Volume 52 Number 8 August 2026

The Celestial Mechanic

The Official Newsletter of the Astronomy Associates of Lawrence

Coming Events

Monthly Meeting
August 22, 2026 7:00PM
Baker Wetlands Discovery Center

Public Observing
August 22, 2026 8:00PM
Baker Wetlands Discovery Center

Club Officers

President
Rick Heschmeyer email

NSN Coordinator
Howard Edin email

Faculty Advisor
Dr. Jennifer Delgado email.

Newsletter Editor
Chuck Wehner email

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Report From the Officers

By Rick Heschmeyer

Our first club meeting of the fall was originally planned for Sunday, August 30, but circumstances forced a reschedule. The new date will be Saturday, August 22. Rick Heschmeyer will present "Rocks from Space", a discussion of asteroids and meteorites, and their effect on the evolution of our planet. The meeting will start at 7 PM at Baker Wetlands Discovery Center. The meeting will be followed by public telescope observing.

On Wednesday, August 12, we have an event scheduled at the KU Field Station to coincide with the annual Perseid Meteor Shower.

On Thursday, August 27 we have a second event at the Field Station to observe the Partial Lunar Eclipse.

Our September club meeting will take place on Sunday, September 27. AAL member David Kolb will present "Mary Emma Byrd, Lawrence's Forgotten Astronomer."

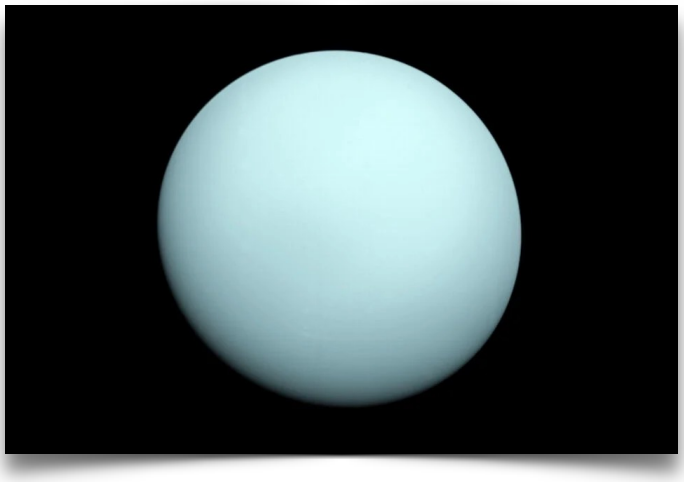
Clear Skies!

Scientists Think Uranus and Neptune May Not Be the Ice Giants We Imagined

The so-called ice giants might not be as ice-rich as many astronomers believe.

By Passant Rabie

Gizmodo, JUNE 26, 2026



Before the Voyager 2 flyby of Uranus and Neptune, these two distant planets were thought to be cold, dead worlds on the outskirts of the solar system. The historic spacecraft visit, however, revealed that there's a lot more to these highly active, complex planets than meets the eye. While the Voyager flyby confirmed the planets' classification as ice giants, there is still ongoing debate over their unique composition. Now, a new study suggests that rather than an icy interior, the two planets have a magma ocean brewing on the inside.

A team of researchers from the University of California is coming for Uranus and Neptune's notorious nickname, suggesting that Uranus and Neptune may be better described as "magma-ocean giants" rather than traditional ice giants. In a recent study submitted to The Astrophysical Journal, the researchers share new insight into the interior structure of the two planets, which they believe could be used to study sub-Neptune exoplanets in the galaxy.

A case of mistaken identity

NASA's Voyager 2 remains the only spacecraft to have visited Uranus and Neptune. On January 24, 1986, Voyager zipped by within 50,640 miles (81,500 kilometers) of Uranus' cloud tops, discovering 11 new moons and two new rings around the planet. Later on August 25, 1989, the spacecraft swooped past Neptune's north pole, discovering six new moons and four ring arcs.

Most of what we know about the two planets is largely based on that one flyby, and both worlds remain shrouded in mystery to this day. As the least explored planets in the solar system, the two planets have never been thoroughly investigated. Therefore, scientists aren't sure where the planets originally formed in the early solar system or the reason for their wildly chaotic magnetic fields.

A long-standing hypothesis suggests that both worlds have a hydrogen/helium atmosphere that covers a vast mantle of ices, made primarily of water, ammonia, and methane, with a rocky core.

The new study, however, notes that the three-layer model of an ice giant's interior structure is not the only way to explain the properties of the two planets. The researchers also point out that objects found in the Kuiper Belt, which are thought to preserve evidence of the material in the outer Solar System where Uranus and Neptune formed, are primarily composed of rock rather than ice.

Ice giants no more?

For the recent study, the researchers simulated different models for the interior processes and composition of Uranus and Neptune. The model that best fits Uranus's and Neptune's different properties suggests the two planets have a well-mixed magma ocean with dissolved hydrogen at the bottom and a hydrogen-dominated envelope at the top.

The model suggests that at high pressures, hydrogen gas can dissolve into magma, forming a well-mixed fluid. This mixing might help explain Uranus's and Neptune's density, which has traditionally been interpreted as evidence for an ice-rich interior.

