



# STAR STUFF

Ford Amateur Astronomy Club Newsletter

## Star Stuff

This newsletter is published eleven times per year by:

Ford Amateur Astronomy Club  
P.O. Box 7527  
Dearborn, MI 48121-7527

## Officers

|                 |              |
|-----------------|--------------|
| President:      | Mike Bruno   |
| Vice President: | Ed Halash    |
| Secretary:      | Jesse Godsey |
| Treasurer:      | Arica Flores |

## Departments

|             |               |
|-------------|---------------|
| Webmaster:  | Liam Finn     |
| Membership: | Doug Bauer    |
| Newsletter: | Tim Campbell  |
| Equipment:  | Jeff Gorman   |
| Speakers:   | Sandra Macika |

## Club Information

The Ford Amateur Astronomy Club meets on the fourth Thursday of each month, except for the combined November/December meeting which meets on the first Thursday of December – at Henry Ford College Administration Services and Conference Center in Dearborn.

## Secretary's Report

*by Jesse Godsey*

### FAAC General Meeting – April 28, 2022

The meeting was called to order by our club President, Mike Bruno. Fifteen club members were in attendance as well as our guest speaker, Ed Cackett.

### *Member Observing*

Ed discussed going outside and doing some "naked eye" observing. He mentioned we can still see Orion's belt, but it won't be there for much longer. Doug mentioned he was up at 4am in the morning doing some early morning observing. Liam mentioned that he and Tim C. will be at the Henry Ford Museum doing an outreach on the Apollo missions. Ed will also be flying into Arizona to visit family and plans to do some observing. He will be there for four nights hiking down into the Grand Canyon. Liam discussed getting a blacklight for catching scorpions on the path, etc. Sean mentioned some work he is doing on the observatory.

### *What's Up*

Tim C. gave us the update on the site they are going to be at tomorrow night. They will be doing an Astronomy 101. This will happen at the Edsel and Eleanor Ford House in Grosse Pointe. All are welcome.

For May 2022 the 5th will be the Aquarids meteor shower. Full moon on the 16th. New moon on the 30th. He also discussed the 100 Best Astrophotography Targets book with the month of May covering a diversity of Galaxy shapes. He mentioned that in order to see the planets you need to get up early in the morning to view them prior to sunrise. He also mentioned Boötes, Corona Borealis, and M13 in Hercules. Leo was next with the Leo triplet. Dr. Tim mentioned Mercury is in view

## Club Information

Refer to our website for a map and directions:

[www.fordastronomyclub.com](http://www.fordastronomyclub.com)

## Observing

The FAAC primary observing location is Spring Mill Pond located within the Island Lake State Recreation Area near Brighton, Michigan. The Club maintains an after-hours permit. Club members can contact any club officer for procedures to enter or exit the park when the main gate is locked.

The club also has use of a private observing site near Gregory Michigan. See the FAAC Groups.io Group for more information.

Inquiries can be directed to [info@fordastronomyclub.com](mailto:info@fordastronomyclub.com)

## Membership

Membership is open to anyone with an interest in amateur astronomy. The FAAC is an affiliate of the Ford Employees Recreation Association (FERA).

### Fees

Annual - New Members: \$30  
Annual - Renewals: \$25  
(\$30 if not renewed by Jan 31)

### Benefits

Membership includes the Star Stuff newsletter, discounts on magazines, discounts at selected

around Sunset. He also mentioned the Lunar eclipse which starts in the evening of the 15th. Liam is going to be at Island Lake for this from 9 pm - 3 am Sunday night through Monday morning.

### Club Business

The Banquet / Picnic coming up later in the year was discussed as well as the Sirius Award being given during this time. New / used computer equipment was added to the observatory, thank you Tim. There was some fun discussion about being able to return to in person meetings and having some pizza again.

### Social Media

Liam performed maintenance tasks on the club website including applying security updates.

### Speaker

Ed Cackett grew up in Manchester, England and studied Physics. Spent 4 years at U Of M where he was a NASA fellow. In 2012 he moved back to Eastern Michigan. Astrophysicist at Wayne State University, Detroit interested in neutron stars & black holes.

The presentation was on the James Webb Space Telescope (JWST).

## FAAC Board Meeting Summary – May 5, 2022

Meeting called to order with two board members present (Club President and Vice President were unable to attend) and eight additional club members.

### Next Meeting

May 26, 2022 at 7pm. The speaker is Dr. Ryan Challener who will discuss Exoplanet research with the James Webb Space Telescope.

### Club Equipment

Jeff Gorman will be asking perform the annual equipment verification by asking custodians to confirm the equipment they have and verify that it is in working order.

