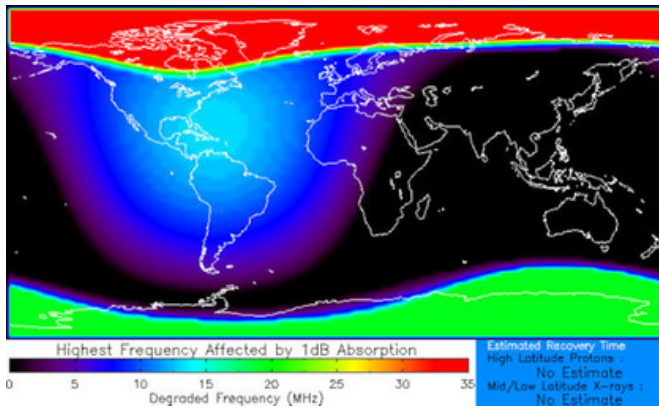


SKYWATCHER NEWSLETTER

LATEST NEWS



POLAR CAP ABSORPTION EVENT: Don't try to use a shortwave radio inside the Arctic Circle today! This alarming warning on Spaceweather 10 June piqued my interest. The article went on to explain that this is the aftermath of the 8 June M9.7-class explosion on the sun. Protons accelerated by the blast are now hitting our planet. Earth's magnetic field funnels these particles toward the poles where their ionizing effect causes the absorption of shortwave radio. The absorption event could last for days; you can monitor its progress using the link. Let us know if you have a shortwave radio and what you notice! Until next month... SLK

<https://www.swpc.noaa.gov/products/d-region-absorption-predictions-d-rap>



June's Night Sky Notes: Constant Companions: Circumpolar Constellations, Part III

By: Kat Troche

This article is distributed by NASA's Night Sky Network (NSN).

In our final installment of the stars around the North Star, we look ahead to the summer months, where depending on your latitude, the items in these circumpolar constellations are nice and high. Today, we'll discuss Cepheus, Draco, and Ursa Major. These objects can all be spotted with a medium to large-sized telescope under dark skies.

Herschel's Garnet Star: Mu Cephei is a deep-red hypergiant known as The Garnet Star, or Erakis. While the star is not part of the constellation pattern, it sits within the constellation boundary of Cepheus, and is more than 1,000 times the size of our Sun. Like its neighbor Delta Cephei, this star is variable, but is not a reliable Cepheid variable. Rather, its brightness can vary anywhere between 3.4 to 5.1 in visible magnitude, over the course of 2-12 years.

This composite of data from NASA's Chandra X-ray Observatory and Hubble Space Telescope gives astronomers a new look for NGC 6543, better known as the Cat's Eye nebula. This planetary nebula represents a phase of stellar evolution that our sun may well experience several billion years from now.



This stunning Hubble image was assembled using observations in visible and infrared light. The galaxy's spiral arms, which wind all the way down into its nucleus, are made up of young, bluish, hot stars formed in the past few million years. NASA, ESA and the Hubble Heritage Team (STScI/AURA)

Continued on page 4....

The Cat's Eye Nebula: Labeled a planetary nebula, there are no planets to be found at the center of this object. Observations taken with NASA's Chandra X-ray Observatory and Hubble Space Telescopes give astronomers a better understanding of this complex, potential binary star, and how its core ejected enough mass to produce the rings of dust. When searching for this object, look towards the 'belly' of Draco with a medium-sized telescope.

