



One of our packed lecture halls at ALCon 2023, July 26-29, Hilton Capitol Center Hotel, Baton Rouge, Louisiana

## **Monthly Meeting August 14<sup>th</sup> at 7:00 PM, in person**

You may also join this meeting via [meet.jit.si/BRASMeet](https://meet.jit.si/BRASMeet)

(Monthly meetings are held on 2<sup>nd</sup> Mondays of the month, at Highland Road Park Observatory)

**PRESENTATION:** *Tabetha Boyajian (of Tabby's Star fame), an LSU Professor of Astrophysics, will talk about how she discovered Tabby's Star, and other interesting stuff.*

## **What's In This Issue?**



President's Message  
BRAS Meetings Calendar  
Monthly Meeting Minutes  
Business Meeting Minutes  
Outreach Report  
Light Pollution Committee  
Globe At Night  
ALCON 2023



[Ep. 66: How Amateurs Can Contribute to Astronomy - An Interview with Dr. Pamela Gay](#)

### **HRPO EVENTS**

**OBSERVING NOTES: Microscopium– The Microscope**

**Like this newsletter? See PAST ISSUES online back to 2009**  
**Baton Rouge Astronomical Society Facebook Page**  
**BRAS YouTube Channel – Monthly Speakers via Jitsi**

## President's Message

ALCon is done! By all accounts it was a success, and I want to thank all the committee chairs & those who helped on the committees for their dedicated and hard work: **Trey Anding; Craig Brenden; Natalia Brew; Abigale and Brandon Gravois; Thomas Halligan; Merrill Hess; Chris Kersey; Amy Northrop; Marvin Owen; Chris and Annette Raby; Roslyn Readinger; Coy Wagoner; Ben Toman; Briar Richard; and the three Co-Chairs – Steven Tilley, Scott Cadwallader; and John R. Nagle.** Also thanks to the volunteers who showed up to help out during the convention, and to our sponsors. . . . .

We received compliments on the side trips, speakers, and panels – all were exceptional. There were three international attendees (two were speakers). From the trip to LSU and the viewing through the 11.5 inch Alvan Clarke telescope in the Landolt Observatory, to the LIGO tour, to the talk by Fred Espenak at the planetarium (and it's show), to the Star-B-Q (with gumbo and jambalaya) at HRPO, to the Awards Dinner with the keynote speech by David Eicher, and the talks by David Levy, Pranvera Hyseni, Brother Guy Consolmagno, SJ (the Vatican Astronomer) in a tag team with Dan Davis, Dr. James Dire, Debbie Moran, and attendees Scott Roberts, owner of Scientific Explorer, Brian Kloppenborg – the Executive Director of AAVSO, Diana Hannikainen from Sky and Telescope (part of AAS), and Vivian White from ASP/Night Sky Network, and more. What a lineup we had!

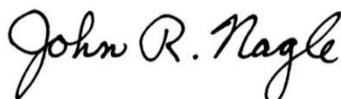
David Levy, David Eicher, and Fred Espenak, Brother Guy and Dan Davis signed attendees copies of their books.

I was asked to submit a copy of our Night Visions to AL for consideration for the [Mabel Stern Award](#) for Amateur Astronomy newsletter editors. They were impressed with our publication's layout, articles, and all the Outreach photos, charts, Observing Notes and so forth.

Elections are coming up in December for officers – if you have a nomination or if you want to volunteer for the job yourself, please let us know.

Trey Anding contacted Rep Barbara Reich Freiberg's office, which resulted in an official Commendation (HR274), from the La. State House of Representatives honoring our club for hosting ALCon. This will be framed for display at HRPO. A copy follows on Page 3.

Clear Skies,



**PS: Next month Michele is planning a layout of ALCon 2023 photos for the newsletter, and a list of testimonials from members who attended. Please send your favorite.jpeg images, with captions, and your testimonials, to her email: [msfry@cox.net](mailto:msfry@cox.net)**

### Calendar of Upcoming Meetings

**Monthly Member Meeting – 7 pm Monday, August 14<sup>th</sup>** at the Observatory, in person and via Jitsi

**Light Pollution Committee: 6 p.m.** before the Monthly meeting.

**Monthly Business Meeting: 7 pm Wednesday August 30<sup>th</sup>** (last Wednesday of the month at the Observatory, in person and via Jitsi

**MOON (Members Only Observing Night)** Special Announcement coming.

# State of Louisiana House of Representatives



2023 Regular Session

HOUSE RESOLUTION NO. 274

BY REPRESENTATIVE FREIBERG

## A RESOLUTION

To commend the Baton Rouge Astronomical Society on hosting the 2023 Astronomical League Convention.

