Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 34, No. 2 ***Three-Time*** *Winner of the Astronomical League's Mabel Sterns Award ☼ 2006, 2009 & 2016* *February 2026*

In This Issue

Membership Renewals Due

02/2026	Buki Murphy Ruggeri Sutton Tronel Varada
03/2026	Angelini, Jr. DellaPenna Fulton Han Family Narikimelli Rainville Sterrett
04/2026	Adem Breckenridge Dennis McCabe Miles Miller Rossomando Tredinnick

Aurora over the Scottish Highlands

Image by Liz Smith. These Aurora images were taken January 19th in Oban, Scotland - around 9:00 pm. UT. There was extensive cloud cover but then the glow started in the northern sky. From there, you could see the reds coming into view and about 5 minutes, after that, the clouds broke and the sky lighten up to lime green.

February 2026 Dates

1st • Full Moon, the Snow Moon, (5:09 p.m. EST).

2nd • The Moon passes 0.4° north of Regulus, 10 p.m. EST.

3rd • Uranus is stationary, midnight EST.

9th • Last Quarter Moon, 7:43 a.m. EST.

10th • The Moon passes 0.7° south of Antares, 11 p.m. EST.

17th • New Moon, 7:01 a.m. EST.

19th • The Moon passes 4° north of Neptune & 5° north of Saturn, 7 p.m. EST.

24th • First Quarter Moon, 7:28 a.m. EST.

27th • The Moon passes 4° north of Jupiter, 1 a.m. EST.

CCAS Upcoming Nights Out

In addition to our monthly observing sessions at the Myrick Conservancy Center, BRC (for directions, see pg. 13), CCAS schedules special "nights out" throughout the year. Members are encouraged to help out during these events any way they can. See below for more information.

☼ Thursday, March 5,2026 - STEM night at Greenwood Elementary School, Kennett Square, 6:00 to 8:00 PM EST.

☼ Saturday, March 7,2026 - Coatesville Star Party, Hibernia County Park, Parking at pavilion #5 lot, 6:00 to 10:00 PM EST.

For more information about future observing opportunities, contact our Observing Chair, Don Miller.

Winter/Spring Society Events

February 2026

6th • West Chester University Planetarium Show: "Star Clusters: Cosmic Crowds" in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour in length. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

10th • CCAS Monthly Meeting in Room 112, Merion Science Center, WCU (as well as via Zoom). The meeting starts at 7:30 PM, EST. Dr. Becka Phillipson, Assistant Professor in the Department of Physics at Villanova University. Her presentation is titled "Chaos in the Cosmos!" and will commence at 8:00 PM EST.

20th • Open call for articles and photographs for the March 2026 edition of Observations.

20th • West Chester University Planetarium Show: "Journey to the Outer Planets" in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour in length. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

26th • Deadline for newsletter submissions for the March 2026 edition of Observations.

March 2026

5th • STEM night at Greenwood Elementary School, Kennett Square, 6:00 to 8:00 PM EST.

7th • Coatesville Star Party, Hibernia County Park, Parking at pavilion #5 lot, 6:00 to 10:00 PM EST.

8th • Daylight Saving Time begins at 2:00 AM. Turn clocks forward one hour.

17th • Equilux in West Chester, PA. Equal night and day.

18th • Beginner Astronomy Class: Spaceship Earth – the Sun and Its Effects on the Earth. 7:00 to 8:00 PM EDT. Peirce Middle School, 1314 Burke Road, West Chester, PA 19380.

20th • Open call for articles and photographs for the April 2026 edition of Observations.

20th • Equinox at 10:46 AM EDT. First day of spring in the northern hemisphere.

20th • West Chester University Planetarium Show: "The First Galaxies" in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour in length. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

25th • Beginner Astronomy Class: Other Kids on the Block – the Planets. 7:00 to 8:00 PM EDT. Peirce Middle School, 1314 Burke Road, West Chester, PA 19380.

26th • Deadline for newsletter submissions for the April 2026 edition of Observations.

January 2026 Meeting Minutes

by Bea Mazziotta, CCAS Secretary

- The January meeting of the CCAS was held on Tuesday January 13, 2026, in person at WCU, and via Zoom and YouTube. Club president Dave Hockenberry welcomed attendees.
- Don Miller, Observing Chair, reviewed upcoming club and outreach events, both solar and night sky. He requested volunteers to assist at the outreach events and will send out a list for sign-ups.
- Don Knabb announced that beginner astronomy classes will once again be taught by club members and held at Pierce Middle School. They will be held weekly starting on 3/18 and concluding on 4/22. Club members are welcome to attend at no cost WITHOUT registering.
- Don Miller was recently interviewed for West Chester Neighbors Magazine. The article extensively features CCAS and its activities.
- Dave Hockenberry distributed the NASA Night Sky Awards to members. These are given in recognition of community outreach efforts.
- Bruce Ruggeri discussed the club scholarship fund which is entering its 4th year. Donations are requested with the fund looking to award two more scholarships this year. Recipients are chosen by West Chester University. Bruce also reviewed some of the topics for upcoming meetings and asked members to suggests topics for next year's meetings. Go to CCAS.us for more information on all of the above.
- Bruce welcomed the evening's speaker Dr. Naoko Kurahashi-Neilson. She is an astrophysicist, neutrino astronomer and professor at Drexel University. Her presentation, titled *Seeing the Universe from the South Pole -New Insights in Neutrino Astronomy*, focused on observing the universe differently through high-energy neutrinos. Her observatory is located at the geographic South Pole in Antarctica.

February 2026 CCAS Meeting Agenda

by Bruce Ruggeri, CCAS Program Chair

Our next meeting will be held on February 10, 2026, in person at West Chester University's Merion Science Center, Room 112. The Science Center is located at 720 S. Church St., West Chester, PA.

Our speaker for the evening is Dr. Becka Phillipson, Assistant Professor in the Department of Physics at Villanova University. Her presentation is titled "Chaos in the Cosmos!" and will start at 8:00 P.M. EST.

Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

As for future meetings, we are looking for presenters for the coming 2026-2027 season. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

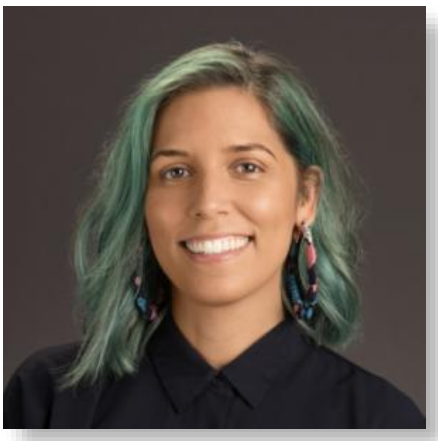
February 2026 Monthly Meeting Guest Speaker

by Bruce Ruggeri, Program Chair

I am pleased to announce the in-person and Zoom February 2026 meeting for Tuesday, February 10th beginning informally at 7:00 p.m. EST, with the meeting program commencing at 7:30pm. Our in-person speaker is Dr. Becka Phillipson, Assistant Professor in the Department of Physics at Villanova University. The presentation will commence at 8:00 PM EST.

Our meetings are held at West Chester University's (WCU) Merion Science Center, Room 112. The Science Center is located at 720 S. Church St. in West Chester. **Please make every effort to attend this monthly meeting in person to meet Dr. Phillipson!**

The presentation title, synopsis and brief bio sketch for Dr. Phillipson are provided in the paragraphs that follow.



Becka Phillipson, Ph.D.
Assistant Professor, Physics Villanova University

Title: Chaos in the Cosmos!