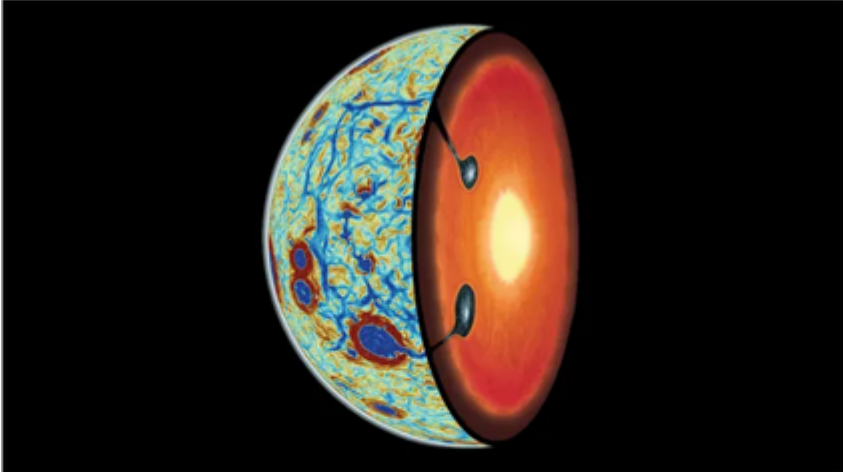
Bode's Galaxy and the Cigar Galaxy: Using the arrow on the star map, look diagonal from the star Dubhe in Ursa Major. There you will find Bode's Galaxy (Messier 81) and the Cigar Galaxy (Messier 82). Sometimes referred to as Bode's Nebula, these two galaxies can be spotted with a small to medium-sized telescope. Bode's Galaxy is a classic spiral shape, similar to our own Milky Way galaxy and our neighbor, Andromeda.

LOCAL EVENTS

- July 2 - WAS - Robert Harvey – Stumbling Around in the Dark – 2 hour Astrophoto Session
- Jul 17 CADAS - Ian Coster Double Stars
- July 19 - FA - Equipment Clinic
- Aug 6 - WAS - Social and Equipment Night with Quiz
- Sept 3 - WAS - Dr. David Bacon – Dark energy
- Aug 21 - CADAS - John Chuter The BAA archive
- Sep 18 - CADAS - Gadgets and Gizmos Evening followed by Observing Session

VISIT OUR WEBSITE FOR THE LATEST CLUB INFORMATION

Eos



The Moon's Mantle Did a Flip—and Scientists May Now Have Evidence

For decades, a lunar whodunit has puzzled scientists: Did the Moon's internal layers flip during its formation? Old data might hold the evidence to solve this cold case.

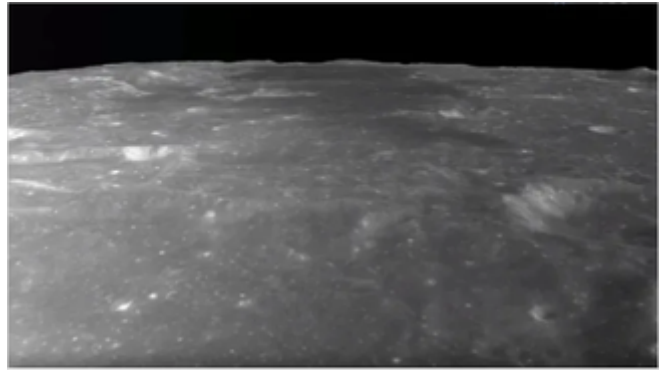
— Eos / May 8



NASA, Space Exploration and Astronomy News

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Space



Watch China's Chang'e 6 probe land on far side of the moon in dramatic video

The probe captured footage as it made its approach to the mysterious far side of the moon on Sunday (June 2).

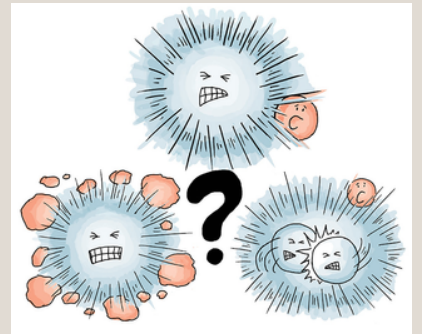
Space / Jun 3



James Webb captures first direct images of galaxies born at Cosmic Dawn

The James Webb Space Telescope has captured direct images of galaxies being born at the cosmic dawn. This is the first time this has ever been witnessed by astronomers, confirming models for galaxy formation.

