Globular Star Cluster

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