WHEREAS, the Baton Rouge Astronomical Society (BRAS) was founded in 1981 by a group of individuals with a shared interest in amateur astronomy; it has been sustained for more than four decades and currently consists of more than eighty members; and

WHEREAS, BRAS members range from individuals seeking to learn the basics of amateur astronomy to those who are experienced in specific subject matters such as the visual night sky, cosmology, observing techniques, setting circles, astrophotography, optics, and telescope making; and

WHEREAS, BRAS members meet at the Highland Road Park Observatory in Baton Rouge, and this July, the society is hosting the annual convention of its national parent organization, the Astronomical League, at the Hilton Capitol Center Hotel; and

WHEREAS, the Astronomical League represents more than two hundred astronomy clubs and societies nationwide, and its mission is to foster astronomical education by encouraging astronomical observation and research; a member club is chosen each year to host the national convention, and 2023 marks the first time that it will be held in Baton Rouge; and

WHEREAS, the Baton Rouge Astronomical Society is an inspiring group of dedicated students of the heavens who are most deserving of the highest recognition for their efforts to promote astronomical education in Louisiana.

THEREFORE, BE IT RESOLVED that the House of Representatives of the Legislature of Louisiana does hereby commend the Baton Rouge Astronomical Society on hosting the 2023 Astronomical League Convention; does hereby join with BRAS in welcoming colleagues from around the country to Baton Rouge for the convention; and does hereby extend sincerest wishes that BRAS and all amateur astronomers continue to prosper in all of their endeavors.



A handwritten signature in cursive script, reading "Clay Delp".

SPEAKER OF THE HOUSE OF REPRESENTATIVES



## Monthly Meeting Minutes – July 10<sup>th</sup>

- Welcome by the president, John Nagle.
- The speaker for the evening was Dr. Matthew Penny from the LSU Dept. of Physics and Astronomy. The title of his topic was “How Earth Came to Be: From the Big Bang Through Exploding Stars to Planet Formation”. This lecture was a discussion of how we got from the Big Bang to where we are now using a cooking analogy with elements as the ingredients for stars and planets.
- John mentioned from the Light Pollution Meeting that he would like to start outreach in August in north Baton Rouge to see if we couldn't pull more people from that end of the parish in to the observatory.
- Ben announced that his current concern with outreach was getting all the volunteers scheduled for support for ALCON. We have 15 people so far and will need people to help with events, registration, and stuffing bags. He'll do his best to make sure the volunteers get to see the events they want to see. He'll let us know through email where we can help.
- Steven thanked the members of the club who were already registered. He encouraged everyone else to register and sign up for the banquet on Saturday night. John mentioned that the keynote speaker, David Eicher, was going to speak on galaxies. Another speaker, Robert Reeves, has just published a new book on the moon; he is hoping to bring a few extra copies to sell during the convention.
- Craig asked about parking for the convention; there should be public parking adjacent to the hotel.
- Trey mentioned that he had a copy of the resolution acknowledging the ALCON convention from the House of Representatives. He was going to leave it on the big table at the front of the room for people to look at if they wanted to.
- A raffle for three books was held with coffee, cookies, and Vernor's ginger soda available for onsite attendees.



### 2023 Officers:

**President:** John Nagle

president@brastro.org

**VP:** Joel Tews

vice-president@brastro.org

**Secretary:** Roz Readinger

secretary@brastro.org

**Treasurer:** Trey Anding

treasurer@brastro.org

### BRAS Liaison for BREC:

Chris Kersey

### BRAS Liaison for LSU:

Greg Guzik

### Committees/Coordinators:

al\_awards@brastro.org

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Michele Fry

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John Nagle

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Ben Toman

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Scott Cadwallader

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Open

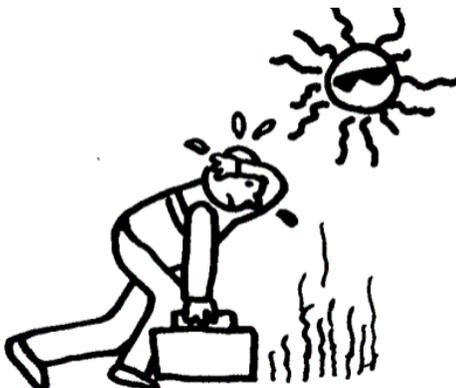
## Business Meeting Minutes – August 2<sup>nd</sup>

(meeting is usually the last Wednesday of the month, in person, at HRPO, but due to ALCon, it was postponed 1 week, and held via Jitsi because everybody needed a rest from running around.)