New Atlas / May 24



WAC Upcoming Events

JULY 12 - TBC

AUGUST - NO MEETING

SEPT 13 - JAMES FRADGLEY: THE BORING BILLIONS (IN-PERSON AND ZOOM)

OCT 11 - CHRIS BOWDEN: TBA (IN-PERSON AND ZOOM)

WEYMOUTH ASTRONOMY



Spiral Waves May Explain the Sun's Baffling Rotation

New observations and models show a connection between high-latitude waves in the Sun's interior and the different rates of spin between the solar equator and poles.

Eos / May 29



The Milky Way's last major act of galactic cannibalism was surprisingly recent

"We get wrinklier as we age, but our work reveals that the opposite is true for the Milky Way. It's a sort of cosmic Benjamin Button, getting less wrinkly over time."

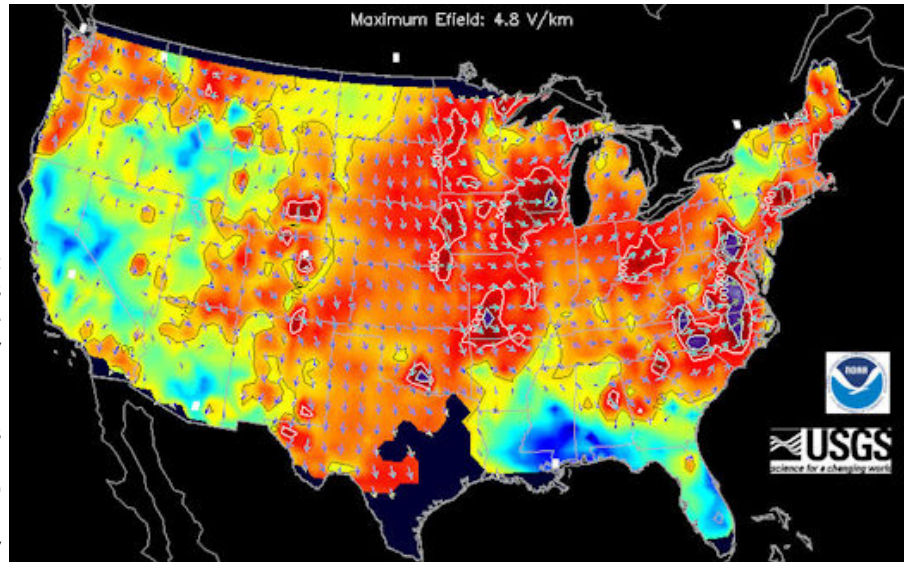
Space / 01:00 PM



ROCKS AND SOIL ELECTRIFIED BY THE SUPERSTORM:

Across the USA on May 10th and 11th, sky watchers marveled at bright displays of aurora borealis during the biggest geomagnetic storm in decades. Little did they know, something was also happening underfoot.

Strong electrical currents were surging through rocks and soil. The biggest voltages along the US eastern seaboard and in the Midwest were as much as 10,000 times normal. A map from NOAA and the US Geological Survey shows some of the 'hot spots' during the early hours of May 11th:



<https://www.spaceweather.com/archive.php?view=1&day=25&month=05&year=2024>

Back in March 1989, voltages only a little stronger than the ones shown above brought down the entire Hydro-Québec power system. The resulting Great Québec Blackout plunged millions of Canadians into darkness.

This time, however, power grids stayed up. "We haven't heard of any serious problems so far," reports Christopher Balch of NOAA's Space Weather Prediction Center. Balch leads an effort at NOAA to model geoelectric fields during solar storms. The map, above, is a snapshot from a real-time display that takes into account the 3D conductivity of the Earth and ongoing geomagnetic activity. A computer at the Space Weather Prediction Center crunches the data to produce minute-by-minute estimates of electricity in the ground.

"I started working on this in 2011 after a NOAA Space Weather Workshop where representatives from the power industry asked for a geoelectric field model," recalls Balch. "It's a collaboration between NOAA, the US Geological Survey and others; we now have a version that covers much of Canada and the United States"

When researchers talk about geoelectric fields they use units of volts per km (V/km). Earth's crust naturally contains quiet-time fields measuring as little as 0.01 V/km. During geomagnetic storms, these values skyrocket.