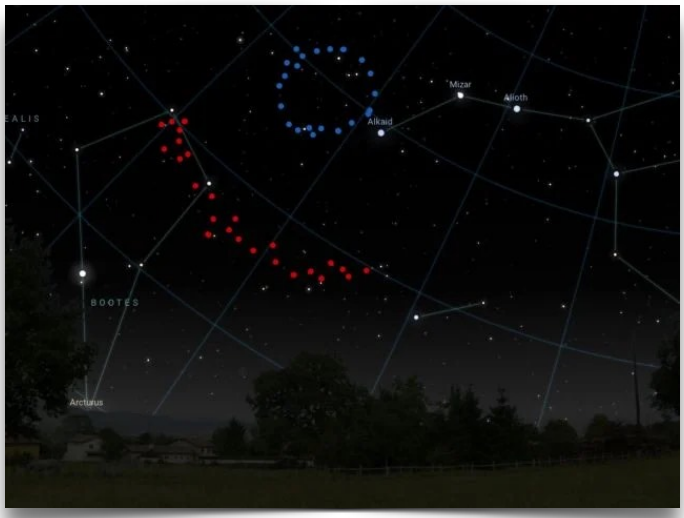
So, do the researchers denounce Uranus and Neptune's long-held classification as ice giants and hail them as magma giants instead? That may take a little longer to stick.

The recent findings could also help scientists understand the interior structure of sub-Neptune planets in the Milky Way, which have thus far remained a mystery. ☀

Mammoth Structure Found in Deep Space Challenges Our Understanding of The Universe

By Michelle Starr

Sciencealert, June 30 2026



The Big Ring (blue) and Giant Arc (red).

A massive structure detected in the distant Universe is defying our understanding of how the Universe evolved.

In 2024, astronomers found a giant, almost perfect ring of galaxies, some 1.3 billion light-years in diameter.

Yes, you read that right. BILLION light-years.

It doesn't match any known structure or formation mechanism.

The discovery, led by astronomer Alexia Lopez of the University of Central Lancashire, was presented at the 243rd meeting of the American Astronomical Society in 2024, and was published in the Journal of Cosmology and Astroparticle Physics.

The signal was picked up in light that has traveled for 6.9 billion years to reach us.

The existence of 'The Big Ring', as the structure has been named, could mean that we need to amend the standard model of cosmology.

It's the second giant structure discovered by Lopez and her colleagues. The first, called the Giant Arc, is actually in the same part of the sky, at the same distance away. When the arc's discovery was announced in 2021, it puzzled astronomers. The Big Ring only deepens the mystery.

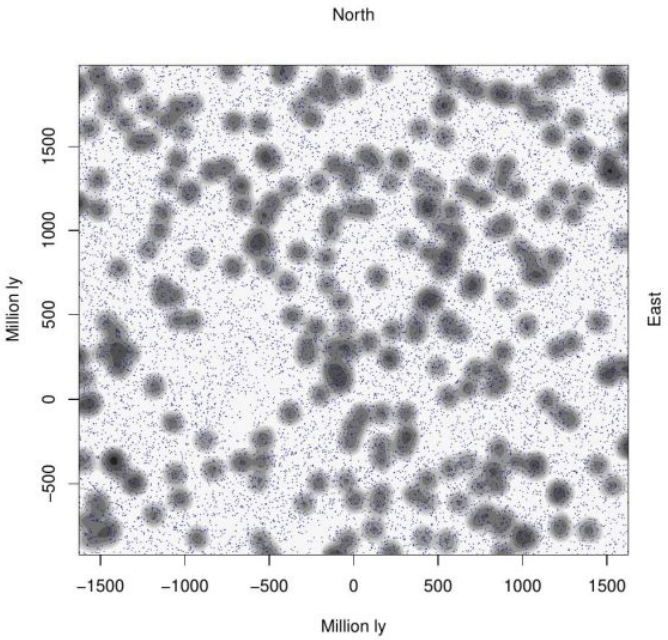
"Neither of these two ultra-large structures is easy to explain in our current understanding of the universe," Lopez said in January 2024.

"And their ultra-large sizes, distinctive shapes, and cosmological proximity must surely be telling us something important – but what exactly?"

The most immediate link seems to be with something called a Baryon Acoustic Oscillation (BAO). These are giant, circular arrangements of galaxies found all throughout space. They're actually spheres, the fossils of acoustic waves that propagated through the early Universe, and then froze when space became so diffuse acoustic waves could no longer travel.

The Big Ring is not a BAO. BAOs are all a fixed size of around 1 billion light-years in diameter. And thorough inspection of the Big Ring shows that it is more like a corkscrew shape that is aligned in such a way that it looks like a ring.

Which leaves the very unanswered question: What the heck is it? And what does it mean for the



A plot of galaxies, showing the Big Ring, roughly centered on 0 on the x-axis.

Cosmological Principle, which states that, in all directions, any given patch of space should look pretty much the same as all other patches of space?

"We expect matter to be evenly distributed everywhere in space when we view the universe on a large scale, so there should be no noticeable irregularities above a certain size," Lopez explained.

"Cosmologists calculate the current theoretical size limit of structures to be 1.2 billion light-years, yet both of these structures are much larger – the Giant Arc is almost three times bigger and the Big Ring's circumference is comparable to the Giant Arc's length."

