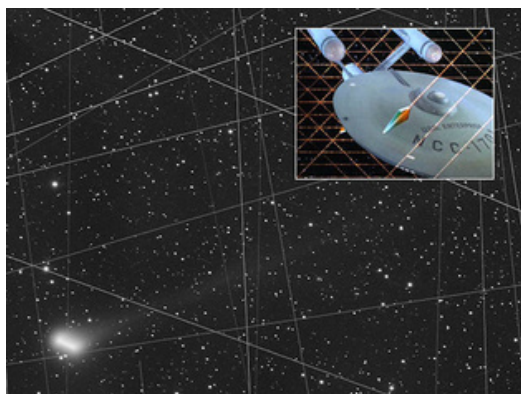


SKYWATCHER NEWSLETTER



LATEST NEWS

A quite frightening image of what appears to be a Tholian web from the 1968 Star Trek was obtained by Lorenzo Comolli of Saint Barthelemy, Italy of the checkboard streaks crossing an image of the [Comet Lemmon](#) in September. As quoted by spaceweather.com "It seems that the promise of Musk of dark satellites is completely void. They are really bright (2nd and 3rd magnitude)," says Comolli. "This makes me worry for the future quality of the sky." He's right to worry. Right now, Earth is surrounded by about 8000 Starlinks with future plans calling for 42,000. Amazon's Project Kuiper has begun launching its own planned 3,200-satellite broadband fleet, while China is building two more megaconstellations: Guowang (13,000 satellites) and "Qianfan" ("Thousand Sails", 15,000-plus). Together, they could eventually rival or surpass Starlink." Definitely something to think about...

Until next month and hopefully 20 years more of the WAC... SLK



October's Night Sky Notes: Let's Go, LIGO

Updated by Kat Troche

September 2025 marks ten years since the first direct detection of gravitational waves as predicted by Albert Einstein's 1916 theory of General Relativity. These invisible ripples in space were first directly detected by the Laser Interferometer Gravitational-Wave Observatory (LIGO). Traveling at the speed of light (~186,000 miles per second), these waves stretch and squeeze the fabric of space itself, changing the distance between objects as they pass.

Waves In Space

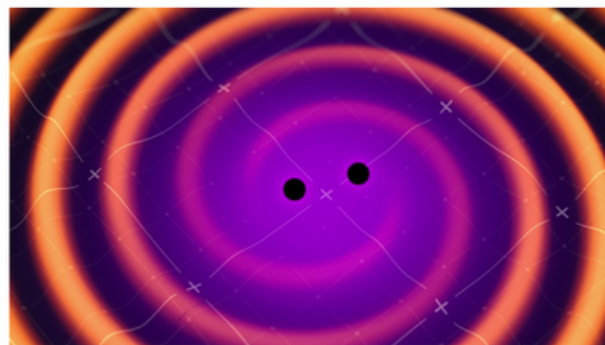
Gravitational waves are created when massive objects accelerate in space, especially in violent events. LIGO detected the first gravitational waves when two black holes, orbiting one another, finally merged, creating ripples in space-time. But these waves are not exclusive to black holes. If a star were to go supernova, it could produce the same effect. Neutron stars can also create these waves for various reasons. While these waves are invisible to the human eye, [this animation](#) from NASA's Science Visualization Studio shows the merger of two black holes and the waves they create in the process.

How It Works

A gravitational wave observatory, like LIGO, is built with two tunnels, each approximately 2.5 miles long, arranged in an "L" shape. At the end of each tunnel, a highly polished 40 kg mirror

(about 16 inches across) is mounted; this will reflect the laser beam that is sent from the observatory. A laser beam is sent from the observatory room and split into two, with equal parts traveling down each tunnel, bouncing off the mirrors at the end. When the beams return, they are recombined. If the arm lengths are perfectly equal, the light waves cancel out in just the right way, producing darkness at the detector. But if a gravitational wave passes, it slightly stretches one arm while squeezing the other, so the returning beams no longer cancel perfectly, creating a flicker of light that reveals the wave's presence.

