

SKYWATCHER NEWSLETTER



LATEST NEWS

Earlier this week there was the exciting proposition that there would be a lunar landing by the US for the first time in 50 years... Very shortly after, the unfortunate news regarding an 'anomaly' during the launch took place. If you haven't caught up with the Astrobotic's Peregrine moon lander which was launched aboard an United Launch Alliance's Vulcan Centaur rocket during its inaugural commercial flight. The liftoff went well, but Peregrine experienced an anomaly shortly after deploying from the rocket's Centaur upper stage.

10 Jan - the lander encountered an anomaly due to a stuck valve in its propulsion system, damaging the spacecraft and causing a significant propellant leak. The company announced on Tuesday (Jan. 9) that a soft lunar landing would be impossible in light of those issues.

11 Jan - Peregrine was able to power up its payloads — the ones that require power, anyway — and establish connections to ground teams using NASA's Deep Space Network (DSN) of communication antennas.

The key message is 'The launch of Peregrine kicked off NASA's Commercial Lunar Payloads Services (CLPS) program, which aims to accelerate lunar science through contracting private landers to take payloads to the moon's surface. Since many of these private spacecraft and landers are new and untested, NASA leadership has accepted the risks involved in these missions.'

Follow the latest news at Space.com
Until next month... SLK



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Connecting the 'Dots' with Asterisms

By: Kat Troche

In our December Night Sky Notes, we mentioned that the Orion constellation has a distinct hourglass shape that makes it easy to spot in the night sky. But what if we told you that this is not the complete constellation, but rather, an asterism?

An asterism is a pattern of stars in the night sky, forming shapes that make picking out constellations easy. Cultures throughout history have created these patterns as part of storytelling, honoring ancestors, and timekeeping. Orion's hourglass is just one of many examples of this, but did you know Orion's brightest knee is part of another asterism that spans six constellations, weaving together the Winter night sky? Many asterisms feature bright stars that are easily visible to the naked eye. Identify these key stars, and then connect the dots to reveal the shape.

Asterisms Through the Seasons

Try looking for these asterisms this season and beyond:

·Winter Circle – this asterism, also known as the Winter Hexagon, makes up a large portion of the Winter sky using stars Rigel, Aldebaran, Capella, Pollux, Procyon, and Sirius as its points. Similarly, the Winter Triangle can be found using Procyon, Sirius, and Betelgeuse as points. Orion's Belt is also considered an asterism.

·Diamond of Virgo – this springtime asterism consists of the following stars: Arcturus, in the constellation Boötes; Cor Caroli, in Canes Venatici; Denebola in Leo, and Spica in Virgo. Sparkling at the center of this diamond is the bright cluster Coma Berenices, or Bernice's Hair – an ancient asterism turned constellation!

·Summer Triangle – as the nights warm up, the Summer Triangle dominates the heavens. Comprising the bright stars Vega in Lyra, Deneb in Cygnus, and Altair in Aquila, this prominent asterism is the inspiration behind the cultural festival Tanabata. Also found is Cygnus the Swan, which makes up the Northern Cross asterism.

·Great Square of Pegasus – by Autumn, the Great Square of Pegasus can be seen. This square-shaped asterism takes up a large portion of the sky, and consists of the stars: Scheat, Alpheratz, Markab and Algenib.

Tracing these outlines can guide you to objects like galaxies and star clusters. The Hyades, for example, is an open star cluster in the Taurus constellation with evidence of rocky planetary debris. In 2013, Hubble Space Telescope's Cosmic Origins Spectrograph was responsible for breaking down light into individual components. This observation detected low levels of carbon and silicon – a major chemical for planetary bodies. The Hyades can be found just outside the Winter Circle and is a favorite of both amateur and professional astronomers alike.