But the size is just one of the problems. The other is what it means for cosmology, the study of the evolution of the Universe. The current model is the one that currently fits the best with what we observe, but there are some features that are challenging to explain under its framework.

There are other models that have been put forward to address these features. Under one such model, Roger Penrose's conformal cyclic cosmology, in which the Universe goes through endless Big Bang expansion cycles, ring structures are expected – although it's worth noting that conformal cyclic cosmology has significant problems of its own.

Another possibility is that the structures are a type of topological defect in the fabric of space-time known as cosmic strings. These are thought to be like proton-wide wrinkles that emerged in the early Universe as space-time stretched, then froze into place.

We've not found much physical evidence of cosmic strings, but the theoretical evidence is pretty promising.

At the moment, nobody knows for sure what the Big Ring and the Giant Arc signify. They could just be chance arrangements of galaxies twirling across the sky, although the likelihood of that seems pretty small.

The best hope would be to find more such arrangements of galaxies, scattered throughout the Universe, hiding in plain sight.

"From current cosmological theories we didn't think structures on this scale were possible," Lopez said.

"We could expect maybe one exceedingly large structure in all our observable Universe. Yet, the Big Ring and the Giant Arc are two huge structures and are even cosmological neighbors, which is extraordinarily fascinating."

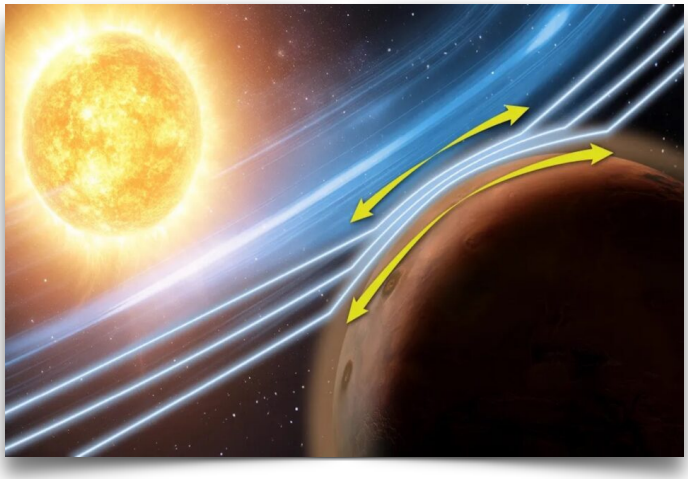
The findings are reported in the Journal of Cosmology and Astroparticle Physics. ☀

NASA's MAVEN Detects Atmospheric Effect on Mars That 'No One Expected'

NASA's MAVEN spacecraft observed the Zwan-Wolf effect deep inside Mars' ionosphere during a solar storm.

BY Passant Rabie

Gizmodo, MAY 19, 2026



We know Mars to be many things: dusty, cold, and missing a global magnetic field. In a recent discovery that baffled scientists, a space weather phenomenon previously associated with powerful magnetic fields was observed on Mars for the first time.

Using data from NASA's MAVEN (Mars Atmosphere and Volatile Evolution) mission, scientists identified the Zwan-Wolf effect in Mars' atmosphere. The phenomenon is known to occur in Earth's magnetosphere, whereby charged particles get squeezed and pushed along magnetic field lines like toothpaste coming out of a tube, according to NASA.

Scientists had previously assumed that Mars wouldn't produce the same large-scale magnetic plasma behavior seen on Earth, as it lacks the same kind of planetary shield. The new findings, published in Nature, change how scientists think about Mars and other unmagnetized worlds.

Magnetic behavior

NASA launched the MAVEN spacecraft to Mars in November 2013 to explore the planet's upper atmosphere and its interactions with the Sun and solar wind. The goal is to better understand how Mars lost

its atmosphere to space roughly 3.5 to 4 billion years ago.

In December 2023, MAVEN watched as a large solar storm hit the Red Planet. While analyzing the data, scientists saw a strange pattern taking place deep inside the Martian atmosphere. “When investigating the data, I all of a sudden noticed some very interesting wiggles,” Christopher Fowler, a research assistant professor at West Virginia University in Morgantown and lead author of the study, said in a statement. “I would never have guessed it would be this effect, since it’s never been seen in a planetary atmosphere before.”

The Zwan-Wolf effect is a phenomenon whereby charged particles are squeezed through magnetic structures called flux tubes when the magnetic field is compressed. On Earth, the effect helps redirect solar wind (a stream of charged particles) around the planet’s magnetosphere. Surprisingly, the MAVEN observations showed plasma inside Mars’ atmosphere behaving like plasma near Earth’s magnetosphere boundary.

“No one expected that this effect could even occur in the atmosphere,” Fowler said. “That’s what makes this even more exciting. It introduces interesting physics that we haven’t yet explored and a new way the Sun and space weather can change the dynamics in the Martian atmosphere.”

Stormy weather

During the 2023 solar storm, the scientists first noticed peculiar fluctuations in measurements of the magnetic field as the MAVEN spacecraft flew through the Martian atmosphere. They then dug deeper inside the data, looking at observations made by several instruments on board MAVEN, including measurements of the charged particle environment in the ionosphere. The ionosphere is the upper layer of the atmosphere where solar radiation strips electrons from atoms, creating electrically charged plasma.

