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First Quarter

# PSF NEWS

Planetary Studies Foundation

## IN THIS ISSUE



# A Glance at 2025's Astronomical Events

**FEBRUARY** — The *Lunar Trailblazer* was launched in late-February to search for water on the moon. Unfortunately, communications were lost less than 12 hours into flight. The team is now working around the clock to define alternative trajectory correction maneuver strategies that could be used after reacquiring communications and establishing normal spacecraft functionality.

**MARCH** — *Europa Clipper*, which launched in October 2024, got an energy boost in March when it flew by Mars. The spacecraft is slated to reach Jupiter in April 2030, where it will study the planet's moon, Europa, to determine if Europa has conditions suitable to support life. Additionally, a spacecraft is on its way to conduct a "crash scene investigation" of the 2022 crash by NASA's DART into an asteroid that NASA deliberately knocked off its course as an earth-saving exercise. Carrying a dozen science instruments, the car-sized *Hera* spacecraft will be flying past Mars this spring for a gravity boost, before arriving at Dimorphos by the end of 2026.

**APRIL** — During the week of Apr. 12-18, early risers anywhere in the world will get to see an a cluster of three planets: Mercury, Venus, and Saturn low to the eastern horizon just before sunrise.

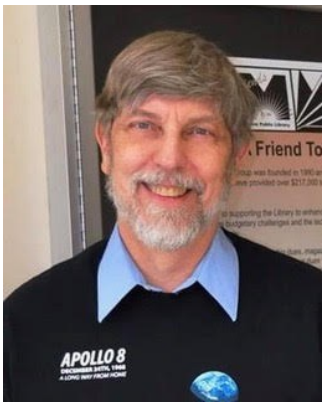
**AUGUST** — On August 12, the two brightest planets, Venus and Jupiter, will be very close together (1 degree) in the eastern sky at dawn. They will approach each other slowly over many days, so make sure to look for them in the morning for a few days before and after Aug. 12.

**SEPTEMBER** — This year is likely to be a good one for aurora hunters, due to heightened solar activity. While northern and southern lights aren't predictable more than a few days in advance, the probability is highest between late-September and late-March under cloudless, dark skies.

**OCTOBER** — There will be three supermoons in a row starting in October. The moon is considered "super" when it is full and its orbit is at the closest point to Earth, according to NASA. This is a great time to view the details of the lunar surface with a telescope or binoculars.

**DECEMBER** — There will be several meteor showers in 2025, with a better chance to witness the Geminids — one of the best showers of the year — after a bright moon hindered views in 2024. The wonderful Geminid meteor shower peaks Dec. 13-14, with a chance of producing 100 meteors per hour.

# PRESIDENT'S MESSAGE




The First Quarter of 2025 has been a relatively quiet period for your Planetary Studies Foundation. I am sorry to say that it has not been true for the rest of our country. The new Administration seems to have returned to the earlier Era of apparent Chaos and uncertainty in both its domestic and international governing policies. In science the Chaos Theory as it relates to the origin of the universe seems reasonable, but does it work for governing a county? One aspect of the current Administration's policies seems to be its negative effect on science. For large institutions like Yale and MIT this is forcing them to make drastic changes in the way they fund their various research programs. So how will all this affect your Planetary Studies Foundation? Fortunately, PSF has never relied on Federal funding to support its programs. Thanks to a few personal grants, our membership, and past fund-raising events we are for the present financially sound. As we wait for the political "dust to settle" PSF will continue to do what it does best. Promote science education through the operation of our Doug Firebaugh Astronomical Observatory and our support of the Yale Peabody and Putnam Science Museums.

What a difference a year makes! This time last year we were all "gearing up" for the anticipated viewing of the April 8th Total Solar Eclipse. As it was with the 2017 Eclipse, plans were made to be positioned in the best possible location. No one at that time could guess what their experiences would be like but only hope for the best. The big question was, would the weather be our friend or foe? As luck would have it, most of our observing sites had excellent viewing conditions throughout the entire eclipse. For most people the four minutes of totality would be an almost indescribable and unforgettable experience. This also leaves us saying "I just can't wait for the next one".