The actual detection happens at the point of recombination, when even a minuscule stretching of one arm and squeezing of the other changes how long it takes the laser beams to return. This difference produces a measurable shift in the interference pattern. To be certain that the signal is real and not local noise, both LIGO observatories — one in Washington State (LIGO Hanford) and the other in Louisiana (LIGO Livingston) — must record the same pattern within milliseconds. When they do, it's confirmation of a gravitational wave rippling through Earth. We don't feel these waves as they pass through our planet, but we now have a method of detecting them!



Two black holes orbit around each other and generate space-time ripples called gravitational waves in this image. Credit: NASA's Goddard Space Flight Center Conceptual Image Lab

LOCAL EVENTS

- 15 Oct - FA - Bok Globules - Dark Nebulae - Club Speaker Ross Gould
- 17 Oct - NLO - Member's Talk: Pluto - an ex-planet
- 19 Oct - NLO - Sidmouth Science Festival: NLO Sunday Funday
- 21 Oct - NLO - Members: Cultural Astronomy - Dawn of Astronomy
- 30 Oct - NLO - Public Observatory Tour: The Ten Day Old Moon
- 4 Nov - WAS - Steve Plant UK Space Agency In Person
- 19 Nov - FA - Metals in Space - John Arnold (Leeds Astronomical Society)
- 2 Dec - WAS - Members Talks - Members in Person/Zoom
- Sat, 13 Dec 2025, 20:00 - 02:00 Geminid Meteor Shower - FA - Knowlton Observatory

VISIT OUR WEBSITE FOR THE LATEST CLUB INFORMATION

Continued from page 1:

Get Involved

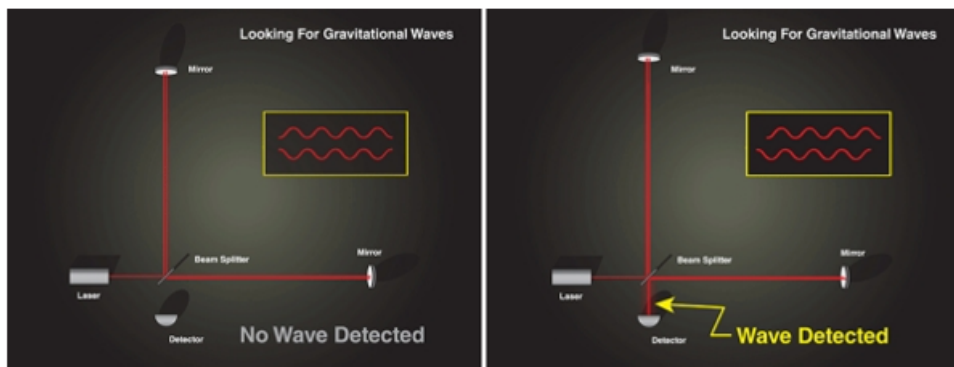
With the help of two additional gravitational-wave observatories, VIRGO and KAGRA, there have been 300 black hole mergers detected in the past decade; some of which are confirmed, while others await further study.

While the average person may not have a laser interferometer lying around in the backyard, you can help with two projects geared toward detecting gravitational waves and the black holes that contribute to them:

- Black Hole Hunters: Using data from the TESS satellite, you would study graphs of how the brightness of stars changes over time, looking for an effect called gravitational microlensing. This lensing effect can indicate that a massive object has passed in front of a star, such as a black hole.

- Gravity Spy: You can help LIGO scientists with their gravitational wave research by looking for glitches that may mimic gravitational waves. By sorting out the mimics, we can train algorithms on how to detect the real thing.

You can also use gelatin, magnetic marbles, and a small mirror for a more hands-on demonstration on how gravitational waves move through space-time with JPL's Dropping In With Gravitational Waves activity!