After uncovering more interesting features in the data and ruling out several other possibilities, the team behind the study pinpointed the source as the elusive Zwan-Wolf effect. The study suggests that the Zwan-Wolf effect may be occurring constantly in Mars’ ionosphere, albeit at levels undetectable by MAVEN’s instruments. The effect of the solar storm, however, may have amplified the phenomenon and allowed scientists to observe it in the data for the first time.

“Knowing how space weather interacts with Mars is essential,” Shannon Curry, the principal investigator of MAVEN and research scientist at the Laboratory for Atmospheric Space Physics at the University of Colorado Boulder, said in a statement.

The recent findings will not only help scientists better understand how space weather affects planets like Mars, but they also provide new insights into how the Zwan-Wolf effect may take place at similar unmagnetized bodies like Venus or Saturn’s moon, Titan.

“The MAVEN team continues making new discoveries with our datasets and finding these links between our host star and the Red Planet,” Curry added.

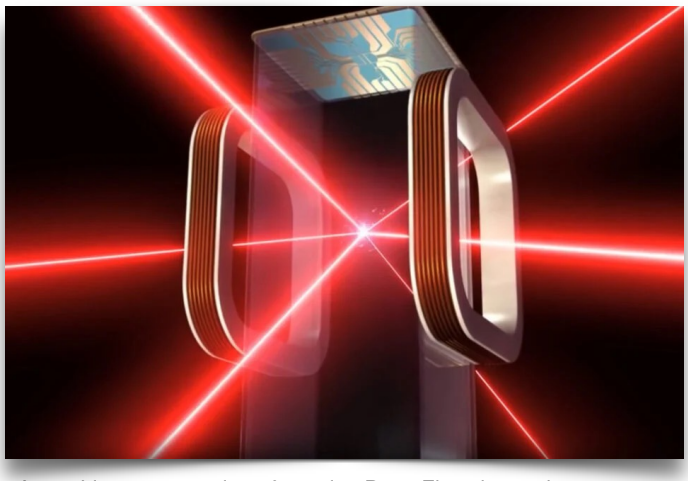
Unfortunately, MAVEN is currently lost in space. NASA lost signal from the spacecraft on December 6, 2025, and has not been able to reestablish connection ever since. The space agency has set up an anomaly review board to assess MAVEN’s current state and the likelihood of its recovery. We hope the Martian probe phones home soon. ☀

NASA Is Making a Fifth State of Matter in Orbit

The lab is about the size of a mini fridge, but it’s tackling questions on a cosmic scale.

By Gayoung Lee

GIZMODO, JUNE 30, 2026



A graphic representation of creating Bose-Einstein condensates at the Cold Atom Laboratory installed at the International Space Station.

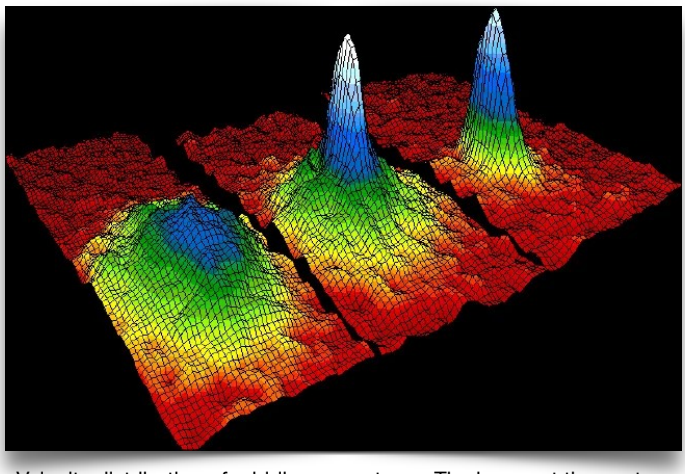
It's sometimes easy to overlook the fact that the International Space Station (ISS) is a giant lab where scientists study everything from biology to physics—but in space. This extraordinary resource makes extraordinary research possible—like creating a fifth state of matter in space.

In a recent statement, NASA announced the launch of the fourth update to the Cold Atom Lab, a "one-of-a-kind" facility to explore quantum theory and applications. The lab is about the size of a mini fridge and operates at temperatures below -459 degrees Fahrenheit (-273 degrees Celsius). With the added factor of microgravity, the lab's conditions are ideal for investigating a quantum object called a Bose-Einstein condensate—a "fifth" state of matter beyond solids, liquids, gases, and plasma.

"In the previous century, there was a quantum revolution that led to lasers, cellphones, and MRIs for medical imaging," Ethan Elliott, deputy project scientist for Cold Atom Lab at NASA's Jet Propulsion Laboratory (JPL), said in the statement. "We're performing quantum 2.0—direct manipulation of large quantum states—and we hope for similar gains in quantum tech by advancing this science in orbit."

Nobel-winning physics

In 1924, Albert Einstein predicted that at near-absolute zero temperatures, separate atoms would consolidate into a single quantum entity described by wave functions. Einstein built upon quantum formulations by Indian physicist Satyendra Nath Bose. Hence, the idea came to be known as the Bose-Einstein condensate.