I would like to close with some personal thoughts about the year ahead. For some unexplainable reason the number 2025 seems to bother me. Perhaps one reason is that the number 2025 represents a quarter century of time. That literally represents a lifetime of family and professional memories and raises the question where has all that time gone? During that time span I've seen the marriage of two daughters and the birth of four grandchildren. My wife Diane and I shared a very happy and adventurous life and are proud of our association with the PSF. To highlight a few of PSF's accomplishments during that time: Conducted two Antarctic expeditions, held one of the top ten meteorite collections in the world, helped high school students prepare for their college experiences, and our affiliation with the Yale Peabody Museum. For both the Sipiera Family and the PSF we have shared a very productive and historic Quarter Century. Let's see what the next 25 years of the 21st Century will be like. To the Future!

***Paul P. Sipiera***

# DONOR'S SPOTLIGHT

## 2024 End of Year Donations | General Operations Fund

Anonymous***
Mary & Alan Becker***
Mary Sue Coates***
Dr. James C. Hagen**
Joan & Larry Reylek*
PayPal Giving Fund**

* *Recognizes a donation of <$100*
** *Recognizes a donation of $100 to $999*
*** *Recognizes a donation of $1,000 & up*

# MEMBERS' CORNER

## New Members

### Individual Membership

Robert S. Hodell

### Student Membership

Kanton Johnson
Michael Johnson
Kyra Pontnack

## Renewing Members

### Individual Membership

Marsha J. Prieboy

### Family Membership

Gary & Mary Gordon

## In Memorium

In remembrance of our dedicated members who have recently passed away.

Lawrence W. (Larry) Knight
Michelle Firebaugh

# Plant a Pollinator Strip This Spring

By Editor-in-Chief, Andrea Nolan

### What is a pollinator strip?

Like the name suggests, a pollinator strip refers to a small planting bed filled with native pollinator-friendly flowers. These strips are commonly found growing along the edges of driveways, near fences, or near streets. Though specific size and shape of strips varies, each plant bed should focus on the needs of local garden pollinators like bees, butterflies, moths, beetles, flies, ladybugs, and other insects — plus, hummingbirds.

### Why would I consider adding a pollinator strip?

Smart gardeners know that it's the presence of pollinators that makes the difference in the health, fertility, and productivity of wild plants, food plants, and landscaped plants alike. Plus, worsening issues like the die-off in honey bee colonies and the decline in monarch populations makes the issue of pollinators important not just for gardeners, but for all people who care about the planet.

### How do I know if my home garden would benefit from a pollinator strip?

Think about last year's home garden and plants around your home. Were they thriving or did you chemically support them at any time? Was your yard "buzzing" with insect activity during the summer, or was the air more quiet and still? Did your garden produce bumper crops — an abundant harvest from a particular crop? If these events were not happening around your home, chances are that your yard could benefit from pollinator-friendly plants.

**Increases Diversity**

On average, pollinator strips can easily add more than 25 species to your garden. A diverse insect population means that all the jobs insects do are covered: pollinating plants, controlling "bad" bugs, and improving plant health naturally.

**Feeds a Crowd**

Nectar and pollen in native plants are highly nutritious to native pollinators. These partnerships are successful because these are the plants and insects that evolved together over time. Due to field plowing, suburban lawns and more human-caused destruction, native plants are disappearing. Plus, by feeding native pollinators, they'll return the favor to help feed your vegetable garden so you can feed yourself or your family!

**Shelters "Good" Bugs**

Insects need homes. Ladybugs, parasitic wasps, and syrphid flies (all good bugs!) will happily call a native plant strip home when they're properly protected from the weather and predators.