### Social Media

Some security updates were applied. Looking into automating updates.

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area equipment retailers, and after-hours access to the Island Lake observing site and private observing sites.

Astronomy or Sky & Telescope magazine discounts are available by contacting the FAAC club treasurer [treasurer@fordastronomyclub.com](mailto:treasurer@fordastronomyclub.com) for the discount form. The form should be sent to the respective publisher with your subscription request and payment. Do not send money directly to FAAC.

The FAAC has a pool of equipment including telescopes, cameras, and other gear used for outreach. Much of the gear can be borrowed for personal use in the interest of furthering your knowledge and experience in astronomy.

Please see the equipment list for further information.

## Club Wear

Club logo-wear (embroidered with club logo) can be ordered directly through [LLBeanBusiness.com](http://LLBeanBusiness.com)

See the [groups.io](https://groups.io) files section for ordering information and instructions on how to request the correct logo.

## Communication

The FAAC uses Groups.io for our email distribution list (both formal and informal discussion.)

Observing nights & locations (scheduled and unscheduled as weather permits), equipment

# Solstice Shadows

*by David Prosper*



Solstices mark the changing of seasons, occur twice a year, and feature the year's shortest and longest daylight hours - depending on your hemisphere. These extremes in the length of day and night make solstice days more noticeable to many observers than the subtle equality of day and night experienced during equinoxes. Solstices were some of our earliest astronomical observations, celebrated throughout history via many summer and winter celebrations.

Solstices occur twice yearly, and in 2022 they arrive on June 21 at 5:13 am EDT (9:13 UTC), and December 21 at 4:48pm EST (21:48 UTC). The June solstice marks the moment when the Sun is at its northernmost position in relation to Earth's equator, and the December solstice marks its southernmost position. The summer solstice occurs on the day when the Sun reaches its highest point at solar noon for regions outside of the tropics, and those observers experience the longest amount of daylight for the year. Conversely, during the winter solstice, the Sun is at its lowest point at solar noon for the year and observers outside of the tropics experience the least amount of daylight- and the longest night - of the year. The June solstice marks the beginning of summer for folks in the Northern Hemisphere and winter for Southern Hemisphere folks, and in December the opposite is true, as a result of the tilt of Earth's axis of rotation. For example, this means that the Northern Hemisphere receives more direct light from the Sun than the Southern Hemisphere during the June solstice. Earth's tilt is enough that northern polar regions experience 24-hour sunlight during the June solstice, while southern polar regions experience 24-hour night, deep in Earth's shadow. That same tilt means that the Earth's polar regions also experience a reversal of light and shadow half a year later in December, with 24 hours of night in the north and 24 hours of daylight in the south. Depending on how close you are to the poles, these extreme lighting conditions can last for many months, their duration deepening the closer you are to the poles.

While solstice days are very noticeable to observers in mid to high latitudes, that's not the case for observers in the tropics - areas of Earth found between the Tropic of Cancer and the Tropic of Capricorn. Instead, individuals experience two "zero shadow" days per year. On these days, with the sun directly overhead at solar noon, objects cast a minimal shadow compared to the rest of the year. If you want to see your own shadow at that moment, you have to jump! The exact date for zero shadow

questions, events, outreaches, etc. are normally discussed via this list.

Join by visiting <https://groups.io/g/FordAstronomyClub> to request membership.

## Articles & Submissions

Your submissions to Star Stuff are welcome! Send your story and/or images to the editor at: [starstuff@fordastronomyclub.com](mailto:starstuff@fordastronomyclub.com)

## Observatory

The FAAC maintains and operates the Hector J Robinson Observatory (HJRO) at Lincoln Park Schools.

The observatory houses a 14" Celestron C14 Schmidt Cassegrain Telescope as well as other instruments and can be used by club members.

The observatory is adjacent to the athletic field situated between the Lincoln Park Middle School and High School buildings near

1701 Champaign Rd.  
Lincoln Park, MI 48146

The school system has designated four "key-holders" within the club who have the ability to open the observatory.

Call (313) 444-5850 to learn when the observatory is opening (or request an opening).

days depends on latitude; observers on the Tropic of Cancer ( $23.5^\circ$  north of the equator) experience a zero shadow day on the June solstice, and observers on the Tropic of Capricorn ( $23.5^\circ$  south of the equator) get their zero shadow day on December's solstice. Observers on the equator experience two zero shadow days, being exactly in between these two lines of latitude; equatorial zero shadow days fall on the March and September equinoxes.