"On May 10-11, geoelectric amplitudes exceeded 10 V/km in Virginia and 9 V/km in the upper Midwest," says Jeffrey Love, a key member of the collaboration at the USGS. "These are very high. For comparison, we estimate that geoelectric amplitudes reached almost 22 V/km in Virginia during the March 1989 storm." This means the May 2024 storm was, electrically speaking, about half as intense as the storm that blacked out Québec 35 years ago. That's too close for comfort. "Although power companies have taken measures to improve the resilience of their systems, no one would welcome another storm as intense as that of March 1989," says Love.

Realtime electric field maps are published 24/7 on the NOAA website. During the next geomagnetic storm, click here to see what's happening underfoot!

WEYMOUTH ASTRONOMY

Continued from page 1:

The Cigar Galaxy, however, is known as a starburst galaxy type, known to have a high star formation rate and incredible shapes. This image composite from 2006 combines the power of three great observatories: the Hubble Space Telescope imaged hydrogen in orange, and visible light in yellow green; Chandra X-Ray Observatory portrayed X-ray in blue; Spitzer Space Telescope captured infrared light in red.

Up next, we celebrate the solstice with our upcoming mid-month article on the Night Sky Network page through NASA's website!



From left to right: Ursa Major, Draco, and Cepheus. Credit: Stellarium Web.



This composite of data from NASA's Chandra X-ray Observatory and Hubble Space Telescope gives astronomers a new look for NGC 6543, better known as the Cat's Eye nebula. This planetary nebula represents a phase of stellar evolution that our sun may well experience several billion years from now. Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI



The Cigar Galaxy. Credit: NASA, ESA, CXC, and JPL-Caltech



Night Sky Network - NASA Science

Night Sky Network is a nationwide coalition of amateur astronomy clubs bringing the inspiration of NASA's missions to the general public.

nasa.gov / Jun 20, 2023

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 – June 2024

- 2 Moon at perigee (closest to Earth) at 7:25 UT (distance 368,102km; angular size 32.5').
- 2 Moon near Mars at 22h UT (morning sky). Mag. 1.0.
- 4 Mercury 0.12° SE of Jupiter at 11h UT (12° from Sun, morning sky). Mags. -2.0 and -1.1.
- 4 Venus at superior conjunction with the Sun at 15h UT (not visible). The brightest planet passes into the evening sky.
- 5 Moon near the Pleiades at 10h UT (morning sky).
- 6 New Moon at 12:39 UT. Start of lunation 1255.
- 9 Moon near Castor at 3h UT (evening sky).
- 9 Moon near Pollux at 8h UT (evening sky).
- 10 Moon near Beehive cluster M44 at 11h UT (evening sky).
- 12 Moon near Regulus at 7h UT (evening sky).
- 14 First Quarter Moon at 5:19 UT.
- 14 Moon at apogee (farthest from Earth) at 14h UT (distance 404,077km; angular size 29.6').
- 14 Mercury at superior conjunction with the Sun at 16h UT (not visible). The innermost planet passes into the evening sky.
- 16 Moon near Spica at 20h UT (evening sky). Occultation visible from western Asia.
- 20 Moon near Antares at 12h UT (evening sky). Occultation visible from the western Pacific ocean.
- 20 June solstice at 20:51 UT. The time when the Sun reaches the point farthest north of the celestial equator marking the start of summer in the Northern Hemisphere and winter in the Southern Hemisphere.
- 22 Full Moon at 1:09 UT.
- 27 Moon at perigee (closest to Earth) at 11:33 UT (distance 369,286km; angular size 32.4').
- 27 Moon near Saturn at 16h UT (morning sky). Mag. 1.1. Occultation visible from eastern Australia, New Zealand and western Pacific ocean.
- 28 Last Quarter Moon at 21:54 UT.

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

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NORTHERN HEMISPHERE
JUNE 2024

SKY MAP SHOWS HOW
THE NIGHT SKY LOOKS

EARLY JUN 11 PM
LATE JUN 10 PM

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

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