## Tips for Planting a Native Pollinator Strip:

- Flower beds which receive full sun are ideal because this allows a much wider range of plant species.
- Consider bloom time to ensure that nectar and pollen are readily available through the entire growing season — early, mid, and late blooming plants are ideal.
- Whether your location is in your yard, behind a garage, or in between a sidewalk and the street, be sure to properly prepare the soil. Remove existing weeds, grass, and loosen the top few inches of soil. Consider adding compost or organic matter for additional nutrients.
- Select native wildflowers and plants that are right for your region.
- Once the pollinator strip is started, minimal maintenance should be required. Occasional weeding may be necessary, but the idea is to have the plants bloom thickly, creating a haven for pollinators.

# Doug Firebaugh Observatory

2892 W Stephenson St, Freeport, IL | 815-291-3072 | Follow us on Facebook

**May 3**

**Open House & Observing Season Kickoff**

*Open House 4-7p; 8p public viewing*

Tour the observatory and see the telescope equipment that is used, talk with the observatory staff and look at the various displays and activities for the day. At 8pm they'll transition to their first night of public observing.

**May through October**

**Public Observing Nights**

*1st and 3rd Saturday of the month, 8pm*

There will be an astronomy related presentation as the prelude to observing on public nights. Come and share the beauty of the nighttime skies with the telescopes and imaging.

**May 1 through June 5**

**"Understanding the Universe Around Us" Introduction to Astronomy**

*Thursdays: 7-9pm*

Observatory staff are offering a six week (one night a week, Thursdays from 7-9pm) introductory class for people interested in learning about astronomy, how to use a telescope, and finding your way around the night skies. The cost is $75 per person and no astronomy knowledge is required / assumed.

To sign up contact *Jim Dole at jbdole@gmail.com* or direct message the *Doug Firebaugh Observatory on Facebook*.

# The Goodness of Groundwater

**By: Avery Engle**

Avery started at Kansas State University this past fall, studying Animal Science on the Pre-Veterinary Path with a certificate in equine science. This summer, she will be lifeguarding, shadowing with local vets, and helping the PSF with various projects. She has always had a love for nature and astronomy.

Isn't it crazy to believe that the same water that is in your water bottle right now, is the same water that the dinosaurs were drinking from years and years ago? I know, this sounds a little far-fetched, but because of Earth's water cycle, water is reused, going through chemical changes in each cycle. However, we still run into challenges in regards to maintaining a strong ground water supply. By digging into the importance of groundwater itself, the reasons as to why these challenges exist, and how we can make a difference in this issue, we can become more aware of our responsibility of making sure this supply is bountiful for generations to come.

It's fair to say that water supply in the United States is taken for granted. It's likely that you don't think about where the water comes from in your shower, or out of the sink, or at least I don't. This water, and water used for other domestic, agricultural, and industrial purposes, comes from groundwater aquifers, which are the largest freshwater reserves in the world. According to the United States Geological Survey, groundwater is the source of about 37 percent of the water that county and city water departments supply to households and businesses, and provides drinking water for more than 90 percent of the rural population who do not get their water delivered to them from a county/city water department or private water company. Cities like San Antonio, Texas, rely solely on these reserves for all of their needs. If this supply were to be negatively affected, we could run into major issues.

You may be wondering, "Why are we facing ground water usage issues in the first place, especially if water recycles throughout the biosphere?" These challenges are stemming from natural and man-made changes to hydrologic systems. One in particular is aquifer depletion, or sustained groundwater pumping. Another is the contamination of groundwater sources through pollution, eliminating areas that can be utilized for water. Climate change is also a large factor in terms of threatening groundwater recharge. Natural disasters like wildfires require unimaginable amounts of water in order to be contained, and some of this water comes from groundwater reserves. The moral of the story is that groundwater is essential in all aspects of life, and something needs to be done soon in order to restore/protect these reserves.

Sensors may identify better response and quality of groundwater resources, and researchers are trying better these sensors in order to predict aquifer activity. The real change is made through the rest of society. At home, properly dispose of all waste; don't dump chemicals down drains or on the ground and have on-site septic systems pumped and inspected every five years to reduce contamination. Consider important aquifers when acquiring open space, and help ensure that your town practices good pollution prevention. Fix water leaks at home, and try to conserve water when possible. The average American uses 176 gallons of water per day. If every household reduced their water use by just 50 gallons a day, we could save millions of gallons of water and prevent groundwater depletion.