LOCAL EVENTS

Jan 17 - Fordingbridge Astronomers (FA) - Meteors and Meteor Hunting by Mark McIntyre

Jan 17 - CADAS - Bud Budzinsky – A guided tour around the Palomar Observatory

Jan 20 - WAS - Durlston Event at 7.30pm

Feb 6 -WAS - Professor Malcolm MacCallum – Black Holes

Mar 5 - WAS - Professor Malcolm Coe – Tides in the Clouds – Star Birth & Death in our Nearest Galaxy

Mar 30, 18:00 - 06:00 - Fordingbridge Astronomers - Messier Challenge - 2024 Abbots Well Carpark

VISIT OUR WEBSITE FOR THE LATEST CLUB INFORMATION

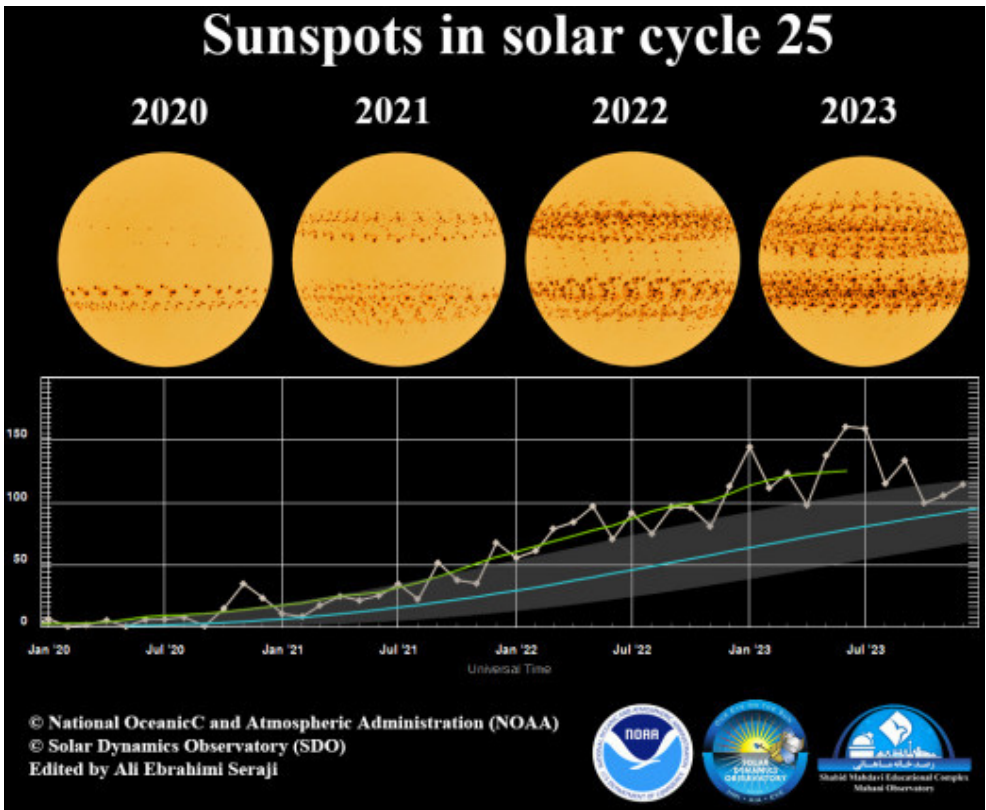


SOLAR MAX IS COMING: 5 January 2024
spaceweather.com

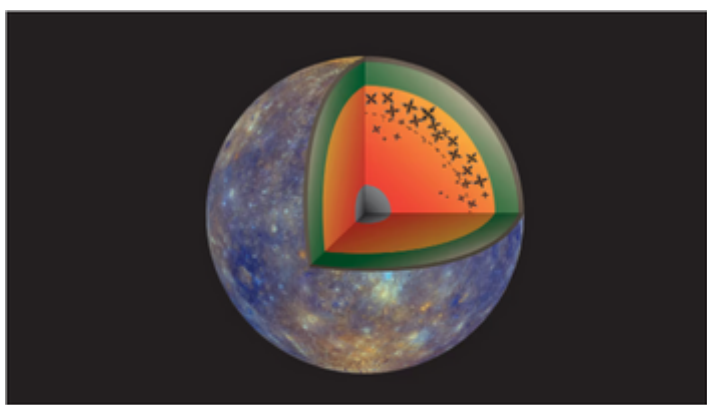
SOLAR MAX IS COMING: Since Solar Cycle 25 began in Dec. 2019, 782 sunspot groups have crossed the face of the sun. Almost half (361) appeared in 2023. This montage assembled by Ali Ebrahimi Seraji of the Mahani Observatory in Iran shows how sunspot production has skyrocketed.