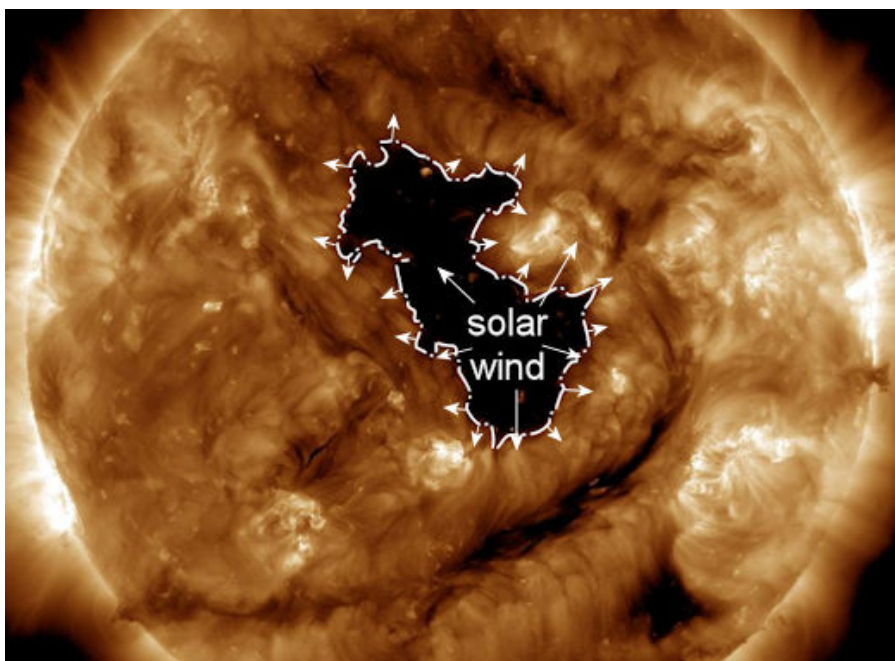
Still images of how LIGO (Laser Interferometer Gravitational-Wave Observatory) detects gravitational waves using a laser, mirrors, and a detector. You can find the animated version [here](#). Image Credit: NASA

Night Sky Notes [Article to use in Club Newsletters]

09/21/2025

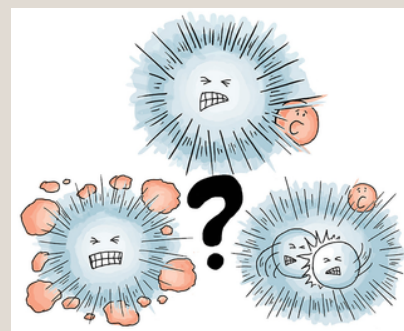
Since 2018, the NASA Night Sky Network has provided articles featuring the latest stargazing and NASA news to share with your organization's readership. As of October 1, 2025, Night Sky Notes will be suspended until further notice, as cuts and restructuring are part of NASA's Fiscal Year 2026 budget.

A STREAM OF SOLAR WIND IS APPROACHING EARTH: A hole has opened in the sun's atmosphere, and it is venting a stream of solar wind directly toward Earth. NASA's Solar Dynamics Observatory photographed the dark chasm on Oct. 9th:



This is a "coronal hole" -- a region in the sun's atmosphere where magnetic fields open up and allow solar wind to escape. Coronal holes look dark because the glowing-hot plasma normally contained there is missing.

A stream of solar wind flowing from this coronal hole should reach Earth on Oct. 12th. Its arrival could spark G1-class geomagnetic storms. The odds of storming are increased by the "Russell-McPherron effect," which links the magnetic fields of the sun and Earth during weeks around equinoxes. spaceweather.com



