

SKYWATCHER NEWSLETTER

LATEST NEWS

A recent trip to the Dundee V&A to see the Tartan exhibit actually had an astronomical link. The exhibit featured the photos and tartan from Astronaut Alan Bean that he took to the moon with Apollo 12 in 1969. YOU just never know where you'll find an astronomical link! Until next month... SLK

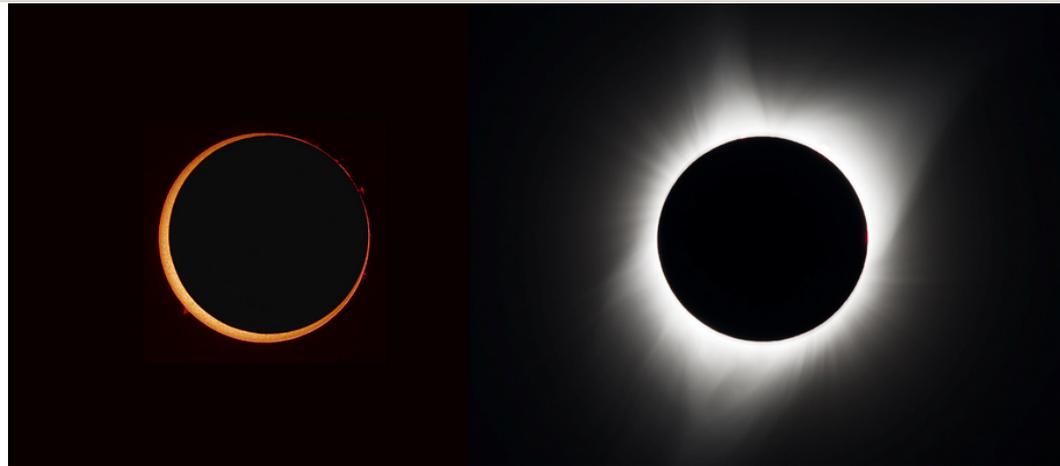


Solar Eclipses are Coming!

by David Prosper

Have you ever witnessed a total solar eclipse? What about an annular solar eclipse? If not, then you are in luck if you live in North America: the next twelve months will see two solar eclipses darken the skies for observers in the continental United States, Mexico, and Canada!

Solar eclipse fans get a chance to witness an annular eclipse this fall. On Saturday, October 14, 2023, the Moon will move exactly in front of the Sun from the point of view of observers along a narrow strip of land stretching across the United States from Oregon to Texas and continuing on to Central and South America. Since the Moon will be at its furthest point in its orbit from Earth at that time (known as apogee), it won't completely block the Sun; instead, a dramatic "ring" effect will be seen as the bright edge of the Sun will be visible around the black silhouette of the Moon. The distinct appearance of this style of eclipse is why it's called an annular eclipse, as annular means ring-like. If you are standing under a tree or behind a screen you will see thousands of ring-like shadows projected everywhere during maximum eclipse, and the light may take on a wan note, but it won't actually get dark outside; it will be similar to the brightness of a cloudy day.



This eclipse must only be observed with properly certified eclipse glasses, or other safe observation methods like pinhole projection or shielded solar telescopes. Even during the peak of the eclipse, the tiny bit of the Sun seen via the "ring" can damage your retinas and even blind you.

Just six months later, a dramatic total solar eclipse will darken the skies from Mexico to northeast Canada, casting its shadow across the USA in a strip approximately 124 miles (200 km) wide, on Monday, April 8, 2024. While protection must be worn to safely observe most of this eclipse, it's not needed to witness totality itself, the brief amount of time when the Moon blocks the entire surface of the Sun from view. And if you try to view totality through your eclipse viewer, you won't actually be able to see anything! The Moon's shadow will dramatically darken the skies into something resembling early evening, confusing animals and delighting human observers. You will even be able to see bright stars and planets - provided you are able to take your eyes off the majesty of the total eclipse! While the darkness and accompanying chilly breeze will be a thrill, the most spectacular observation of all will be the Sun's magnificent corona! Totality is the only time you can observe the corona, which is actually the beautiful outer fringes of the Sun's atmosphere. For observers in the middle of the path, they will get to experience the deepest portion of the eclipse, which will last over four minutes - twice as long as 2017's total solar eclipse over North America.