Synopsis: Chaos describes a system that is predictable in principle but unpredictable in practice. In other words, although the system follows deterministic rules, its time evolution appears random. Chaos theory, a branch of nonlinear dynamics, has been invoked to explain complex systems in nature, such as the weather, and underpins the fantastic mathematical phenomena of fractals.

In this talk, Dr. Phillipson will walk through the basic requirements for chaos to occur, how we study it (through geometry!) using nonlinear dynamics techniques with machine learning, and how chaos shows up in the most dramatic ways in our universe, from the tumbling of small moons to the outbursts around hungry black holes and neutron stars.

Overview and Bio sketch: Becka Phillipson is a pioneer in the study of chaotic variability and nonlinearity of astrophysical systems, particularly those involving compact objects like black holes and neutron stars.

(Continued on page 13)

Holiday Visit with the Founder of the Chester County Astronomical Society

by former CCAS President Kathy Buczynski

L.-to-R.: Don Knabb, CCAS Treasurer, CCAS Founder Ed Lurcott, & former CCAS President Kathy Buczynski

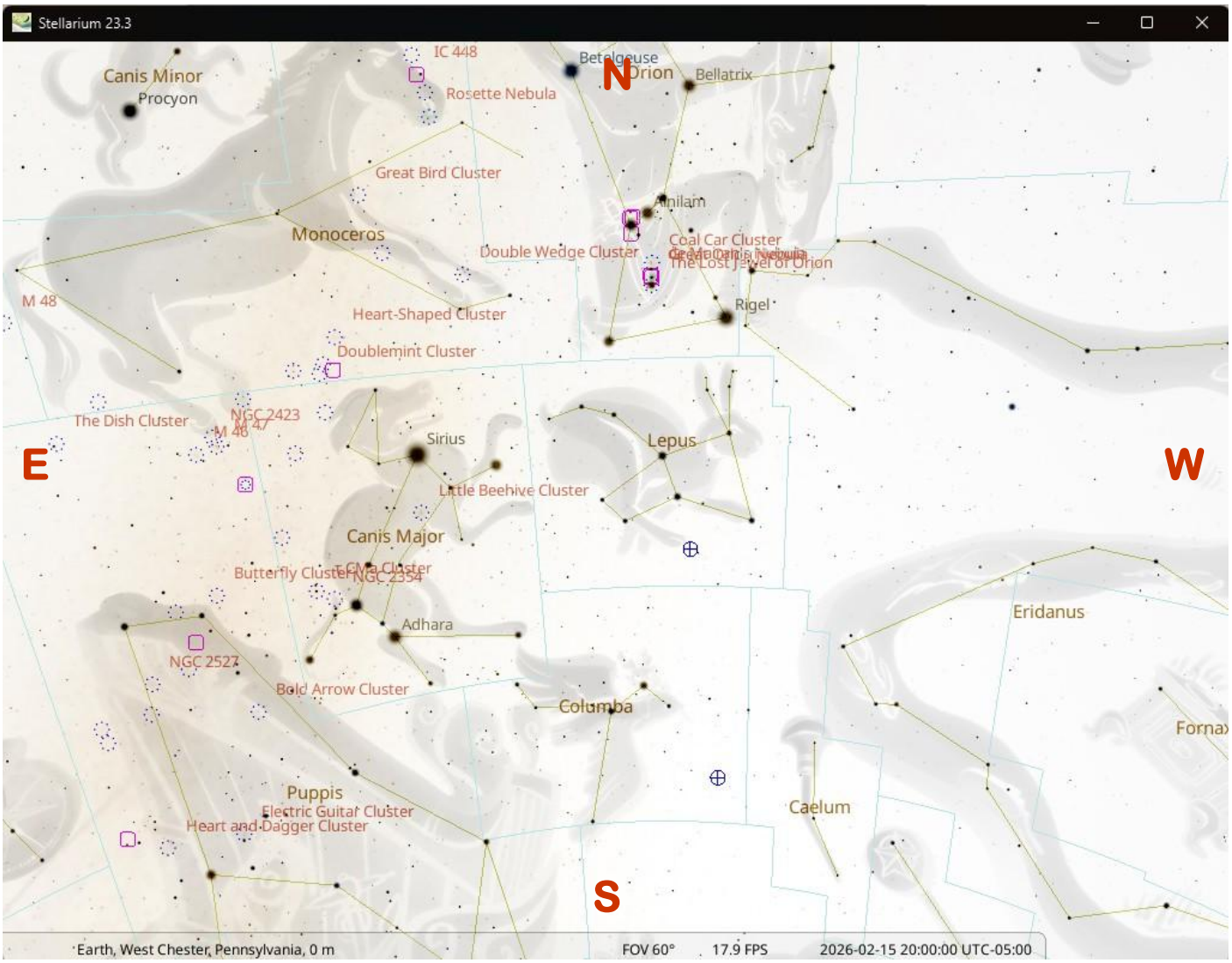
Don Knabb and I were privileged to visit Ed Lurcott, Founder and President Emeritus of CCAS, a few days before Christmas. We had a great visit where Ed sat in a chair next to a sunny window and was amongst much of his memorabilia of astronomy photos and trains. We recalled many of the wonderful times in the club's early days. Ed was cheerful and kind, as always, and was happy to see us.

The Chester County Astronomical Society would not exist without the leadership and the enthusiasm of this wonderful gentleman. For this I thank him.

The Sky Over Chester County

February 15, 2026 at 8:00 p.m. ET

Note: This screen capture is taken from Stellarium, the free planetarium software available for download at www.stellarium.org.

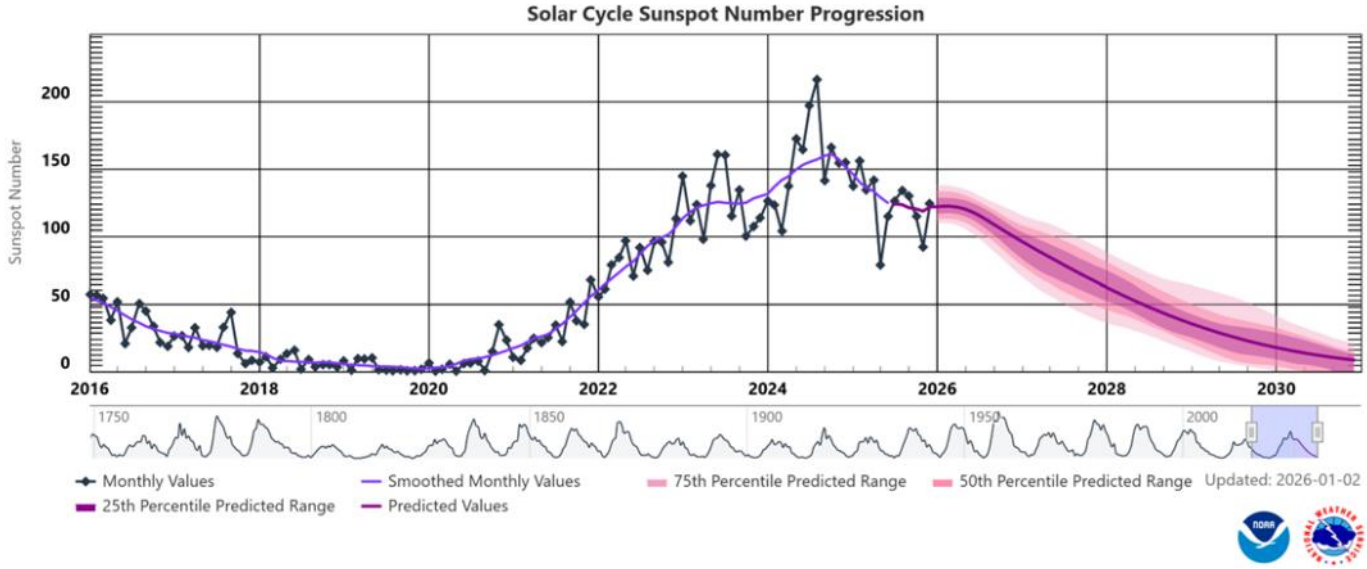


Date	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Length of Day
02/01/2026	6:42 a.m. EST	7:10 a.m. EST	5:21 p.m. EST	5:50 p.m. EST	10h 11m 03s
02/15/2026	6:27 a.m. EST	6:55 a.m. EST	5:38 p.m. EST	6:06 p.m. EST	10h 43m 22s
02/28/2026	6:09 a.m. EST	6:37 a.m. EST	5:53 p.m. EST	6:20 p.m. EST	11h 16m 11s