Velocity distribution of rubidium gas atoms. The image at the center represents the Bose–Einstein condensate.

However, creating and maintaining those states proved difficult, and it was only in 1995 that researchers first succeeded in realizing Bose-Einstein condensates. (These physicists were co-awarded the 2001 Nobel Prize in Physics for this achievement.) When the condensates became reality, scientists also realized that the rare systems were related to two critical low-temperature phenomena: superfluidity (liquid movement with zero friction) and superconductivity (electron movement with zero resistance).

Cold and floaty

The Cold Atom Lab's goal is to better understand those properties, as superfluid, superconducting materials will be key to creating next-generation quantum technologies. The lab leverages how the microgravity of low Earth orbit amplifies the wave functions created by the condensates. According to NASA, these conditions allow researchers to study larger quantum waves for a longer period of time compared to Earthbound labs.

"Ultracold matter can behave in ways that are not only unexpected but that also enable extremely precise measurements of time, gravity, and motion," said Jason Williams, a JPL scientist affiliated with the Cold Atom Lab. "The lab has lots of tools—especially with this latest upgrade—to let us probe the nature of the universe."

Each experiment operates on an instrument collection called the science module. First, researchers heat up a strip of rubidium or potassium metal up to 740 degrees F (400 degrees C), which fills a vacuum chamber with gas. Then lasers fire at the gas, which drains energy from and cools down the gas atoms. Finally, a magnetic trap holds the gas in place, after which researchers apply finishing touches to further decrease the temperature, "bringing it close to a standstill and maximizing its time in microgravity," NASA explained.

"It's the closest thing we have to controlling the boundary of the quantum world," said Kamal Oudrhiri, project manager of Cold Atom Lab. "This new upgrade pushes that boundary even further." ☀

Astronomers discover radio signals coming from rare 'Blue Eye Pulsar' after decades of silence

By Keith Cooper

SPACE.COM, JULY 6, 2026

Silent neutron stars at the center of supernova blast sites may actually be whispering softly, following the detection of faint radio emissions coming from one such object for the first time. The discovery raises the prospect that there could be many more pulsars in our galaxy than we thought.

When a massive star explodes as a supernova, the devastation leads to the star's core collapsing under its own gravity to form either a neutron star or a black hole. When a neutron star is formed, it is born spinning and its magnetic field is usually powerful enough to whip up charged particles and beam them away in a jet moving at close to the speed of light. This jet emits radio waves, and as the neutron star spins we see this radio jet flashing in our direction. This makes it seem like the neutron star is pulsing, hence we call it a pulsar.

Puzzlingly, not all neutron stars at the center of supernova remnants are pulsars. About a dozen discovered so far have been dead quiet in radio waves, and astronomers call these quiet neutron stars 'central compact objects', or CCOs. One possible explanation for CCOs is that their magnetic fields are too weak to produce detectable radio jets. For decades, astronomers have tuned into them, finding only radio silence — until now.

A team led by Zhang Lei of the National Astronomical Observatories of the Chinese Academy of Sciences tuned into one particular CCO, named 1E 1207.4-5209 with the MeerKAT radio telescope in South Africa. They discovered that the CCO is pulsing with radio waves after all, but very faintly, once every 424 milliseconds. This matches the known spin period of the pulsar – it's a veritable whirling dervish.

Found at the center of a supernova found 10,000 light years away within our Milky Way galaxy, 1E 1207.4-5209 has been nicknamed the "Blue Eye Pulsar" by Li Di, a professor of astronomy at Tsinghua University in China. Its name is a virtue of the fact that when the faint radio emission is combined with X-ray images that show the neutron star shining brightly, it looks like a blue eye.

The Blue Eye Pulsar has an intriguing history. The supernova that formed it exploded over 4,100 years ago. In 2015, X-ray observations noted that the pulsar had experienced a 'spin glitch', which is a small increase in rotation of a neutron star probably caused by some kind of disruption or shifting of material within the neutron star's dense interior.

Lei's team propose that this glitch either strengthened or reoriented, or both, the magnetic field of the Blue Eye Pulsar sufficiently to trigger radio emissions, or at least make feeble radio waves that were already there detectable.

Following a glitch, a neutron star's rotation rate gradually slows back down to its original rate, at which point we might expect the Blue Eye Pulsar's radio emission to switch back off. Lei's team suggests that continued monitoring of the Blue Eye Pulsar could answer this question.

The Blue Eye Pulsar presented in the style of the classic painting "Five Horses" from the Song dynasty, back to which the first complete human record of a supernova explosion dates.

If that answer is what Lei's team think it to be, then it could mean that there is a large population of very feeble pulsars that remain undetected in the galaxy. Old pulsars, which persist long after the supernova remnant they were born in has dissipated, are also fairly quiet radio emitters because they are slowing their spin rate over time. However, it is possible that we have misidentified some of these pulsars as being old when they could in fact be relatively young but softly radio emitting.

The findings may also explain why some supernova remnants seem to be missing pulsars. Key among them is the expanding cloud of debris formed from the explosion of supernova 1987A in the Large Magellanic Cloud. Although astronomers are pretty sure there is a neutron star in the heart of the remnant based on indirect evidence, no pulsar radio emissions have yet been detected.