7Photos of an annular total solar eclipse (left) and a total solar eclipse (right). Note that the annular eclipse is shown with a dark background, as it is only safe to view with protection. On the right, you can see the Sun's wispy corona, visible only during totality itself, when the Moon completely - or totally - hides the Sun from view. ! Credits: Left, Annular Eclipse: Stefan Seip (Oct 3, 2005). Right, Total Eclipse, NASA/Aubrey Gemignani (August 21, 2017)

While some folks may be lucky enough to witness both eclipses in full - especially the residents of San Antonio, Texas, whose city lies at the crossroads of both paths - everyone off the paths of maximum eclipse can still catch sight of beautiful partial eclipses if the skies are clear. The Eclipse Ambassadors program is recruiting volunteers across the USA to prepare communities off the central paths in advance of this amazing cosmic ballet. Find more information and apply to share the excitement at eclipseambassadors.org. NASA has published a fantastic Solar Eclipse Safety Guide which can help you plan your viewing at bit.ly/nasaeclipsesafety. And you can find a large collection of solar eclipse resources, activities, visualizations, photos, and more from NASA at solarsystem.nasa.gov/eclipses

LOCAL EVENTS

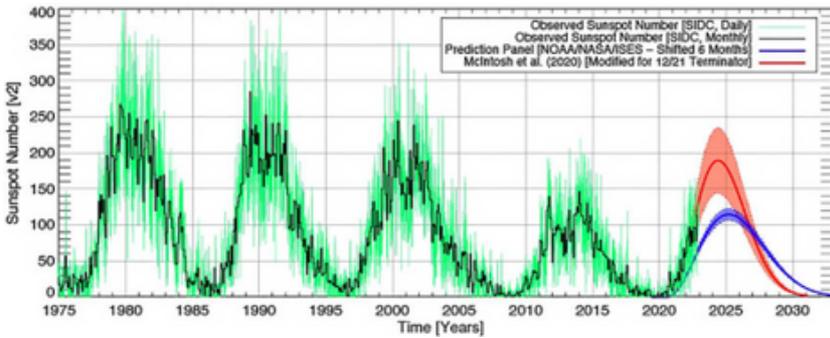
- Apr 19 - CADAS - Will Gater
Drawing Inspiration from the Moon
- May 2 - WAS - John Rogers -
Jupiter and Juno
- May 17 - CADAS - Ask the Panel
- June 6 - WAS - David Smith -
(Buglife) Bugs, the First
Astronomers
- June 21 - CADAS - Jo Richardson
Dark sies of Exmoor
- July 4 - WAS - Nial Tanvir - Re-
ionisation of the Universe/GRBs
(exact title to follow)

VISIT OUR WEBSITE FOR THE LATEST CLUB INFORMATION

SKYWATCHER NEWSLETTER



12 April 2023 Spaceweather.com Solar Cycle update



SOLAR MAX MIGHT ARRIVE EARLY: SOLAR MAXIMUM IS COMING--MAYBE THIS YEAR. NEW RESEARCH BY A LEADING GROUP OF SOLAR PHYSICISTS PREDICTS MAXIMUM SUNSPOT ACTIVITY IN LATE 2023 OR EARLY 2024, A FULL YEAR EARLIER THAN OTHER FORECASTS.

"THIS IS BASED ON OUR WORK WITH THE TERMINATION EVENT," EXPLAINS SCOTT MCINTOSH, LEAD AUTHOR OF A PAPER DESCRIBING THE PREDICTION, PUBLISHED IN THE JANUARY 2023 EDITION OF FRONTIERS IN ASTRONOMY AND SPACE SCIENCES.

THIS FORECAST IS ABOUT TO BE TESTED, WITH CONFIRMATION AS LITTLE AS 6 TO 12 MONTHS AWAY. STAY TUNED FOR SOLAR MAX!