Moon Phases					
			Full Moon	02/01/2026	5:09 p.m. EST
Last Quarter	02/09/2026	7:43 a.m. EST	New Moon	02/17/2026	7:01 a.m. EST
First Quarter	02/24/2026	7:27 a.m. EST			

February 2026 Observing Highlights

by Don Miller, CCAS Observation Chair



Key Events this month:

There are several planetary items of interest this month. Mercury will be at its greatest elongation on the 19th. We'll have another parade of planets near the end of the month similar to the one we have last year.

Jupiter will be in command of the night skies this month.

While not a February event, a total lunar eclipse will occur on the 3rd of March but in the wee hours of the morning, starting at 3:44 am for us and only reaches maximum as the sun rises at 6:29 am.

Discussion:

February is one of the coldest months and as Dave Hockenberry would say, only a few of us are crazy enough to go outside and do some astronomy. In case you are one of those hardy (or just crazy) individuals, these highlights are for you.

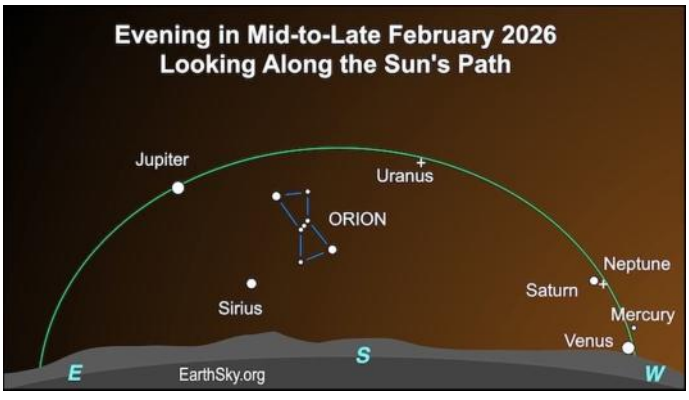


Image courtesy EarthSky.org

Sun:

The sun's activity is on the downward side of the solar maximum for this cycle, but it is still showing a lot of activity. The latest cycle curve is presented below. As the writing of this highlight, the sunspot number is 162.

Moon:

Full on the 1st; last quarter on the 9th and new on the 17th and 1st quarter on the 24th. The name of the full moon this month is the "wolf moon." Keep an eye on NASA's Artemis program which could be launching the Artemis II mission this month which will be the first time in over 50 years that humans will circle the moon.

Planets:

Another parade of planets towards month's end.

Mercury: At greatest elongation on the 19th.

Venus: This planet will become visible mid-month in the western twilight.

Mars: Not visible.

Jupiter: Visible all night and what a sight. Enjoy! If you haven't observed the events due to the motion of the four Galilean moons, go to this link and see when something will be happening, https://www.projectpluto.com/jevent.htm#feb.

Saturn: Low in the western sky and becoming a challenge to observe.

(Continued on page 7)

Through the Eyepiece: The Kite Cluster, NGC 1664

by Don Knabb, CCAS Treasurer & ALCOR

Sky map created using Stellarium, the free planetarium software

The Kite Cluster, NGC 1664, also listed as Melotte 27 and Collinder 56, is an open cluster in the constellation Auriga. It is not far from the bright star Capella as you can see from the sky chart below in which NGC 1664 is above and to the right of Capella.

One observer calls the Kite Cluster "a quaint cluster of over 100 dim stars" and "a firefly near the fireworks". The fireworks he is referring to are the open clusters M36, M37 and M38 in Auriga. These three clusters are beautiful, bright and large. The Kite Cluster is not as impressive as those three clusters but as this observer says, "its subtlety is charming".

Another observer calls NGC 1664 "a unique-appearing open cluster that is often overshadowed by the wealth of other clusters in the region. The primary stars of the main cluster form a diamond-shaped outline with a trail of similar stars extending off one of the four corners. To my eye this appears strikingly like a flying kite with a tail."

Other observers have seen a heart-shaped balloon. Walter Scott Houston nicknamed NGC 1664 the "4-H cluster" because it had the appearance of a four-leaf clover that most farm children recognize as the symbol of the 4-H club.

At lower magnification NGC 1644 is described as "powdered

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2025 Ecology Review: The Hidden Cost of Light Pollution on Wildlife

by Bill McGeeney, Host of Light Pollution News Podcast

Hi all, many folks don't realize the true magnitude of the impact of artificial light at night. It's not that artificial light itself is inherently dangerous, nor is it true that we shouldn't have any artificial light. Rather, in our modern world, we lack any responsible behavior with our lighting, creating a hazardous nighttime environment that offers little protections in the way for mammals, insects, and even plants/trees. While you may have the ability to just "close the curtain," nature doesn't.

I put this teaser together regarding the most impactful ecology and environment related research and news articles during the 24 Light Pollution News podcast episodes from 2025. You can find the full details on the 49 research and news articles at the link below. Unlike persistent chemical contaminants, many of these ecological impacts can be quickly reversed once communities commit to simply being responsible with their lighting.

For the complete review with links to all research articles, visit lightpollutionnews.com/research/2025-review-impact-of-artificial-light-at-night-on-environment

Underground Impacts

A nine-year field study documented how blue-spectrum streetlights reduce earthworm populations and biomass while disrupting soil aggregation patterns. When researchers tested whether grass spiders prioritize prey or light when building webs, 79% of light-exposed spiders chose illuminated corners without prey over dark corners with abundant insects. UK weather radar tracking from 2014-2021 revealed consistent nocturnal insect declines, especially moths in northern regions, with both day and night species avoiding light-saturated areas.

Avian Disruption

Atlantic puffin fledgling experiments in Newfoundland showed young birds chose every illuminated path regardless of bulb type, sodium vapor and all LED wavelengths attracted equally. Researchers concluded that only eliminating coastal lighting during fledging prevents puffin strandings. Global studies document songbirds extending daily activities unnaturally under nighttime brightness, with compromised immune function in lit environments. Species specific vulnerabilities require tailored conservation approaches.

Aquatic System Changes

Coral reef experiments revealed 25 consecutive nights of illumination kept daytime-hunting fish active after dark, fundamentally altering predator-prey timing. Young salmon face heightened predation where lights reach waterways, while amphipods show sex-specific responses potentially skewing population ratios. Coastal lighting links to harmful algal blooms, with extended light exposure favoring toxic varieties.

Conservation Progress

Hawaiian Electric lawsuits established enforceable deadlines for lighting modifications protecting seabirds. Houston and Philadelphia Lights Out campaigns measured real reductions in migration-period bird deaths. Motion-activated LED systems cut bat exposure while preserving safety. Spectral research confirms amber and red wavelengths harm insects less than blue-heavy white light. Lake Erie communities voluntarily darken streetlights during mayfly emergences, while Austin integrated window treatments with strategic lighting placement. Evidence shows mandatory regulations paired with architectural standards remain essential for wildlife protection at scale.