*A presenter from the San Antonio Astronomy Club in Puerto Rico demonstrating some Earth-Sun geometry to a group during a "Zero Shadow Day" event. As Puerto Rico lies a few degrees south of the Tropic of Cancer, their two zero shadow days arrive just a few weeks before and after the June solstice. Globes are a handy and practical way to help visualize solstices and equinoxes for large outdoor groups, especially outdoors during sunny days!*

*Credit & Source: Juan Velázquez / San Antonio Astronomy Club*

There is some serious science that can be done by carefully observing solstice shadows. In approximately 200 BC, Eratosthenes is said to have observed sunlight shining straight down the shaft of a well during high noon on the solstice, near the modern-day Egyptian city of Aswan. Inspired, he compared measurements of solstice shadows between that location and measurements taken north, in the city of Alexandria. By calculating the difference in the lengths of these shadows, along with the distance between the two cities, Eratosthenes calculated a rough early estimate for the circumference of Earth – and also provided further evidence that the Earth is a sphere!

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## Planetarium

FAAC members are volunteer operators for the Hammond Planetarium at Henry Ford College.

Planetarium shows are free and open to the public.

Four seasonal planetarium shows are offered per year with the stars and constellations of the current season as well as a multi-media presentation featuring select planets.

Public planetarium shows are normally offered each Wednesday at 7:30pm and every 2nd Saturday at 3:00pm – however there are some exceptions. Please see the planetarium schedule for specific times. It is posted here:

[fordastronomyclub.com/hfc-planetarium](http://fordastronomyclub.com/hfc-planetarium)

## Social Media

The FAAC has several social media accounts. Members are encouraged to join and follow them.

### Facebook

[facebook.com/FordAstronomyClub](https://facebook.com/FordAstronomyClub)

### Twitter

[twitter.com/Ford\\_Astro](https://twitter.com/Ford_Astro)

## Scheduled Club Events

| Month     | Date      | Sunset                        | Location         |
|-----------|-----------|-------------------------------|------------------|
| June      | 4th       | 9:05pm                        | Spring Mill Pond |
| July      | 9th       | 9:11pm                        | Spring Mill Pond |
| August    | 13th      | Perseid Meteors & Club Picnic | Spring Mill Pond |
| September | 16 & 17th | AatB                          | Kent Lake Beach  |
| October   | 1st       | 7:14pm                        | Spring Mill Pond |

## Upcoming Club Meeting Topics & Speakers

| Meeting     | Speaker        | Topic                                 |
|-------------|----------------|---------------------------------------|
| May 26th    | Ryan Challener | Exoplanets in the JWST Era            |
| June 23rd   | Jason Günsel   | TBD                                   |
| July 28th   | Jim Shedlowsky | Searching for the Dark Universe       |
| August 25th | Paul Lynam     | History & Science of Lick Observatory |