CHECK OUT THE SPACEWEATHER.COM ARTICLE AT [HTTPS://SPACEWEATHER.COM/ARCHIVE.PHP?VIEW=1&DAY=12&MONTH=04&YEAR=2023](https://spaceweather.com/archive.php?view=1&day=12&month=04&year=2023)

Active Volcanoes on Venus?

With a new look at old imagery, scientists may have found evidence of volcanic activity on Venus.

16 Mar 2023

Old Data, New Discovery - Between 1990 and 1992, Magellan mapped the entire surface of Venus using synthetic aperture radar at a resolution of 100–300 meters (300–1,000 feet). In a search of active volcanism, Robert Herrick, a planetary scientist at the University of Alaska Fairbanks, and Scott Hensley, a radar scientist at NASA's Jet Propulsion Laboratory, looked through the immense data set for surface changes in areas suspected to have ongoing volcanic activity.

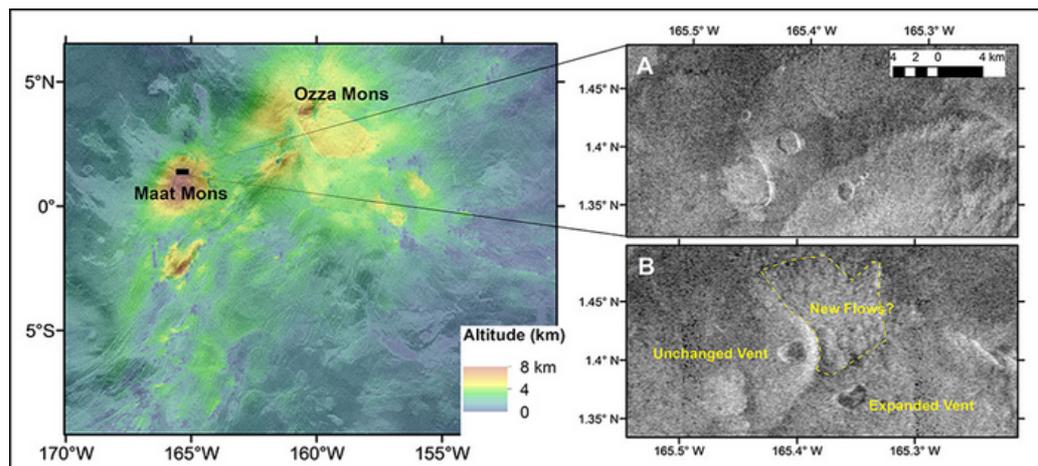
Magellan didn't make it easier on the researchers. The spacecraft recorded the images from a highly elliptical orbit, resulting in varying resolutions and observing angles. This lack of consistency makes automated search processes almost unusable and forced the researchers to manually look for changes between images.

While zooming around the Venusian surface, the researchers looked for topographic changes between images acquired several months apart. Finally, they found a volcanic vent that clearly changed shape on the northern slope of Maat Mons, the largest volcano on Venus, with a total height of 9 kilometers (6 miles).

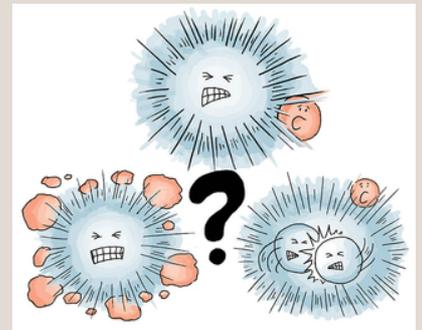
Because Venus lacks plate tectonics, these processes could be driven by mantle convection, which forms mantle plumes similar to those that power hot spot volcanism on Earth in places far from plate edges, such as Iceland and Hawaii.

"The reason this finding is important is because although there are lots of circumstantial evidence for ongoing volcanism, we've never seen a 'smoking gun,'" Byrne said. Because the discovery "is the closest we've come to confirming something we've long assumed—and used as the rationale for new missions—[it's] a big deal."