Observing (Cont'd)

(Continued from page 5)

Uranus: Visible until around mid-night.

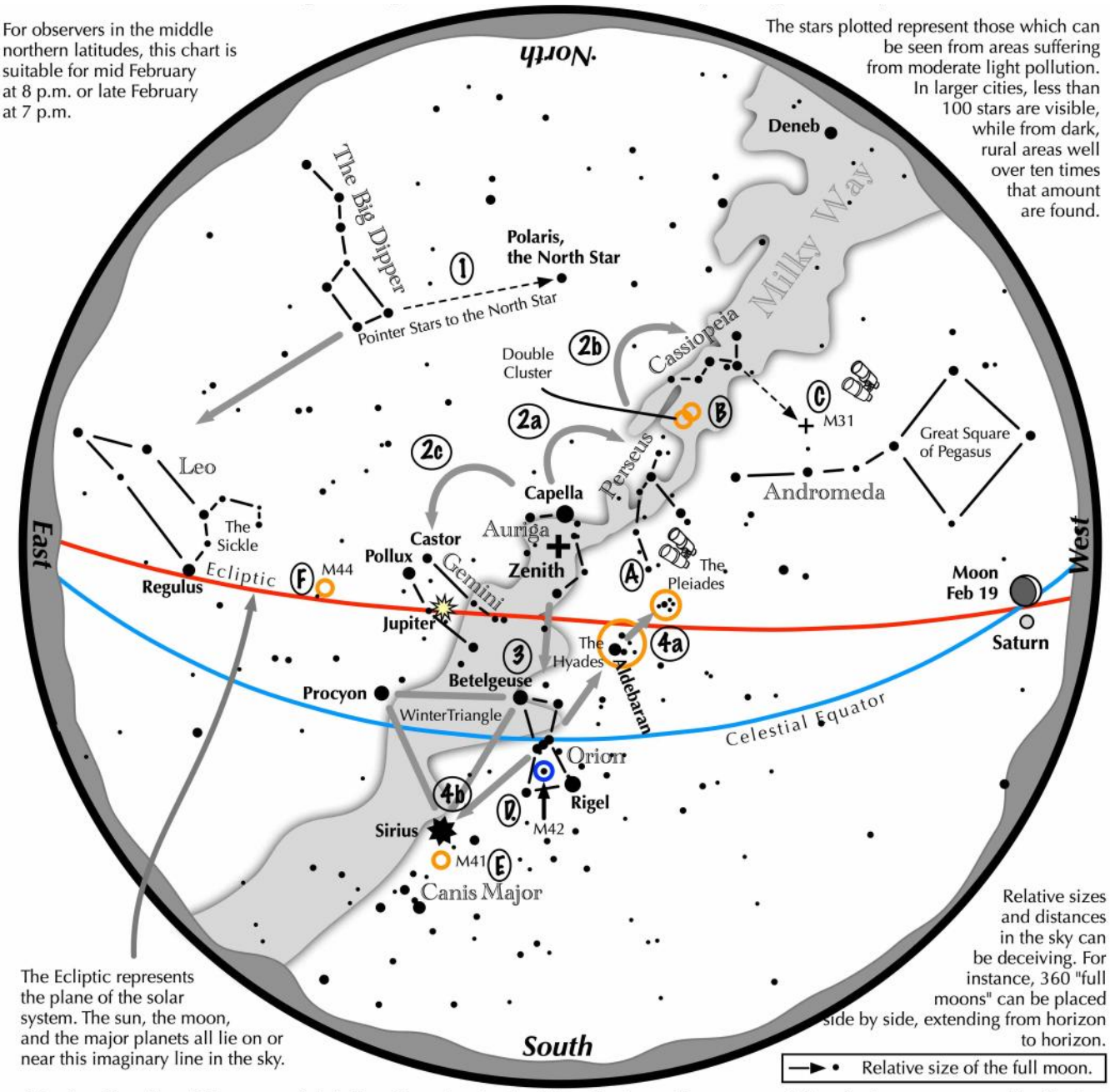
Neptune: Heading to solar conjunction and becoming non-observable by month's end.

Select Night Sky Objects and Events:

I love February for its incredible clear night skies (if the weather cooperates) and the wonder of some of the most amazing constellations and what they contain. Orion is the hunter for all time with M42 blazing away in his sword. The beehive cluster (M44) is easy to spot in Gemini. The Pleiades (M45) is always a treat to see and if you have the equipment, photograph. I always enjoy staring into the crab nebula (M1) and if you have a wide-field scope the open cluster in Gemini (M35).

Navigating the mid-February Night Sky

courtesy of the Astronomical League



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

1. Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
2. Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
3. Directly south of Capella stands the constellation of Orion with its three Belt stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
4. Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius, a member of the Winter Triangle.

Binocular Highlights

A: Examine the stars of two naked eye star clusters, the Pleiades and the Hyades.
B: Between the "W" of Cassiopeia and Perseus lies the Double Cluster.
C: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.
D: M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies southeast of Pollux.

Astronomical League *www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.*

2026 Will Be a Big Year for Space Science

by Grant Tremblay, The Conversation

In 2026, astronauts will travel around the Moon for the first time since the Apollo era, powerful new space telescopes will prepare to survey billions of galaxies, and multiple nations will launch missions aimed at finding habitable worlds, water on the Moon and clues to how our solar system formed.

Together, these launches will mark a turning point in how humanity studies the universe – and how nations cooperate and compete beyond Earth. Coming from one of the world's largest astrophysical research institutes, I can tell you, the anticipation across the global space science community is electric.

Several of the most ambitious missions slated for launch in 2026 share a common goal: to map the universe on the largest possible scales and reveal how planets, galaxies and the largest cosmic structures evolved over billions of years.

The centerpiece of this effort is NASA's Nancy Grace Roman Space Telescope. Construction completed on the Roman telescope in December at NASA's Goddard Space Flight Center, and if all goes well, it could launch as early as fall 2026.

What makes Roman more special than NASA's other flagship space telescopes is not just what it will see, but how much of the sky it can see at once. Its 300-megapixel camera can capture regions of sky about 100 times larger than the Hubble Space Telescope's field of view while maintaining comparable sharpness – like switching from studying individual tiles to surveying the entire mosaic at once.

During its five-year primary mission, Roman is expected to discover more than 100,000 distant exoplanets, map billions of galaxies strewn across cosmic time and help scientists probe dark matter and dark energy – the invisible scaffolding and mysterious forces that together account for 95% of the cosmos.

Roman also carries a coronagraph, a pathfinder instrument that can block out a star's blinding light to directly photograph planets orbiting around it. The technology could pave the way for future missions, like NASA's planned Habitable Worlds Observatory, capable of searching for signs of life on Earth-like worlds.

Over in Europe, the European Space Agency's PLATO mission, short for PLAnetary Transits and Oscillations of stars mission, is scheduled to launch in December 2026 aboard Europe's new Ariane 6 rocket. PLATO will monitor about 200,000 stars using an array of 26 cameras, searching for small, rocky planets in their stars' habitable zones, while also determining the stars' ages.