"I created this 4-year overview using images from NASA's Solar Dynamics Observatory," says Seraji. "The graph beneath the images is from NOAA; it shows actual monthly sunspot counts (white) vs. predictions (blue). The sun is outperforming the forecast."

Many forecasters believe that Solar Max will occur in 2024. That means we can expect **even more** sunspots this year. Solar flare, geomagnetic storms and auroras are in the offing. Stay tuned!



Eos



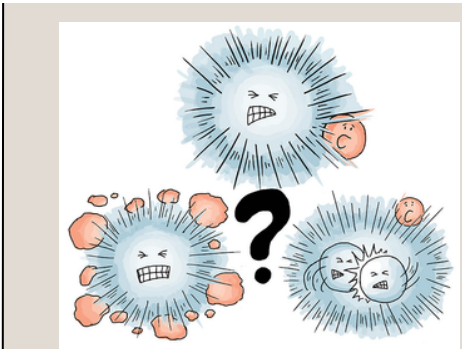
Iron Snow Ebb and Flow May Cause Magnetic Fields to Come and Go

Lab experiments find that iron crystals in planetary cores may form in bursts, causing periodic dynamos.

Just as snow crystals form in the upper atmosphere, then fall to lower, warmer elevations and melt, scientists believe a phenomenon called iron snow happens in the molten iron cores of some planetary bodies: Cooling near the core-mantle boundary creates crystals of iron, which melt as they fall deeper into the hot core. This movement may create magnetic fields in some smaller bodies like Mercury and Jupiter's moon Ganymede, but its dynamics are not well known.

In a first-of-its-kind experiment, Huguet et al. modeled iron snow in a lab using water ice and found distinct cycles of crystal formation and inactivity. Extrapolated to planetary bodies, the findings could mean planetary magnetic fields come and go periodically as their dynamos turn on and off.

Read More at:
<https://eos.org/research-spotlights/iron-snow-ebb-and-flow-may-cause-magnetic-fields-to-come-and-go>



WAC Upcoming Events

FEB 9 - BRAD GIBSON - BAD ASTRONOMY AT THE MOVIES

MAR 8 - FABIO SILVA - ASTRONOMY AT THE TIME OF STONEHENGE

APRIL 12 - KEVIN QUINN: TBA (IN-PERSON ONLY)

MAY 10 - AGM FOLLOWED BY MARK RADICE: TBA (IN-PERSON ONLY)

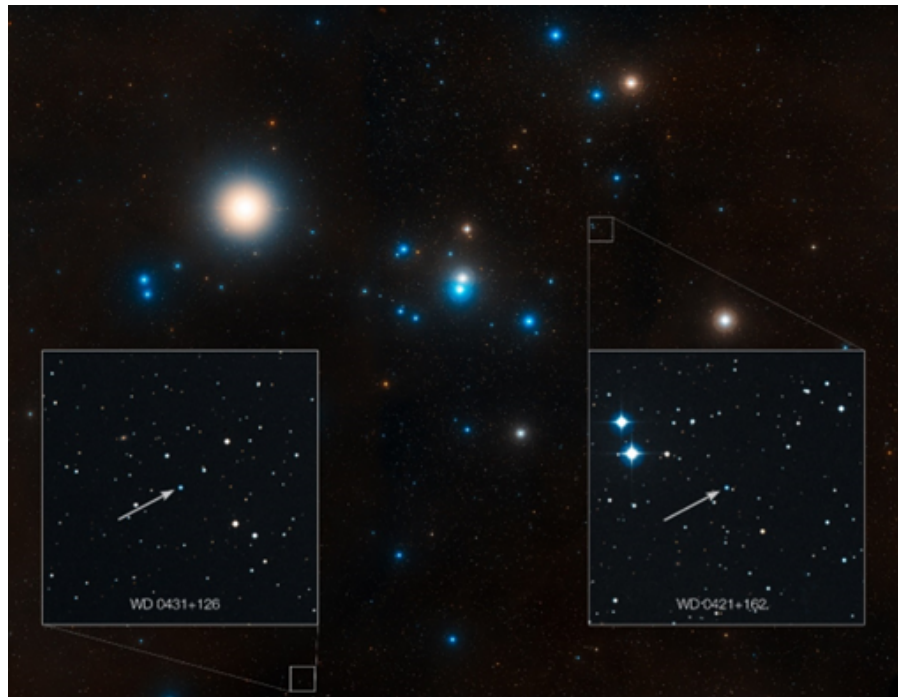
Continued from page 1:

How to Spot Asterisms

- Use Star Maps and Star Apps – Using star maps or stargazing apps can help familiarize yourself with the constellations and asterisms of the night sky. [Look at page 4 of the newsletter for this month’s map.]
- Get Familiar with Constellations – Learning the major constellations and their broader shapes visible each season will make spotting asterisms easier.
- Use Celestial Landmarks – Orient yourself by using bright stars, or recognizable constellations. This will help you navigate the night sky and pinpoint specific asterisms. Vega in the Lyra constellation is a great example of this.



Above: Stars that make up the Winter Circle, as seen on January 1, 2024
Sky Safari



LEFT:
This image shows the region around the Hyades star cluster, the nearest open cluster to us. The Hyades cluster is very well-studied due to its location, but previous searches for planets have produced only one. A new study led by Jay Farihi of the University of Cambridge, UK, has now found the atmospheres of two burnt-out stars in this cluster — known as white dwarfs — to be “polluted” by rocky debris circling the star. Inset, the locations of these white dwarf stars are indicated — stars known as WD 0421+162, and WD 0431+126.
NASA, ESA, STScI, and Z. Levay (STScI)

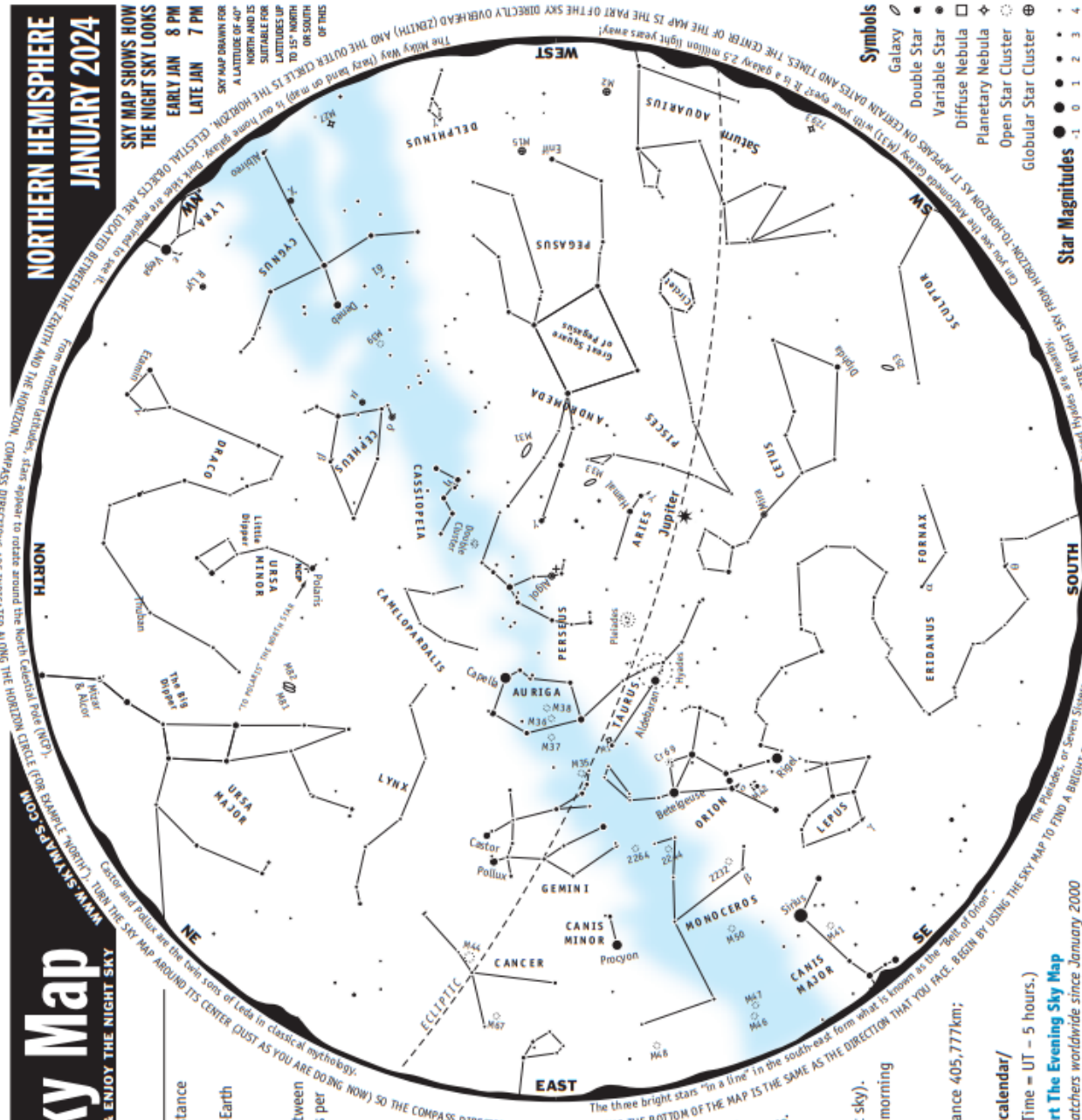
Skymaps.com—Feel free to download the full article directly each month.