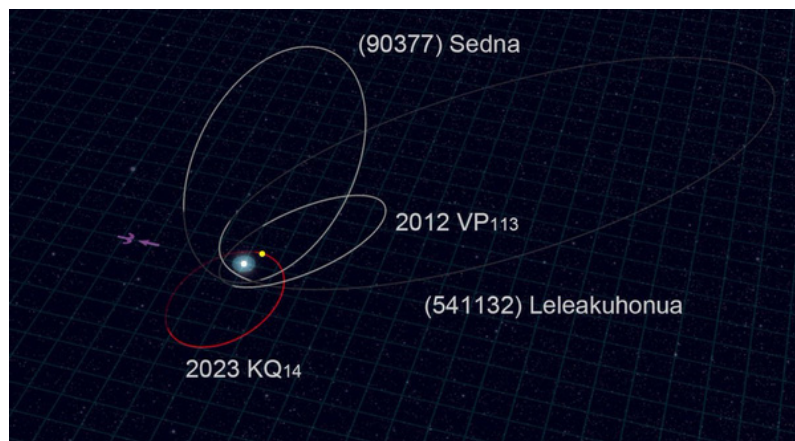
WAC Upcoming Events

14 NOV - JO RICHARDSON FRAS -
THE JWST - A MIRRORED MARVEL
(IN-PERSON AND ZOOM)

12 DEC - DR. JEN GUPTA -
SPECTROSCOPY THE STORY OF THE
DISCOVERY OF THE FIRST QUASAR
(3C273) (IN-PERSON AND ZOOM)

MORE TO COME IN 2026!

WEYMOUTH ASTRONOMY



Discovery and dynamics of a Sedna-like object with a perihelion of 66 au

<https://www.nature.com/articles/s41550-025-02595-7>

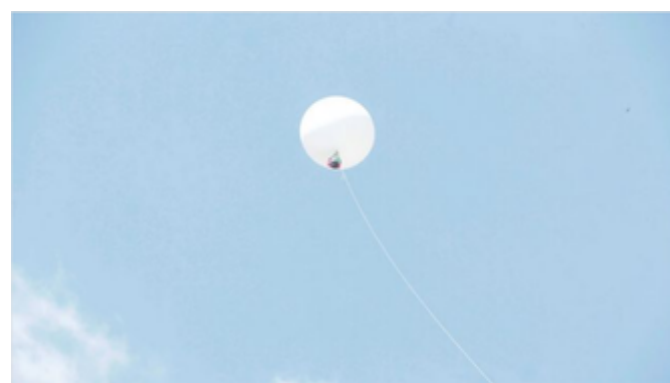
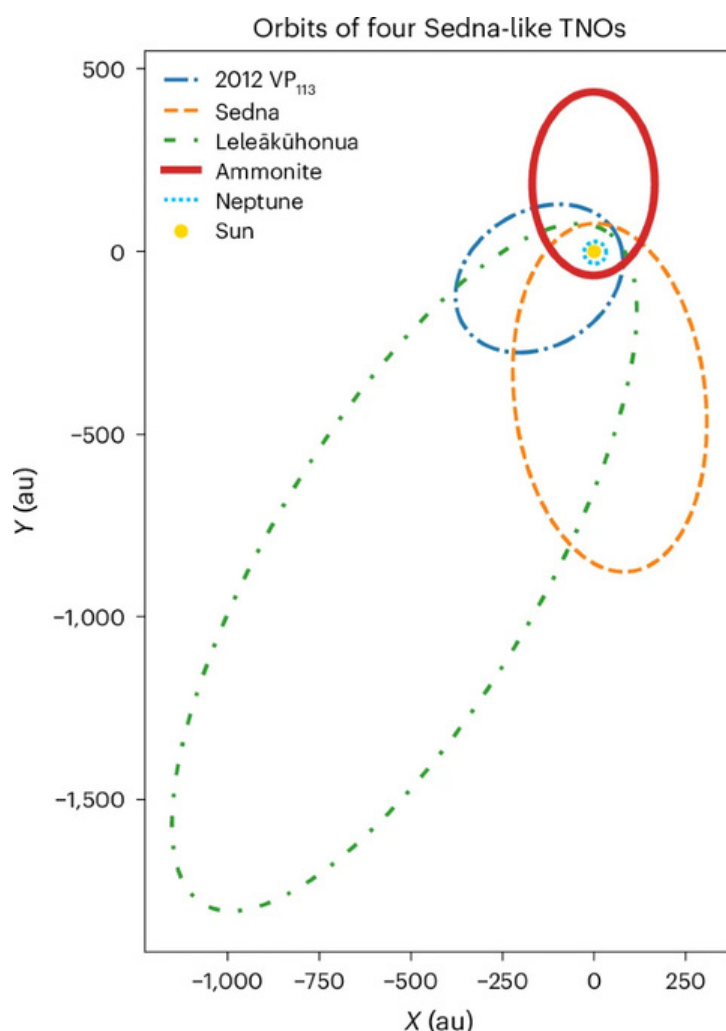


How do you build a moon? The James Webb Space Telescope has just given us our best look

For the first time, the chemical composition of a moon-forming disk around a planet has been revealed.