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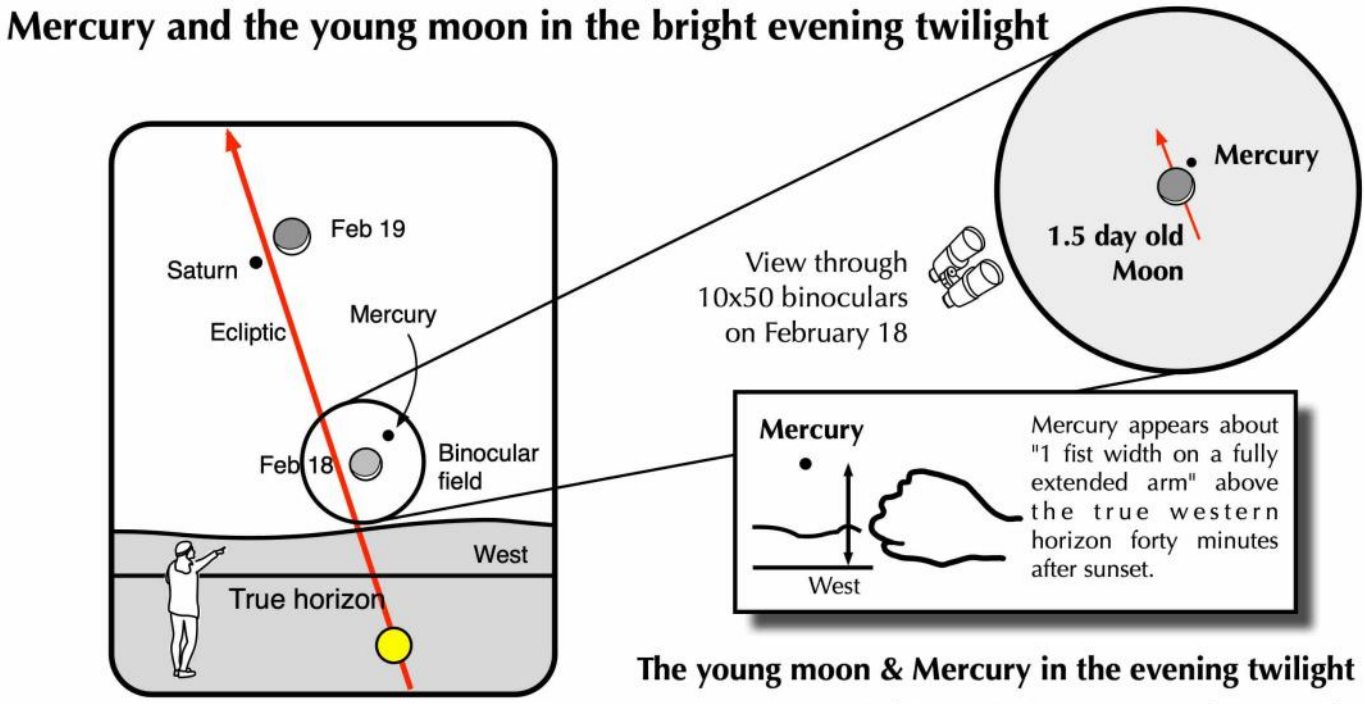
NASA's Nancy Grace Roman Space Telescope is now fully assembled following the integration of its two major segments on Nov. 25, 2025, at the agency's Goddard Space Flight Center in Greenbelt, Md. The mission is slated to launch by May 2027, but the team is on track for launch as early as fall 2026. Image credit: NASA/Jolearra Tshiteya

Binocular Challenge for February 2026

courtesy of the Astronomical League



- Using binoculars, look on February 18 for the very thin crescent Moon floating either below or left of Mercury. Can you see Earthshine on the Moon's dark side or is the twilight too bright? The Moon may be difficult to spot appearing as a washed-out sliver. Some areas in the extreme southcentral US might see the moon occult the planet before the twilight brightens too much.
- On the next evening, Mercury is in the same place, but the moon has moved higher and next to Saturn.

2026 Year in Astronomy (Cont'd)

(Continued from page 9)

For China, 2026 is expected to mark a milestone of a different kind: the launch of its first large flagship space telescope dedicated to astrophysics. The Xuntian space telescope, also known as the Chinese space station telescope, is currently expected to launch in late 2026. Xuntian will survey enormous regions of the sky with image quality comparable to Hubble's, but with a field of view more than 300 times larger.

Like NASA's Roman Space Telescope, Xuntian is designed to tackle some of modern cosmology's biggest questions. It will hunt for dark matter and dark energy, survey billions of galaxies and trace how cosmic structure evolved over time. Uniquely, Xuntian will co-orbit with China's Tiangong space station, allowing astronauts to service and upgrade it and, potentially, extending its life for decades.

Together with the new Vera C. Rubin Observatory on the ground, which will repeatedly scan the entire southern sky to capture how the universe changes over time, the Roman, PLATO and Xuntian space telescopes will study the cosmos not just as it is but as it evolves.

While robotic observatories quietly expand our view of the cosmos, 2026 will also mark a major step forward for human spaceflight.

NASA's Artemis II mission, now readying for launch as early as April 2026, will send four astronauts on a 10-day journey around the Moon and back. It will be the first time humans have traveled beyond low Earth orbit since Apollo 17 in December 1972.

Across the globe, India is preparing to reach a similarly historic milestone. Through its Gaganyaan program, the Indian Space Research Organisation is planning a series of uncrewed test flights in 2026 as it works toward sending astronauts to space. If that happens, India would become only the fourth nation to achieve human spaceflight on its own – a significant technological and symbolic achievement.

Meanwhile, China will continue regular crewed flights to its Tiangong space station in 2026, part of a broader effort to build the experience, infra-

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Eyepiece (Cont'd)

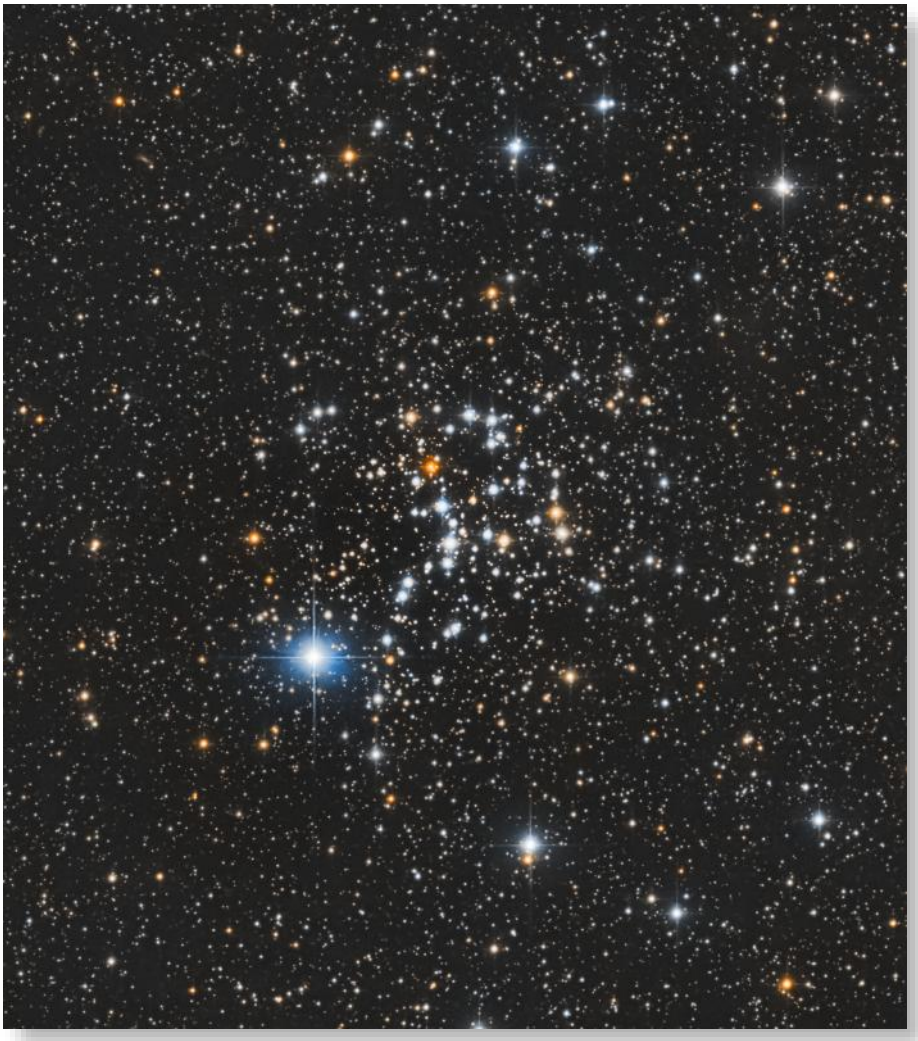

Image credit: By Chuck Ayoub - Own work, CC0, https://commons.wikimedia.org/w/index.php?curid=177784838

(Continued from page 6)

sugar spread out over a 20' area". At higher power about 40 stars can be counted. Some observers see a keystone, like the core of the constellation Hercules.