1. ALCon was discussed, pictures and reports to AL are due within 60 days.
2. Discussed a Web Master – we want to get a couple of bids for the services. We want a Web Master and an assistant along with a couple of administrators for the forums. If you would like to volunteer for any positions, please let us know.
3. Discussed the elections in December for next year’s officers. If you would like to volunteer or nominate someone for an officer, please let us know.
4. We are working on the sale of excess equipment/eyepieces, view finders, the 16” and 8” dobs, etc.
5. Discussed electronics – new microphones, cameras, controller, and wiring to facilitate BRAS’s on-line presence via live streaming, the You Tube channel, short training/informative videos.
6. Discussed outreaches at BREC Rec Centers all over the HRPO service area. We would start with solar and work into night sky observing. Ben will be notified when any are set up so he can call for volunteers.
7. Meeting Speakers – the August speaker will be Dr. Tabettha Boyajian; September and October will be Amy Northrop, November will be Walt Cooney. The December meeting is the pot-luck dinner and elections. We are working on a January speaker. ALCon generated a large pool of prospective speakers (most virtually).
8. MOON Night – we are re-branding this as “Seasonal Star Party”. and they will occur on the same night as BREC’s “Edge of Night” that will end around 7:30 PM for the public. We will set up telescopes both for some public viewing and for our private observing. The public would be able to view until 10 PM, and then only BRAS members. There are only three Edge of Nights a year and we would have to designate a night in the spring for this. The last “MOON” night will be on Sunday, September 3<sup>rd</sup>. The next Edge of Night will be in November.
9. We are looking at BRAS expenditures and what BRAS would like to do, and the subject of increasing the yearly membership dues came up – let us know what you think about this. We also looked at amending the By-Laws to allow the Treasurer to pay bills (membership fees to AL, etc.) if the total goes over \$500.00 without requiring a vote by the membership – looking ahead for these circumstances in the future. An amendment will be drafted and presented to the membership for a vote.
10. We discussed the use of the Galileo Scopes BRAS has (educational use only).
11. The “Night Visions” newsletter will be submitted to AL for the Mabel Stern Award for newsletter editors.
12. The light meter BRAS owns for light pollution testing will be sent out for calibration.

Submitted by John Nagle, as Roz couldn’t make the meeting.

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*3 weeks of 100 Degree Temps!  
STAY COOL, YA'LL!*

## BRAS subreddit and a Discord server.

**Our subreddit** has been set up for us to reach out to the public. Please join us on there. <https://www.reddit.com/r/BRAStro/>

**Our Discord server** is for Members only, and requires the download of a free app. It's a fun place for us to hang out. To join the discord, email [safey2007@gmail.com](mailto:safey2007@gmail.com) with the subject **BRAS Discord**.

To add a Flair next to your username, PM Amy Northrop.

.For Discord help, access **techsupport-faq**,

or message Amy or Justin: <https://discord.gg/6N8r8DDj>

It also has voice channels so that you can speak to people through Discord.

The best part about both of these is that you can access them on your phone with the free apps. Hope to see you there. ~ Amy Northrop

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## Click on the link to visit the ASTRONOMICAL LEAGUE FACEBOOK PAGE.

See pictures from our ALCON convention, watch video interviews with our speakers and award winners, see keynote presentations, etc.

Become a member, keep up with the news, be part of the conversation.

<https://www.facebook.com/Astronomical.League/>





## Outreach Report for July 2023

Hi Everyone,

As for outreach done this past month, it was all about ALCON. Hundreds if not thousands of photos were taken by many cameras, amateur and professional. These will be sorted through as time permits and posted in next month's newsletter. You can also find photos on the BRAS Facebook page.

I've sent a big thank you to those that volunteered their time to help make it successful, but I want to recognize those folks here, too, so everyone is aware of them. The following members heeded my call for volunteers stepping up spectacular fashion: (I'm just too lazy right now to alphabetize and the list is in no particular order. Whether you were able to donate 40 hours of your time or 1 hour, it was invaluable and indispensable.)

*Mary and Joey Legoria, Tammy Wood, Troy Brown, Roz Readinger, Susan Miller, Karen DesRoches, Scott Cadwallader, Steven Tilley, Trey Anding, John Nagle, Michele Fry, Chad Luttrell, Brian Fontenot, Joel Tews, Nat Brue, Santiago Barroso, Craig Brenden, Merrill Hess, Coy Wagoner, Debra and Mark Canatella, Chris and Annette Raby, Melanie Templet, Abigail Gravois (program) and Ben Toman.*

**That's 27 people, folks!** We were required to have 10% of our club ATTEND the convention. Well, we met that and also went ahead and had a whopping 30% of our club volunteer to help out!! I already shared this with the volunteers, but I'd like to share it with you all, too. I think some of the highest praise we received came from one of our distinguished former members, Walt Cooney. In speaking with him during the conference, he told me he felt so proud of his former club for the job that we were doing. Coming from someone that attends many astro conventions and is well known and respected in the amateur astronomy community, I found that high praise indeed.