NORTHERN HEMISPHERE JANUARY 2024

SKY MAP SHOWS HOW THE NIGHT SKY LOOKS

EARLY JAN 8 PM
LATE JAN 7 PM

SKY MAP DRAWN FOR A LATITUDE OF 40° NORTH AND IS SUITABLE FOR LATITUDES UP TO 50° NORTH OR SOUTH OF THIS



- Symbols**
- Galaxy
 - Double Star
 - Variable Star
 - Diffuse Nebula
 - Planetary Nebula
 - Open Star Cluster
 - Globular Star Cluster
- Star Magnitudes**
- 1
 - 2
 - 3
 - 4

The Evening Sky Map

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

Sky Calendar - January 2024

- 1 Moon at apogee (farthest from Earth) at 15h UT (distance 404,909km; angular size 29.5').
- 3 Earth at Perihelion (closest to Sun) at 1h UT. The Sun-Earth distance is 0.983307 a.u. (147.1 million kilometers).
- 4 Last Quarter Moon at 3:32 UT.
- 4 Quadrantid Meteor Shower peaks at 9h UT. Active between December 26 and January 16. Expect up to 25 meteors per hour under dark skies. Radiant is in northern Boötes. Northern hemisphere only. Moonlight interferes.
- 5 Moon near Spica at 2h UT (morning sky).
- 8 Moon near Antares at 16h UT (morning sky). Occultation visible from USA, Mexico, Central America, and NW South America.
- 8 Moon near Venus at 19h UT (36° from Sun, morning sky). Mag. -4.0.
- 9 Moon near Mercury at 19h UT (23° from Sun, morning sky). Mag. 1.4.
- 10 Moon near Mars at 9h UT (15° from Sun, morning sky). Mag. -0.2.
- 11 New Moon at 11:57 UT. Start of lunation 1250.
- 12 Mercury at greatest elongation west at 14h UT (24° from Sun, morning sky). Mag. -0.2.
- 13 Moon at perigee (closest to Earth) at 10:39 UT (distance 362,267km; angular size 33.0').
- 14 Moon near Saturn at 12h UT (evening sky). Mag. 1.0.
- 18 First Quarter Moon at 3:53 UT.
- 18 Moon near Jupiter at 19h UT (evening sky). Mag. -2.5.
- 20 Moon near the Pleiades at 15h UT (evening sky).
- 25 Full Moon at 17:53 UT.
- 26 Mercury 0.24° N of Mars at 17h UT (20° from Sun, morning sky). Mags -0.2 and 1.3.
- 27 Moon near Regulus at 21h UT (morning sky).
- 29 Moon at apogee (farthest from Earth) at 8h UT (distance 405,777km; angular size 29.4').

More sky events and links at <http://Skymaps.com/skycalendar/>
All times in Universal Time (UT). (USA Eastern Standard Time = UT - 5 hours.)



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