If you examine the image, you will see a bright star near the center. That star is not part of the Kite Cluster but is a good place to start to see the cluster. The tail of the kite is just to the right of that bright star, and the kite shape is at the top of the tail. The background star field in this area is rich, but I have no problem seeing the kite shape in the photo.

I am looking forward to seeking out this cluster as soon as we have a night that is clear and not so cold that I will be shivering at the eyepiece. I'd be interested to hear observing reports from club members if you accept this observing challenge!

Information credits:

- https://observing.skyhound.com/archives/dec/NGC_1664.html
- http://www.starobserver.eu/articles/ngc1664/
- http://www.astronomy.com/observing/observing-podcasts/2014/01/the-large-magellanic-cloud-ngc-1664-and-ngc-1788
- http://www.orrastrodrawing.com/NGC1664.html

2026-2027 CCAS Scholarship Fund Update

by Bruce Ruggeri

I hope all is well with you as we endure this Winter's sustained cold weather. As we enter the second month of the 2026-2027 Chester County Astronomical Society (CCAS) Scholarship Fund fundraising efforts, I am pleased to announce our progress to date since my initial announcement of January 12, 2026. Thanks to the generosity of many CCAS members, we have now raised $3,275, a significant step toward our stated goal of $4,500 to provide three yearly scholarships, each for $1,500, to deserving and academically talented West Chester University students who are engaged in astronomy, physics, earth science, or STEM majors and who have expressed a clear interest in careers in astronomy, planetary, and space-related fields. A tremendous thank you for your generosity to this worthy fundraising cause!

As we proceed toward our end of February deadline for the fundraising efforts, I am reaching out to you again for your help and support in our fundraising efforts in the spirit of the CCAS and its core mission to build upon the funds we raised to date. No contribution to the Fund is too small, and with your generosity we can raise the $1225 (or more) by the end of February to sustain another round of grants to three worthy WCU students by the beginning of the Fall 2026 semester.

As a reminder, donations can be made by sending your check made out to "CCAS Scholarship Fund" and mailed to me, our Scholarship Fund coordinator, Bruce Ruggeri. Please mail your donation to:

Bruce Ruggeri
ATTN: CCAS Scholarship Fund
1202 Killington Circle
West Chester, PA 19380

Thank you very much in advance to all of you for your consideration and help in supporting the CCAS Scholarship Fund this year. We have ambitious plans to potentially expand this Fund into a CCAS Scholarship Endowment which will sustain the Scholarship Fund in perpetuity. Please stay tune for further developments on this evolving concept. Please reach out to me directly at programs@ccas.us should you have any questions or concerns.

2026 Year in Astronomy (Cont'd)

(Continued from page 10)
structure and technologies needed for its planned human missions to the Moon later in the decade.

In parallel, NASA is relying increasingly on commercial spacecraft to carry astronauts to and from the International Space Station, freeing the agency to focus its own human spaceflight efforts on deep-space missions beyond Earth.

Together, Artemis II, Gaganyaan and China's ongoing crewed space station missions reflect a renewed global push toward human exploration beyond Earth orbit – one in which governments and commercial partners alike are laying the groundwork for longer missions and a sustained human presence in space.

Another set of 2026 missions focuses on a more grounded question: how rocky worlds – and the resources they contain – came to be.

Japan's Martian Moons eXploration mission, slated to launch in late 2026, will travel to Mars, spend three years studying both of its small, potato-shaped moons – Phobos and Deimos – and collect a surface sample from Phobos to bring back to Earth by 2031.

Scientists still debate whether these moons originated as captured asteroids or debris from an ancient giant impact with Mars. Returning pristine material from Phobos could finally settle that question and reshape our understanding of how the inner solar system evolved.

China's Chang'e 7 mission, expected to launch in mid-2026, will head to the Moon's south pole, a region of intense scientific and strategic interest. The mission includes an orbiter, lander, rover and a small flying "hopper" designed to leap into permanently shadowed craters, where sunlight never reaches. These craters are thought to harbor water ice, a resource that could one day support astronauts or be converted into rocket fuel for deeper-space missions.

The Chinese and Japanese missions both highlight how planetary science and exploration are becoming increasingly intertwined, as understanding the geology of nearby worlds also informs future human activity.

A recent rendering of China's Xuntian space station telescope, which is on track to launch in late 2026. Image credit: China National Space Administration

In 2025, powerful solar storms forced airlines to reroute and ground flights, disrupted radio communications and pushed vivid auroras far beyond their usual polar haunts – lighting up skies as far south as Florida. These events are reminders that space is not a distant abstraction: Activity on the Sun can have immediate consequences here on Earth.

Not all of 2026's major missions look outward into deep space. Some are focused on understanding the dynamic space environment that surrounds our own planet.

In a notable example of international cooperation, the solar wind magnetosphere ionosphere link explorer, SMILE – a joint mission between the European Space Agency and the Chinese Academy of Sciences – is scheduled for launch in spring 2026.

SMILE will provide the first global images of how Earth's magnetic field responds to the constant stream of charged particles flowing from the Sun. That interaction drives space weather, including solar storms that can disrupt satellites, navigation systems, power grids and communications.

Understanding those interactions is critical not only for protecting modern infrastructure on Earth but also for safeguarding astronauts and spacecraft operating beyond the planet's protective magnetic shield.

At a time of growing geopolitical tension in space, the mission also stands out as a rare and consequential example of sustained scientific cooperation between Europe and China.

These missions unfold against a complex geopolitical backdrop. The United States and China are both racing to return humans to the Moon by the end of the decade.

Yet for all the competition, space science remains profoundly collaborative. Japan's Martian Moons eXploration mission carries instruments from NASA, ESA and France. International teams share data, expertise and the sheer wonder of discovery. The universe, after all, belongs to no one nation.

Having spent my career studying the universe, I see 2026 as a year that reflects both the rivalries and the shared ambitions of space exploration today. Competition is real, but so is cooperation at a scale that would have been hard to imagine a generation ago. From the search for habitable worlds around distant stars to plans for returning humans to the Moon, the work is global – and the sky is shared by all.

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Speaker Bio (Cont'd)

(Continued from page 3)

She employs innovative time-series analysis techniques, including recurrence plot analysis, to uncover hidden patterns in the complex light curves of X-ray binaries and active galactic nuclei.

The Phillipson High-Energy Astrophysics group investigates the timing variability of accreting black holes and neutron stars using data from on board several observatories including the Rossi X-ray Timing Explorer, Swift, Maxi, Kepler, and TESS.