Full article at: <https://tinyurl.com/mues9cmw>



Eos



WAC Upcoming Events

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

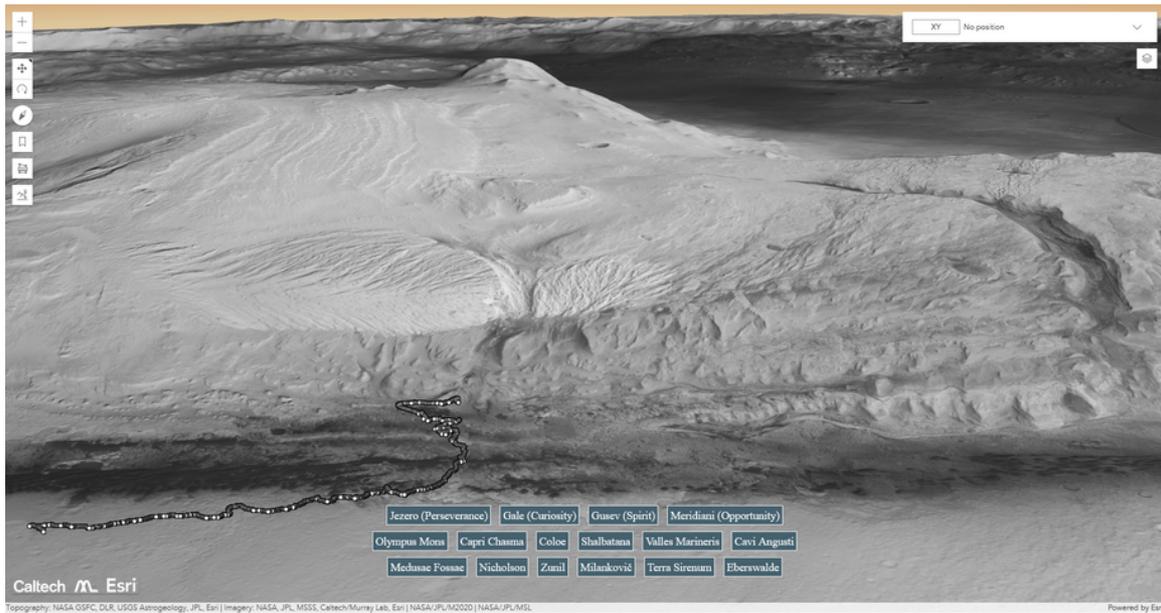
JUNE 9 - BOB MIZON: ASTERISMS: JEWELS OF THE NIGHT SKY (FACE TO FACE AND ZOOM)

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

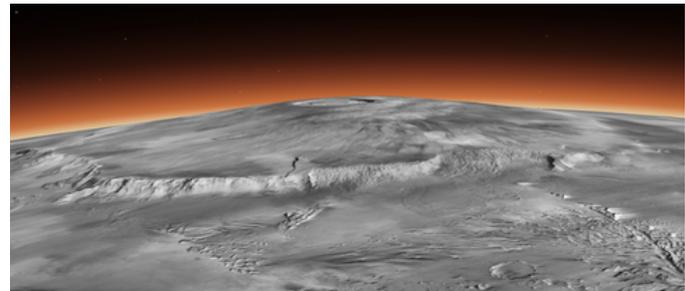


Interactive 3D map offers detailed landscape of Mars

Scientists used NASA images taken by the Mars Reconnaissance Orbiter's Context Camera to create a detailed, interactive 3D map of Mars. The Global CTX Mosaic of Mars, composed of 110,000 images, allows users to easily zoom in on craters, cliffs, dry river beds and named sites such as Gale Crater and the Olympus Mons volcano.

Full Story: Metro (UK)

<https://metro.co.uk/2023/04/10/nasa-unveils-detailed-3d-map-of-mars-you-can-zoom-in-on-18585862/>



This detailed solar eclipse map shows the paths of where and when the Moon's shadow will cross the USA for the upcoming 2023 annular solar eclipse and 2024 total solar eclipse, made using data compiled from multiple NASA missions. Where will you be? This map is very detailed, so if you would like to download a larger copy of the image, you can do so and find out more about its features at: <https://svs.gsfc.nasa.gov/5073>

Credits: NASA/Scientific Visualization Studio/Michala Garrison; eclipse calculations by Ernie Wright, NASA Goddard Space Flight Center.