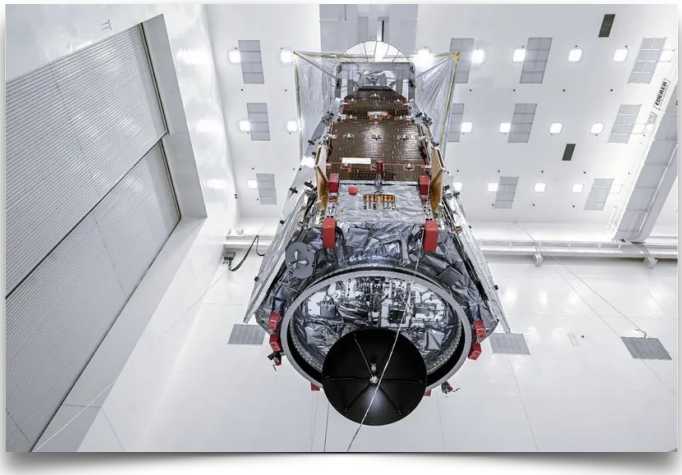
The detection of radio waves from the Blue Eye Pulsar was reported June 25 in Nature Astronomy. ☀

NASA's Roman Space Telescope prepares for launch | Space photo of the day for July 8, 2026

By Chelsea Gohd

SPACE.COM, JULY 8, 2026

Roman is in Florida, getting ready for its August liftoff.



NASA's Nancy Grace Roman Space Telescope is hanging out in the clean room at the Kennedy Space Center (KSC) in Florida, preparing for its epic journey to space.

What is it?

Roman is NASA's next big flagship mission, designed to explore the universe like we've never seen it before. And with just over a month and a half until its expected launch on Aug. 30, it is in the home stretch to liftoff.

After recently leaving NASA's Goddard Space Flight Center in Maryland, where the telescope was assembled and tested, Roman made its way to KSC, from where it will launch. In this new photo, snapped on June 26, we can see Roman seemingly floating in mid-air, hanging inside the Payload Hazardous Servicing Facility, a secure clean room at KSC where spacecraft are fueled, tested and otherwise prepared for flight. In this moment, technicians and engineers were using a crane to lift Roman into the air into a specialized stand, where the telescope can rest while it is worked on.

Why is it incredible?

Roman — named for the pioneering astronomer Nancy Grace Roman, who served as NASA's first chief of astronomy and expanded our understanding of the universe — is a mission that scientists have been waiting for for a long time.

With a field of view at least 100 times larger than the iconic Hubble Space Telescope, Roman will be able to capture immense views across the universe. The mission will explore dark matter and dark energy, and with its tech demonstration the Roman Coronagraph Instrument, it will snap images of exoplanets, offering direct looks at worlds far from our solar system. ☀

The Backyard Observer, August 2026

By Rick Heshmeyer

Scutum

Draco During the hot summer months, as we gaze into the center of our Milky Way Galaxy, observer's eyes are generally focused on the constellations Sagittarius and Scorpius. Often neglected is a small constellation north of the "Teapot" named Scutum, the Shield. Originally named by Johannes Hevelius in the 17" century as "Scutum Sobiescianum", meaning the Shield of Polish King Sobieski. It was shortened to Scutum by the IAU when the current 88 constellations became official. While Scutum is small in stature, it packs a punch for its size with interesting objects.

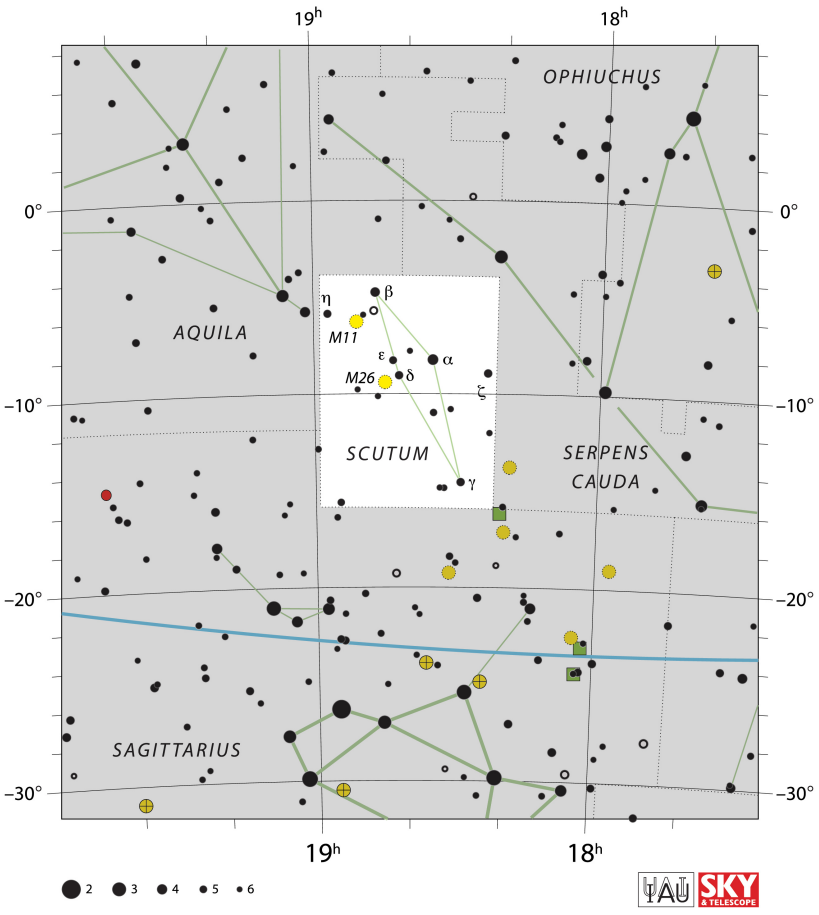
Alpha Scuti, also known as Tianbian. It is also known as 1 Aquilae, since Flamsteed did not recognize the constellation Scutum when he was compiling his catalog. As a result, all the stars of Scutum are assigned Flamsteed numbers. The name Tianbian is actually the Chinese name for the constellation and was adopted by the IAU as the official name of its brightest star.