Dr. Phillipson's research combines nonlinear dynamics techniques with machine learning to conduct large-scale ensemble studies of black hole systems, connecting variability

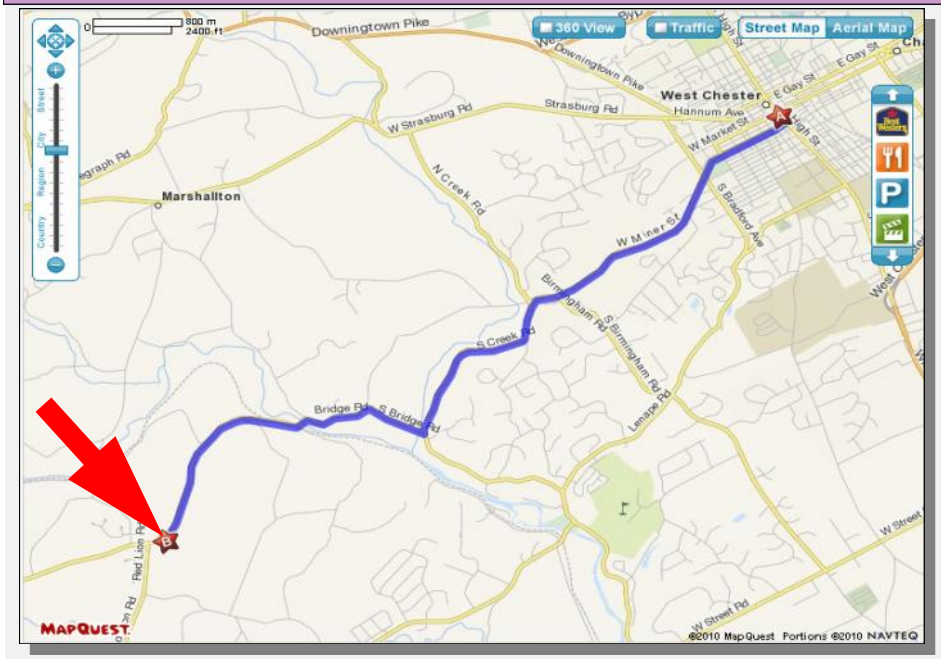
(Continued on page 14)

Classic La Para

by Nicholas La Para

"I WISH WINTER WAS OVER!"

CCAS Directions



Brandywine Red Clay Alliance
1760 Unionville Wawaset Rd
West Chester, PA 19382
(610) 793-1090
http://brandywinewatershed.org/

BRC was founded in 1945 and is committed to promoting and protecting the natural resources of the Brandywine Valley through educational programs and demonstrations for all ages.

Brandywine Red Clay Alliance

The monthly observing sessions (held February through November) are held at the Myrick Conservation Center of the Brandywine Red Clay Alliance.

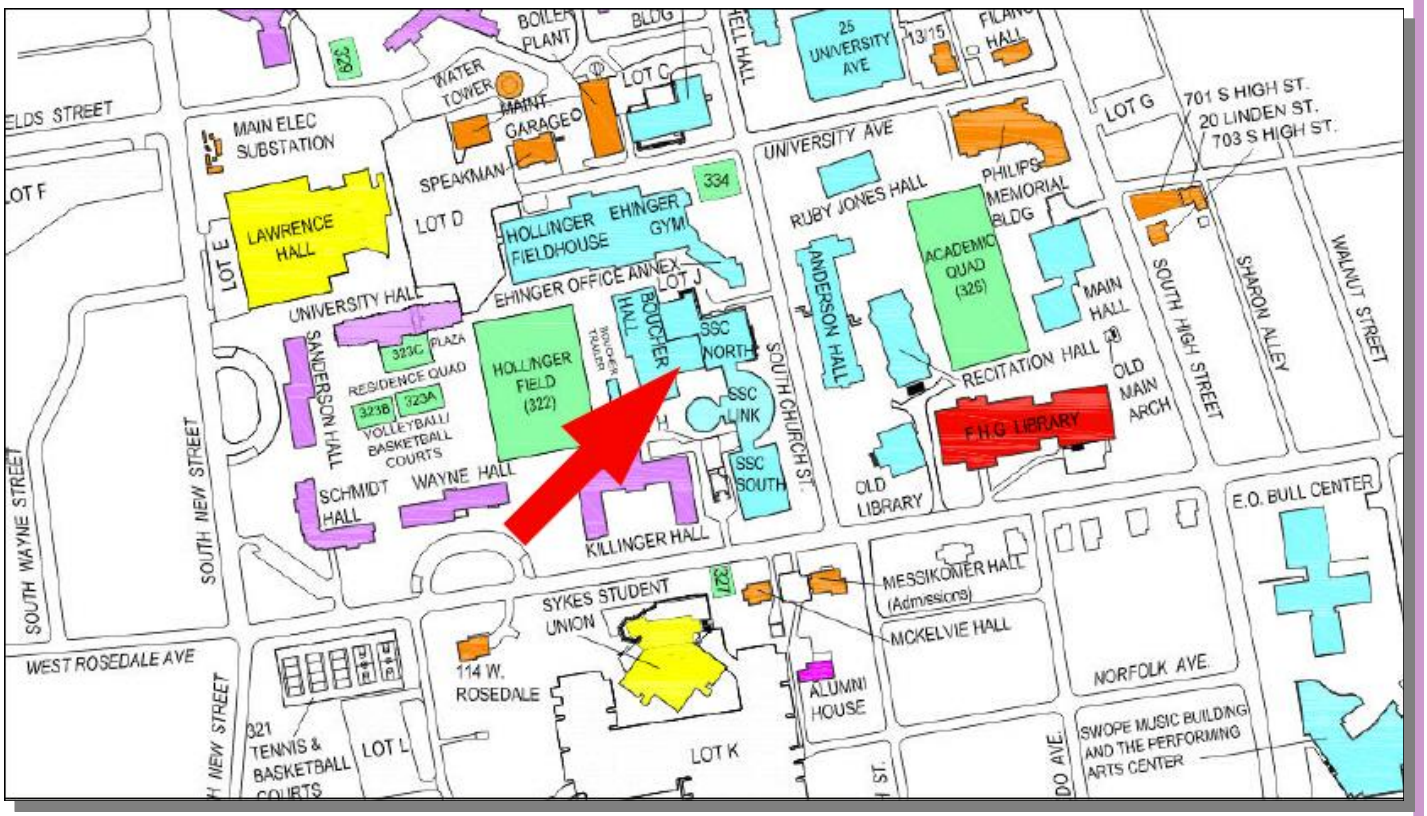
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BRC property, turn left off Route 842 into the parking lot by the office: look for the signs to the office along Route 842. From that parking lot, go left through the gate and drive up the farm lane about 800 feet to the top of the hill. The observing area is on the right.

If you arrive after dark, *please turn off your headlights and just use parking lights* as you come up the hill (so you don't ruin other observers' night vision).

CCAS Directions

West Chester University Campus

The monthly meetings (September through May) are held in Room 112 in Merion Science Center (formerly the Boucher Building), attached to the Schmucker Science Center. The Schmucker Science Center is located at the corner of S. Church St & W. Rosedale Ave. Parking is generally available across Rosedale in the Sykes Student Union parking lot (Lot K).



Guest Speaker (Cont'd)

(Continued from page 13)

patterns to fundamental physical properties like accretion rates and black hole masses, while also applying novel approaches to understand complex astrophysical data.

Dr. Phillipson earned her MS and Ph.D. in Physics from Drexel University. Beyond her research program, she is also committed to mentoring the next generation of astrophysicists, involving them directly in her research projects and publications, and she actively engages in science policy and public outreach, including serving on the AAS Committee on Astronomy and Public Policy.