## March Talk Details

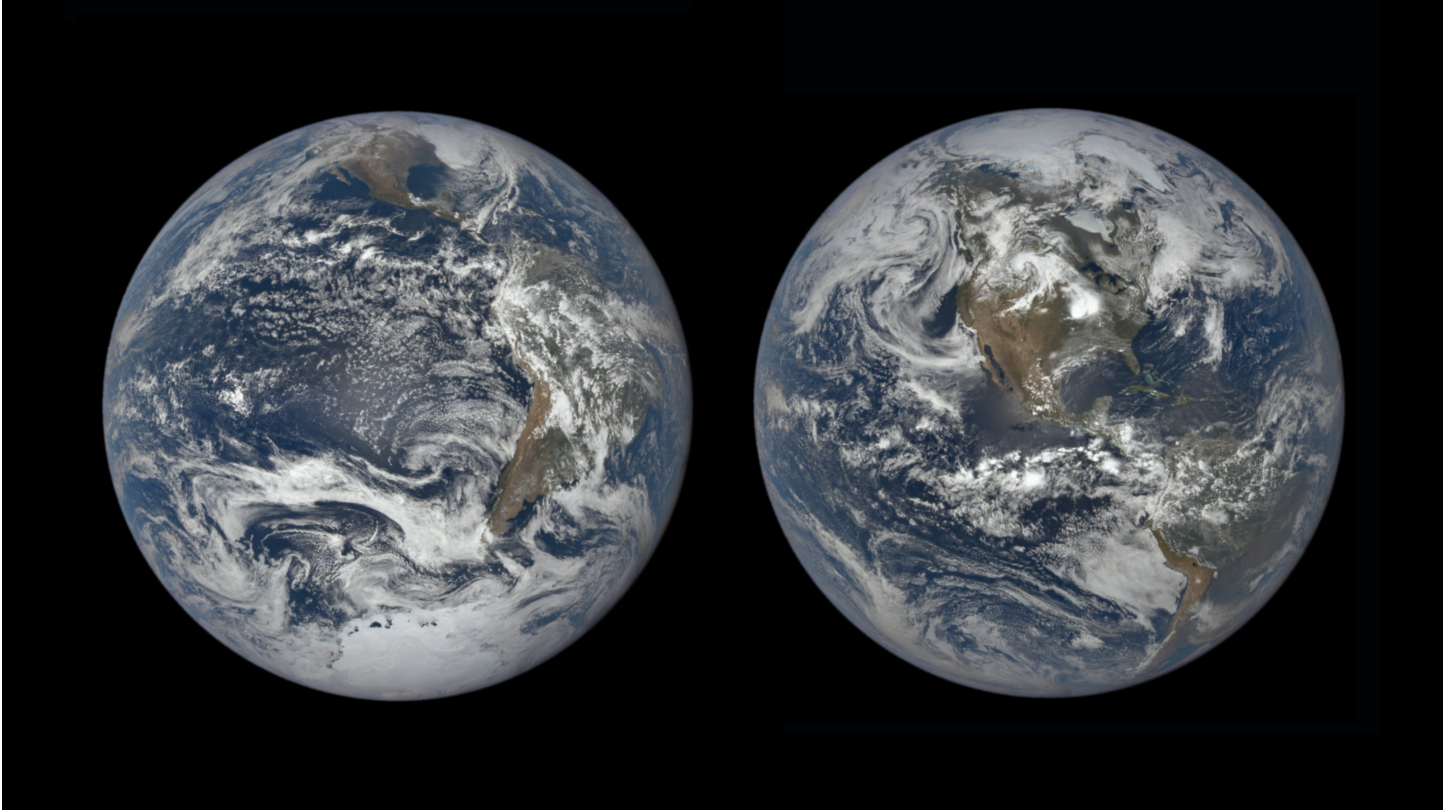
### An Exoplanet Renaissance: Characterizing Extrasolar Planets in the JWST Era

*Dr. Ryan Challener, University of Michigan*

This summer (2022), the James Webb Space Telescope will begin observing the universe. Its size, spectral coverage, spectral resolution, and stability are unprecedented among space telescopes, and its impact on our understanding of extrasolar planetary systems will be transformative. In this talk, I will discuss the current state of exoplanet characterization and the insights we may gain from JWST, with a focus on planets which transit, and are eclipsed by, their host stars. Topics will include exoplanet thermal structure, compositions, formation, and evolution, as well as the emerging field of three-dimensional exocartography, with an overview of my personal research projects.

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*Solstice (Cont'd from Page 4)*

These images from NASA's DSCOVR mission shows the Sun-facing side of Earth during the December 2018 solstice (left) and June 2019 solstice (right). Notice how much of each hemisphere is visible in each photo; December's solstice heavily favors the Southern Hemisphere and shows all of South America and much of Antarctica and the South Pole, but only some of North America. June's solstice, in contrast, heavily favors the Northern Hemisphere and shows the North Pole and the entirety of North America, but only some of South America.

Credit: NASA/DSCOVR EPIC Source: <https://www.nasa.gov/image-feature/goddard/2021/summer-solstice-in-the-northern-hemisphere>

Are you having difficulty visualizing solstice lighting and geometry? You can build a "Suntrack" model that helps demonstrate the path the Sun takes through the sky during the seasons; find instructions at [stanford.io/3FY4mBm](https://stanford.io/3FY4mBm). You can find more fun activities and resources like this model on NASA Wavelength: [science.nasa.gov/learners/wavelength](https://science.nasa.gov/learners/wavelength). And of course, discover the latest NASA science at [nasa.gov](https://nasa.gov).

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*Speaker Info (Cont'd from Page 5)***Bio:**

Ryan Challener is a postdoctoral researcher at the University of Michigan, where he works on three-dimensional exoplanet characterization, developing and refining a method for use with upcoming James Webb Space Telescope observations. He received a Bachelor of Science in astrophysics and a Bachelor of Arts in mathematics from the University of Rochester. For his doctorate, he attended the University of Central Florida, where his thesis focused on data analysis techniques for observations of transiting exoplanets.

# Equipment

The FAAC maintain an equipment pool of telescopes, binoculars, cameras, and other equipment used for special events. Much of this equipment is available to members.

Each piece of equipment is either stored by a club volunteer who offers to be the caretaker of the item, or by the person who last borrowed the item.

Most equipment can be borrowed for one-month durations. At the end of the month, the borrower can extend the loan if no other members have requested it.