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

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

Sky Calendar – April 2023

- 2 Moon near Regulus at 12h UT (evening sky).
- 6 Full Moon at 4:36 UT.
- 6 Moon near Spica at 21h UT (midnight sky).
- 10 Moon near Antares at 8h UT (morning sky).
- 11 Venus 2.5° SE of the Pleiades at 14h UT (evening sky).
- 11 Mercury at greatest elongation east at 22h UT (20° from Sun, evening sky). Mag. 0.1.
- 11 Jupiter at conjunction with the Sun at 22h UT. The largest planet passes into the morning sky.
- 13 Last Quarter Moon at 9:12 UT.
- 16 Moon at perigee (closest to Earth) at 2:31 UT (distance 367,968km; angular size 32.5').
- 16 Moon near Saturn at 7h UT (morning sky). Mag. 1.0.
- 20 Annular-Total Eclipse of the Sun along a narrow path crossing the Indian Ocean, Australia's North West Cape, East Timor, West Papua and Pacific Ocean from 1:34 to 6:59 UT. Partial solar eclipse visible from Southeast Asia and Australia.
- 20 New Moon at 4:15 UT. Start of lunation 1241.
- 22 Moon near the Pleiades at 12h UT (evening sky).
- 23 Lyrid meteor shower peaks at 1h UT (timing and activity is variable). Active April 14-30. Radiant is between Hercules and Lyra. Expect 10 to 20 bright, fast meteors per hour at its peak.
- 23 Moon near Venus at 13h UT (41° from Sun, evening sky). Mag. -4.1. Look out for this spectacular sight!
- 26 Moon near Mars at 4h UT (evening sky). Mag. 1.3.
- 27 First Quarter Moon at 21:20 UT.
- 27 Moon near Beehive cluster M44 at 23h UT (evening sky).
- 28 Moon at apogee (farthest from Earth) at 7h UT (distance 404,299km; angular size 29.6').
- 29 Moon near Regulus at 20h UT (evening sky).
- 29 International Astronomy Day 2023 is celebrated today! Contact your local Astronomy club, planetarium, observatory or science museum to participate in a variety of Astronomy activities.

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

NORTHERN HEMISPHERE

APRIL 2023

SKY MAP SHOWS HOW THE NIGHT SKY LOOKS

EARLY APR 10 PM
LATE APR 9 PM

SKY MAP DOWN FOR A LATITUDE OF 40° NORTH AND IS SUITABLE FOR LATITUDES UP TO 15° SOUTH OF THIS

Capella means "the goat" in Latin, and is the 3rd star from the ecliptic. Capella means "the goat" in Arabic, describing well its position in the sky.

Alpha means "star number one" in Arabic, describing well its position in the sky.

Use the Big Dipper (or Plough) to find Polaris, the North Star. Use the Big Dipper (or Plough) to find Polaris, the North Star. Use the Big Dipper (or Plough) to find Polaris, the North Star.

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Trace the ecliptic by following an imaginary line from Spica to Regulus.

This constellation Leo (The Lion) is high up in the southern sky. Regulus and Leo have been associated with the constellation Leo (The Lion) is high up in the southern sky. Regulus and Leo have been associated with the constellation Leo (The Lion) is high up in the southern sky.

INSTRUCTIONS: THE SKY MAP SHOWS THE SKY AS IT APPEARS ON CERTAIN DATES AND TIMES. THE CENTER OF THE MAP IS THE PART OF THE SKY DIRECTLY OVERHEAD (ZENITH) AND THE OUTER CIRCLE IS THE HORIZON. COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE (FOR EXAMPLE, NORTH IS AT THE TOP). Use the Big Dipper (or Plough) to find Polaris, the North Star. Use the Big Dipper (or Plough) to find Polaris, the North Star. Use the Big Dipper (or Plough) to find Polaris, the North Star.

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