Once again, we all owe our thanks to the list of people above. The conference could not have happened without their efforts and that's not just me being nice. It's the truth! (Also, I know there may have been others involved with the planning stages that I may have missed on this list. I apologize for the omission and please know your efforts are just as much appreciated!)

So, now that that's all behind us, it's time to continue looking toward the future. Please see below our list of Outreach opportunities. (It's just a couple things at the moment, but it's sure to grow.) In particular, we'll be looking at a busy day on Saturday, October 7th at the Main Library. It's the annual Mini Maker Faire that day which will run 10am-5pm (proposed times). The Library has also asked us to do a presentation on the Sun/Eclipse that day to get people ready for the Partial Solar Eclipse that will happen the following week.

In the more immediate future, we were contacted by a person (Erin Demastes) in the process of getting a doctorate from the LSU Music department. She wanted to host a recital of experimental/electronic/technology based music out at the HRPO. So, in conjunction with BREC, we set it up for the event to be the Friday night program on September 1st. It's planned to be both indoors and outdoors and we'd like to offer some extra scopes for viewing. Sounds like it will be a fun evening!

And as always, take a look at the list of events and let me know if you'd like to assist.

## Upcoming Events

### Friday, September 1st

7:30pm-10pm

HRPO

Guest music recital

Extra hands for scopes and possible BRAS demos

### Tuesday, September 19th

6pm-9pm

Sidewalk Astronomy at Perkins Rowe

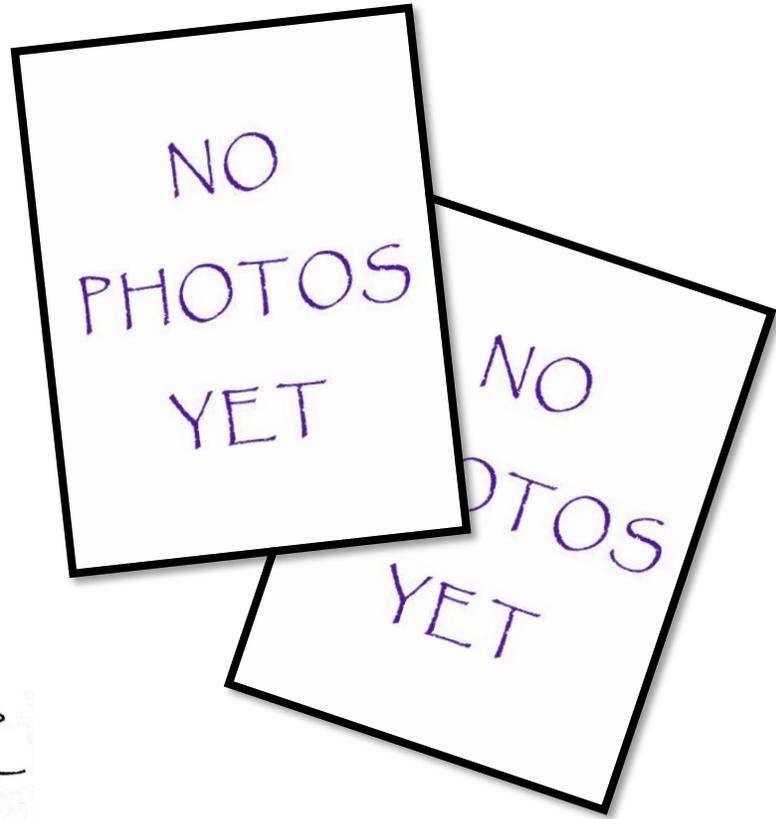
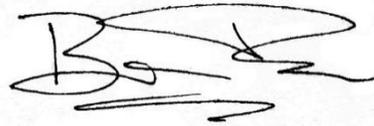
### Saturday, October 7th

10am-5pm

Baton Rouge Mini Maker Faire at the Main Library  
(Goodwood)

Several people needed to take shifts to cover the day  
Demos, club info, solar observing

Clear Skies, Ben Toman



## A Message from our Convention Chairman



**July 26–29, 2023**

Hilton Baton Rouge  
Capitol Center Hotel  
201 Lafayette Street  
Baton Rouge, LA 70801

# ALCON 2023



"Four years ago, I had a dream of bringing an ALCon to Baton Rouge, Louisiana; the members of Baton Rouge Astronomical Society (B.R.A.S.) adopted this dream, made it B.R.A.S.'s dream, and added to it, and made it a great ALCon. Through many long days and nights of work by many B.R.A.S. members, we pulled it off.