Delta Scuti is a blue-white star that is currently 200 light years from Earth and shines at a magnitude of

4.7. Delta Scuti is travelling in our Solar System's direction through space. In fact, within a little more than a million years, it will come within 10 light-years of the Sun and shine brighter than Sirius in our night sky.

There are two Messier objects within Scutum as well. The best is Messier 11, a bright open star cluster.

The cluster has a distinction V-shape, and as a result is called the Wild Duck Cluster, due to its resemblance to a flock of flying fowl. It lies a distance of over 6000 light-years, with a magnitude of 6.3, just visible to the naked eye from a dark site. In fact, of the 26 open clusters in Messier's catalog, it is the most distant that can be seen with the unaided eye. The cluster contains about 2600 stars. It is visible as a triangular patch of light in binoculars, but telescopes are needed to resolve the stars in the cluster.



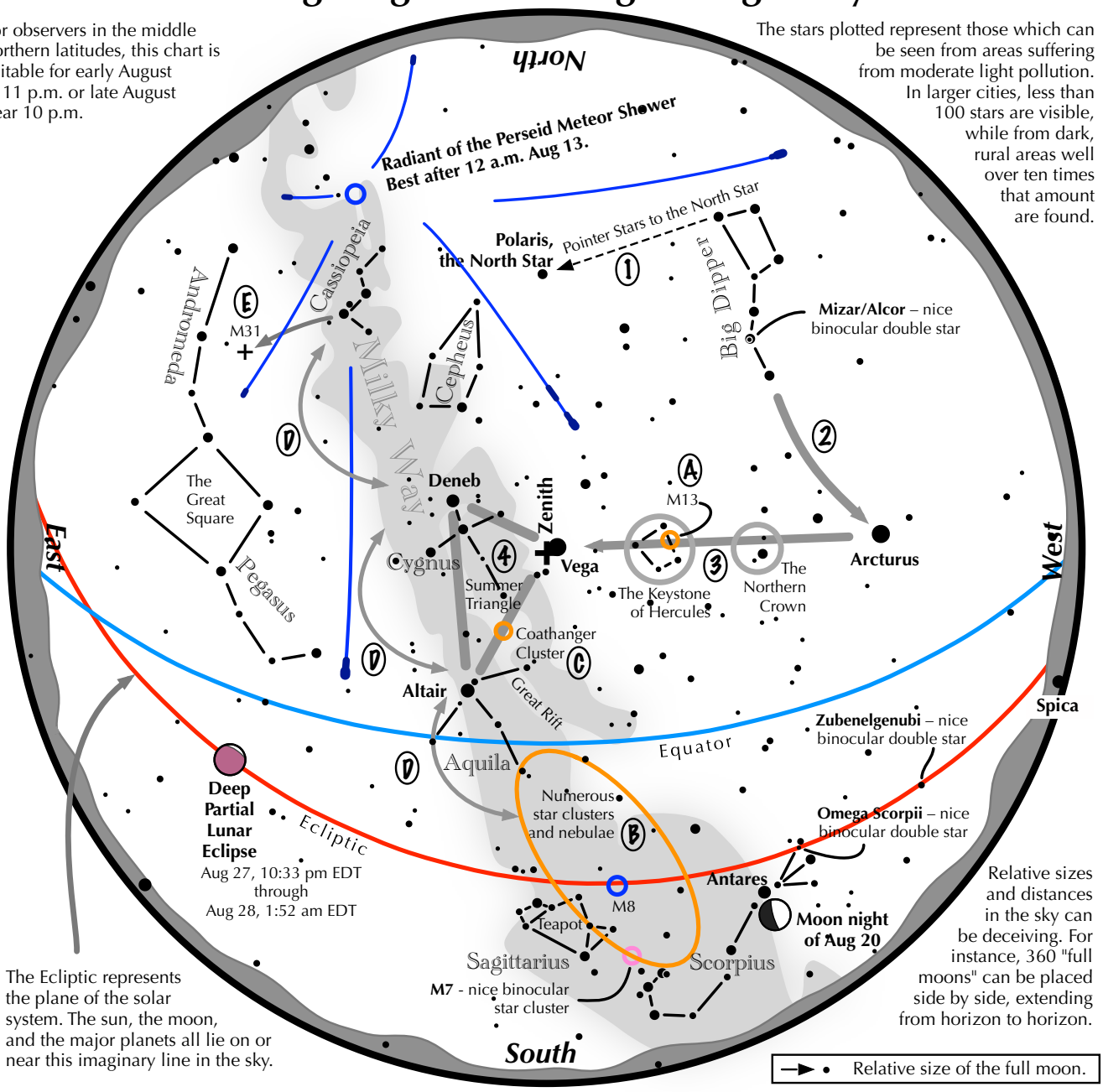
The second Messier object in Scutum is Messier 26, also an open star cluster. Being 8* magnitude, this cluster is a challenge with binoculars. Small telescopes will show about 25 cluster stars well. The cluster is compact in appearance, and small. Admiral William Henry Smyth. In 1935, called the cluster an "astral splash in this crowded district of the Galaxy.