CCAS Membership Information and Society Financials

Treasurer's Report
by Don Knabb

Jan. 2026 Financial Summary

Beginning Balance	$1742
Deposits	$210
Disbursements	-$0
Ending Balance	$1952

New Member Welcome!

Welcome to new CCAS members Matther H. Ward from West Chester, PA, Thomas Myruski from Coatesville, and Frank Angelini, Jr., from Berwyn, PA.

We're glad you decided to join us under the stars! Clear skies to you!

Membership Renewals

You can renew your CCAS membership by writing a check payable to "Chester County Astronomical Society" and sending it to our Treasurer:

Don Knabb
988 Meadowview Lane
West Chester PA 19382

The current dues amounts are listed in the *CCAS Information Directory*. Consult the table of contents for the directory's page number in this month's edition of the newsletter.

CCAS Information Directory

Join the Fight for Dark Skies!

You can help fight light pollution, conserve energy, and save the night sky for everyone to use and enjoy. Join the nonprofit International Dark-Sky Association (IDA) today. Individual memberships start at $35.00 for one year. Send to:

International Dark-Sky Association
5049 E Broadway Blvd, #105
Tucson, AZ 85711

Phone: **520-293-3198**
Fax: **520-293-3192**
E-mail: **ida@darksky.org**

For more information, including links to helpful information sheets, visit the IDA web site at:

http://www.darksky.org

Dark-Sky Website for PA

The Pennsylvania Outdoor Lighting Council has lots of good information on safe, efficient outdoor security lights at their web site:

http://www.POLCouncil.org

Find out about Lyme Disease!

Anyone who spends much time outdoors, whether you're stargazing, or gardening, or whatever, needs to know about Lyme Disease and how to prevent it. You can learn about it at:

http://www.lymebasics.org

Take the time to learn about this health threat and how to protect yourself and your family. It is truly "time well spent"!

Good Outdoor Lighting Websites

One of the biggest problems we face in trying to reduce light pollution from poorly designed light fixtures is easy access to good ones. When you convince someone, a neighbor or even yourself, to replace bad fixtures, where do you go for good lighting fixtures? Check out these sites and pass this information on to others. Help reclaim the stars! And save energy at the same time!

Light pollution from poor quality outdoor lighting wastes billions of dollars and vast quantities of valuable natural resources annually. It also robs us of our heritage of star-filled skies. Starry Night Lights is committed to fighting light pollution. The company offers the widest selection of ordinance compliant, night sky friendly and neighbor friendly outdoor lighting for your home or business. Starry Night Lights is located in Phoenix, Arizona.

Phone: **520-280-3846**

http://www.starrynightlights.com

★ ★ ★ ★ ★

Lighthouse Outdoor Lighting is a dedicated lifetime corporate member of the International Dark-Sky Association. Lighthouse's products are designed to reduce or eliminate the negative effects outdoor lighting can have while still providing the light you need at night.

211 North Walnut St.
1st Floor
West Chester, PA 19380

Phone: **484-291-1084** or **800-737-4068**

https://www.lighthouse-lights.com/landscape-lighting-design/pa-west-chester/

Local Astronomy-Related Stores

Listing retail sites in this newsletter does not imply endorsement of any kind by our organization. This information is provided only as a service to our members and the general public.

High Point Scientific is a retailer of telescopes, binoculars, eyepieces and telescope accessories from Meade, Celestron, Televue, Orion, StellarMate, Takahashi, and many more. They also have an extensive blog of advice and education for amateur astronomers.

High Point Scientific
442 Route 206
Montague NJ, 07827

Phone: **800-266-9590**

https://www.highpointscientific.com/

★ ★ ★ ★ ★

Located in Manayunk, Spectrum Scientifics educates and entertains customers with an array of telescopes, microscopes, binoculars, science toys, magnets, labware, scales, science instruments, chemistry sets, and much more.

4403 Main Street
Philadelphia, PA 19127

Phone: **267-297-0423**
Fax: **215-965-1524**

Hours:
Monday thru Friday: 9AM to 5PM

http://www.spectrum-scientifics.com

CCAS Information Directory

CCAS Lending Telescopes

Contact Don Knabb to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Don's phone number is 610-436-5702.

Contributing to *Observations*

Contributions of articles and images relating to astronomy and space exploration are always welcome. If you have a computer, and an Internet connection, you can attach the file to an e-mail message and send it to: **newsletter@ccas.us** to:

Dr. John C. Hepler
21 Medinah Drive
Reading, PA 19607

The deadline for submissions to the monthly newsletter is the 26th of each month. Articles and images should be original or the author/artist must be given credit. Articles should be in MS Word format with 12 point Times New Roman Font with single row spacing and one-inch margins on all four sides. Images should be in JPG or PNG file format. The submission window opens on the 20th of each month.

CCAS Newsletters via E-mail

You can receive the monthly newsletter (in full color!) via e-mail. All you need is a PC or Mac with an Internet e-mail connection. To get more information about how this works, send an e-mail request to Dr. John Hepler, the newsletter editor, at: **newsletter@ccas.us**.

CCAS Website

Dr. John Hepler is the Society's Webmaster. You can check out our Website at:

http://www.ccas.us

Dr. Hepler welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work—no copyrighted material! Give your contributions to Dr. Hepler at (484) 883-5033 or e-mail to webmaster@ccas.us

CCAS Purpose

The Chester County Astronomical Society was formed in September 1993, with the cooperation of West Chester University, as a non-profit organization dedicated to the education and enjoyment of astronomy for the general public. The Society holds meetings (with speakers) and observing sessions once a month. Anyone who is interested in astronomy or would like to learn about astronomy is welcome to attend meetings and become a member of the Society. The Society also provides telescopes and expertise for "nights out" for school, scout, and other civic groups.

CCAS Executive Committee

For further information on membership or society activities you may call:

President:	Dave Hockenberry 610-558-4248
Vice President:	Pete Kellerman 610-873-0162
ALCor & Treasurer:	Don Knabb 610-436-5702
Observing:	Don Miller 610-247-8712
Secretary:	Beatrice Mazziotta 610-933-2128
Program:	Bruce Ruggeri 610-256-4929
Education:	Don Knabb 610-436-5702
	Dennis O'Leary 610-701-8042
Webmaster & Newsletter:	John Hepler 484-883-0533

CCAS Membership Information

The 2023 membership rates are as follows:

REGULAR MEMBER……$30/year
SENIOR MEMBER…….$15/year
STUDENT MEMBER……..$ 5/year
JUNIOR MEMBER……..$ 5/year
FAMILY MEMBER…….$40/year

Membership Renewals

Check the Membership Renewals on the front of each issue of *Observations* to see if it is time to renew. If you need to renew, you can mail your check, made out to "Chester County Astronomical Society," to:

Don Knabb
988 Meadowview Lane
West Chester PA 19382-2178

Phone: **610-436-5702**
e-mail: **treasurer@ccas.us**

*Sky & Tel*escope Magazine

The club membership subscription cost for *Sky and Telescope* magazine has increased to **$45.75**. This is still a good saving from the regular rate of **$57.75**.

There is no need to go through the CCAS treasurer for subscriptions or renewals. Just go to the Sky and Telescope website and select "Magazine", then under the FAQs you can subscribe at the club rate.

https://skyandtelescope.org/subscribe/

If you have **any** questions call Don Knabb at 610-436-5702.

Astronomy Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$34.00** which is much less than the individual subscription price of **$42.95** (or $60.00 for two years).

There is no need to go through the CCAS treasurer for subscriptions or renewals. Just call customer service at 877-246-4835 and request the club rate for your new subscription or renewal.