Some items are reserved for special events use and are not normally available to be borrowed.

If you are interested in borrowing an item, please contact either the current holder of the equipment, or contact the club equipment manager, Jeff Gorman, at [equipment@fordastronomyclub.com](mailto:equipment@fordastronomyclub.com)

| Item  | Held by         | Item                              | Held by        |
|---|-----------------|-----------------------------------|----------------|
| <b>Telescopes</b>   |                 | <b>Display Items</b>              |                |
| TK1 Coronado Personal Solar Telescope (Doublestack) w/Meade Autostar Goto Mount | Jessica Edwards | Astronomy Event Sign (3' x 6')    | Gordon Hansen  |
| TK5 4.5" Reflector on Fitz GEM mount  | Jerry Jamula    | Astronomy Event Signs 18x24" (x8) | Liam Finn      |
| TK6 8" Orion XT8i Dobsonian   | Dan Smith       | PVC Display Board - Folding       | Sandra Macika  |
| TK7 TPO 8" f/4 Newtownian Astrograph (OTA Only - no mount)                      | Bhru Patel      | Banner - Small (24" x 32")        | George Korody  |
| TK8 20" f/5 Obsession Dob, Ladder & EP Kit                                      | Liam Finn       | Banner - Medium (24" x 72")       | Sandra Macika  |
| <b>Presentation Tools</b>   |                 | Banner - Large (32" x 16')        | George Korody  |
| Projector (older)   | Jim Frisbie     | Tri-Fold Presentation Boards      | George Korody  |
| Projector (newer)   | Gordon Hansen   | <b>Other</b>                      |                |
| Projection Screen 8'  | John McGill     | Canopy (10' x 10')                | Liam Finn      |
| Projection Screen 6'  | Liam Finn       | Pop Cooler                        | Sean Pickard   |
| Bullhorn  | George Korody   | TA Sky Quality Meter              | Liam Finn      |
| Speaker System w/Wireless Mic   | Liam Finn       | <b>Demonstration Tools</b>        |                |
|   |                 | Weigh on Planets Scale            | George Korody  |
|   |                 | Lunar Phase Kit                   | Bob MacFarland |
|   |                 | 100' Scale Model Solar System Kit | Bob MacFarland |
|   |                 | NSN Meteorite (Outreach) kit      | Sandra Macika  |

| Item   | Held by       |
|--|---------------|
| <b>Imaging Cameras</b>   |               |
| C2 Meade Deep Sky Imager Pro III w/Autostar Suite  | Gordon Hansen |
| C6 Canon 60Da Astrophotography DSLR and accessories  | Tim Dey       |
| <b>Other Imaging Equipment</b>   |               |
| CA1 Rigel Systems Spectrascope   | Gordon Hansen |
| C7 Canon EOS EF 70-200mm f/1.4L IS USM lens & tripod mounting ring (for Canon EOS cameras) | Gordon Hansen |
| Rokinon 8mm f/3.5 Fish-Eye Lens (Canon EOS Mount)  | John McGill   |
| <b>Special Event Items - Not available for Loan Out</b>                                    |               |
| BK2 Zhumell 25x100 Binoculars, hard case, & Zhumell TRH-16 tripod w/soft fabric bag        | Sandra Macika |
| TAK1 Night Vision Image Intensifier for telescopes (2" barrel size)                        | Tim Dey       |

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### *Secretary's Report (Cont'd from Page 2)*

#### *Membership*

Twelve people did not renew in 2022. Two did not respond.

#### *Old Business*

- New lanyards and badge holders were ordered.
- We have received six nominations for Sirius Award.
- Island Lake Picnic/Banquet — Liam spoke with the park manager regarding possibility of a large rented tent for the event. A large rental tent will not be permitted, but personal canopies are fine.
- The first public club observing night at Island Lake was cancelled due to weather.

#### *New Business*

- Arica asked if Tim & Liam will be doing the outreach at the Henry Ford Museum on Sunday because it is Mothers' Day. Tim & Liam confirmed that it is planned.

- The use of masks at our public viewing event was discussed. This will be an individual decision. Public has been notified that not all astronomers may be comfortable sharing their equipment and/or may desire that visitors wear a mask when nearby.
- Sean gave an update on his observatory — possibility an open observatory evening.
- Arica asked if any members had Solar images she can use to share with a class at Miller Elementary School in Dearborn.
- Joe B. asked about Lake Erie Metro Park access again. Need to follow up with Tim D.
- Liam discussed the idea of viewing the Lunar Eclipse at the club's observing site at Island Lake.