Spend time looking south during the summer months and take in some of the sights of lesser-known constellations. Hopefully you will find more of Admiral Smyth's "astral splashes".

Navigating the mid August Night Sky 2026

For observers in the middle northern latitudes, this chart is suitable for early August at 11 p.m. or late August near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

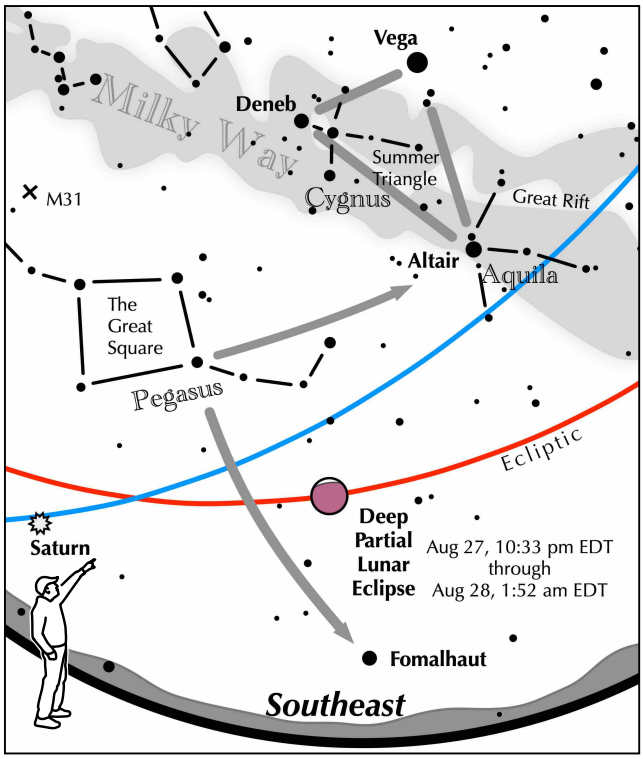
Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

Navigating the mid August night sky: Simply start with what you know or with what you can easily find.

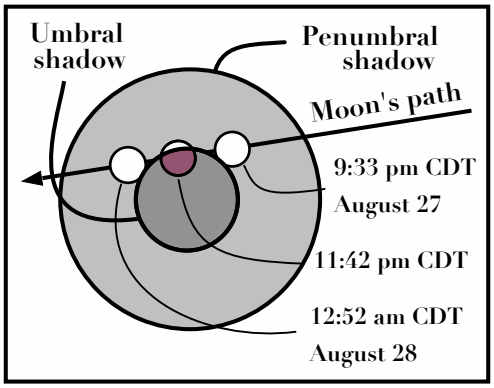
1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the June evening sky.
3. To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
4. High in the East lie the summer triangle stars of Vega, Altair, and Deneb.

Binocular Highlights
A: On the western side of the Keystone glows the Great Hercules Cluster.
B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
D: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
E: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

If you can observe only one celestial event in the evening this August, see this one.



View to the southeast on August 27-28
Mid eclipse: Aug 27, 11:42 pm CDT



The Moon slides through a deep partial eclipse

In the late evening hours on August 27 into the early morning hours on August 28, the brilliant full moon slides into Earth's shadow.

- Even though the partial umbral eclipse begins at 9:33 pm CDT on Aug 27, any dark bite might not be noticed for another 5 minutes.
- At mid eclipse (11:42 pm CDT Aug 27) when 93% of the moon lies in the umbral shadow, what color is the moon? How red is it?
- Do you notice that the shadow's edge is not straight, but curved?

About Astronomy Associates

The club is open to all people interested in sharing their love for astronomy. Monthly meetings are typically on the last Sunday of each month and often feature guest speakers, presentations by club members, and a chance to exchange amateur astronomy tips. These meetings and the public observing sessions that follow are scheduled at the Baker Wetlands Discovery Center, south of Lawrence. All events and meetings are free and open to the public. Periodic star parties are scheduled as well.

Because of the flexibility of the schedule due to holidays and alternate events, it is always best to check the Web site for the exact Sundays when events are scheduled.

Copies of the Celestial Mechanic can also be found on the web at newsletter.
Annual Dues for the club are: $12 for regular members; $6 for students Membership forms can be accessed at the club website form.