Let's put an end to taking water for granted, and allow the generations after us to also say that they're drinking the same water that the dinosaurs did! ♦

# Feeling Curious? Podcasts & Phone Apps Worth Checking Out

## NASA App

*Available for iOS and Android*

The NASA app is completely free and has a lot to interest space enthusiasts. You'll find galleries of recent NASA images, a NASA TV feed, information on all the latest missions, and a handy ISS tracker.

## NASA's Curious Universe Podcast

Come get curious with NASA! As an official NASA podcast, Curious Universe brings mind-blowing science and space adventures you won't find anywhere else. Learn something new about the wild and wonderful universe we share.

## Star Walk 2 App

*Available for iOS and Android*

This app is a great option for beginners looking to learn more about stars, constellations, and planets. It also has a satellite tracker and appealing AR overlays even on the free version.

## Houston We Have a Podcast

From Earth orbit to the Moon and Mars, explore the world of human spaceflight with NASA each week on the official podcast of the Johnson Space Center in Houston, TX. Listen to in-depth conversations with the astronauts, scientists, and engineers who make it possible.

## SkySafari 7 Pro App

*Available for iOS and Android*

Called a "must-have app for serious astronomers" by *Space Magazine*, this app features a huge database, telescope control, and a sleek planetarium. This is one of the best apps if you want to get serious about your stargazing and astrophotography.

## Planetary Radio by The Planetary Society

Podcast Host, Mat Kaplan, visits with scientists, engineers, mission leaders, astronauts, advocates, and writers who provide their unique and exciting perspectives on the exploration of our universe. The latest episode titled, An Extinction-Level Event for NASA Science, delves into the reported 50% cut to NASA's science budget that may threaten to shut down missions, halt discoveries, and devastate the future of space exploration.

***Find direct links to all of these apps and podcasts on our website: www.planets.org/latest***

# SPRING CELESTIAL CALENDAR

**April 21 — Lyrids Meteor Shower**

This meteor shower is produced by dust particles left behind by comet C/1861 G1 Thatcher. The shower runs annually from April 16-25 and peaks on the night of the 22nd. These meteors can sometimes produce bright dust trails that last for several seconds. Best viewing will be from a dark location after midnight.

**April 27 — New Moon**

Due to its location, the Moon will not be visible in the night sky. This is the best time to observe faint objects like galaxies and star clusters.

**May 6, 7 — Eta Aquarids Meteor Shower**

This is an above average meteor shower, capable of producing up to 30 meteors per hour at its peak (60 per hour in the Southern Hemisphere). It is produced by dust particles left behind by Halley's Comet, which has been observed since ancient times.

**May 12 — Full Moon**

The Moon will be near its closest approach to the Earth and its face will be fully illuminated.

*Did you know? Early Native American tribes called the Flower Moon because this was the time of year when spring flowers appeared in abundance.*

**May 27 — New Moon**

Due to its location, the Moon will not be visible in the night sky. This is the best time to observe faint objects like galaxies and star clusters.

**May 31 — Venus at Greatest Western Elongation**

This is the best time to view the planet since it will be at its highest point above the horizon in the morning sky. Look for the bright planet in the eastern sky before sunrise.

***Find more sky events by following us on our Facebook page.***

# MEMBERSHIP FORM

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Regular Membership | ____ $ | 20.00 | 1 year | **or** ____ $ | 35.00 | for 2 years |
| Family Membership | ____ $ | 35.00 | 1 year | **or** ____ $ | 60.00 | for 2 years |
| Sponsoring Membership | ____ $ | 50.00 | 1 year | **or** ____ $ | 90.00 | for 2 years |
| Contributing Membership | ____ $ | 100.00 | 1 year | **or** ____ $ | 180.00 | for 2 years |
| Student Membership | ____ $ | 10.00 | 1 year | | | |
| Life Membership | ____ $ | 500.00 | | | | |
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