Space / Sep 30

<https://tinyurl.com/3z884nb9>

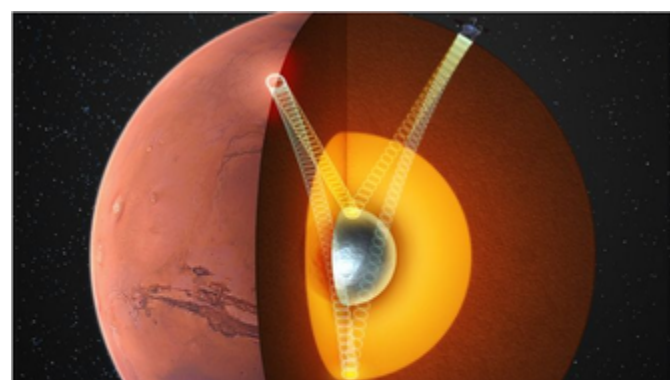


Squaring Up in Space

CubeSats emerge as the little spacecraft that could.

Eos / Sep 29

<https://tinyurl.com/5dsjcmsh>



Scientists May Have Finally Detected a Solid Inner Core on Mars

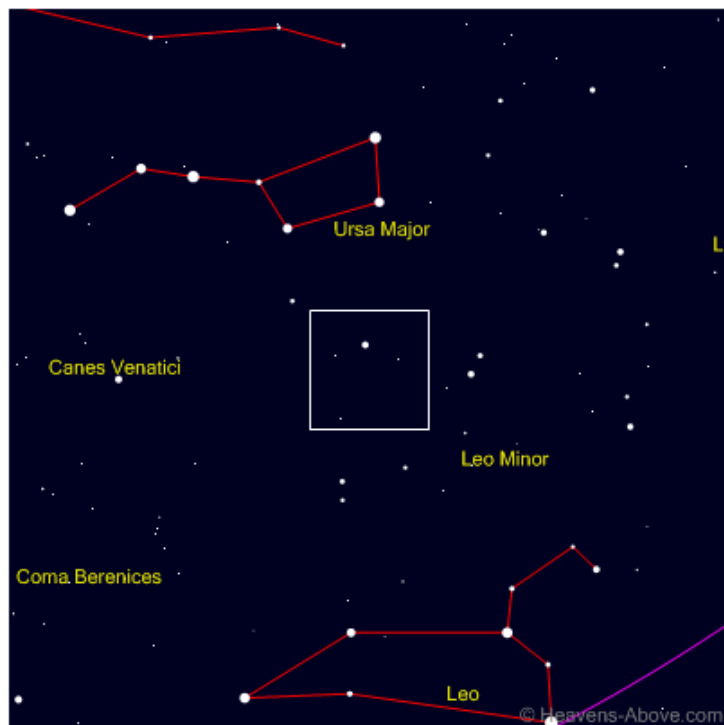
Seismic clues from NASA's InSight mission suggest that Mars hides a solid inner core, and raise new questions about why the planet's magnetic field disappeared.

<https://tinyurl.com/2aw4xu6w>

WAC Members Corner

Comet C/2025 A6 Lemmon

Year Month Day Time



Coarse finder chart
(Field of view: 60°, Max. star mag.: 5)



Fine finder chart
(Field of view: 10°, Max. star mag.: 8)

Position	
Right ascension	11 ^h 7.6 ^m
Declination	42° 23'
Constellation	Ursa Major
Distance from Earth	0.766 AU
Last observed magnitude	5.3
Date of last reported observation	2025-Oct-10
Altitude	27.0°
Azimuth	53° (NE)
Angular separation from Sun	55.4°
Ecliptic latitude	30.0°

Comet observations courtesy of [COBS](#)

On 29 Sept, Chris Bowden braved the early hours to image Comet Lemmon with the added bonus of a solar storm!

Data above is the finder from Heavens-Above. A great resource for finder charts tailored to your location. <https://www.heavens-above.com/>