ALCon 2023 shows what we can do. Attendees were asking me, "Now ALCon 2023 is done, what is the next project?" This question speaks well about how we did at hosting ALCon 2023. All B.R.A.S. members should think about and share their dreams for our next project. Thank you to the ALCON 2023 committee and B.R.A.S. volunteers for all of your hard work."

*Steven M. Tilley*

Brought to Baton Rouge by the **Baton Rouge Astronomical Society**





## ***LPC (Light Pollution Committee) Report June***

This committee meets at 6:00, same day as the 7:00 BRAS Member Meeting  
Everyone is welcome to join in.

1. Discussed form letter for new construction/projects. We need to respond within two weeks maximum for any new projects. The letter will have a paragraph or two on what light pollution is and will be tailored for each circumstance.
2. UDC Clarification – we are getting information on the UDC committee members (name, way to contact) and when their next meeting will be.
3. DOTD Complaints – Chris will be meeting with them.
4. Scripts for You-Tube channel – we will start with power point programs on “What Is Light Pollution” – we will need volunteers for the voice over.
5. Outreach in North Baton Rouge – these outreaches will be done at BREC Rec Centers starting with Solar viewing. In the fall/winter we will do night sky viewing. A schedule will be worked out and given to Ben.
6. Light Meter Calibration – the light meter needs to be calibrated before we use it. The original calibration has expired. Local calibration services and factory calibration will be inquired about.
7. LSU Campus Lighting Project – Scott will get information for us.
8. Entergy Contact – still no response – Chris will follow up.

John Nagle, LPC Chair Pro-Tem



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## Globe At Night

This month's target for the Globe At Night program is  
**Cygnus and Hercules from August 7<sup>th</sup> through August 16<sup>th</sup>.**

If you would like to participate in this citizen science program, you can find instructions at  
<https://www.globeatnight.org>

P.S. The "Loss of the Night" app can be used for information and for reporting your observations.

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## SPACE WEATHER ALERTS

**Instant solar flare alerts:** The sun is starting to flare again.

Sign up for [Space Weather Alerts](#) to receive text messages when explosions are underway.

Basic plan \$49.95/year

Alerts include: Coronal Mass Ejections (CME), Geomagnetic Storms Predicted (class G1-G4), Planetary K-index (K5-K9, K4 for Pro Plan), Solar Flare alerts (X-Ray Flux levels and Scales), Solar wind speed alerts (500, 600, 700 and over 800 km/s), B Sub Z South-pointing episodes, Cracks in Earth's magnetic field.



From **Astronomy Cast**

**Ep. 66: How Amateurs Can Contribute to Astronomy**



**Pamela Gay at the USA Science and Engineering Festival in Washington, DC, April 29, 2012**

This episode's guest is [Dr. Pamela Gay](#) (from [Wikipedia](#): an American [astronomer](#), educator, [podcaster](#), and writer, best known for her work in astronomical [podcasting](#) and [citizen science](#) astronomy projects. She is a senior education and communication specialist and senior scientist for the [Planetary Science Institute](#).<sup>[1]</sup> Her research interests include analysis of astronomy data, as well as examination of the impact of citizen science initiatives. Gay has also appeared as herself in various television documentary series. Gay takes part in science popularization efforts and educational outreach as director of CosmoQuest, )

Dr. Pamela regularly relies on dedicated enthusiasts to gather data on variable stars, and asks:

*“Hey World, can you help me do science?”*

Listening to this 39 minute podcast, [Episode 66, HOW AMATEURS CAN CONTRIBUTE TO ASTRONOMY](#) will help you grasp how and why so many astronomy enthusiasts spend so much time “looking through the tube”. Maybe you, too, will catch their enthusiasm for participating in the global mission of gathering astronomical data. This episode describes the limitations professional astronomers face, the reliance on amateur observers for certain data, and the organizations that help get amateurs on board –and reveals what you can accomplish with practically nothing but the naked eye; best equipment to buy; where to report your observations, etc.

## Organizations for Citizen Astronomers to Check Out

- [American Association of Variable Star Observers](#) – do real science with variable stars of all types
- [TransitSearch.org](#) – help find transiting exoplanets
- [GalaxyZoo.org](#) – Humans can classify galaxies way better than computers ever could
- [Seti@Home](#) – put those unused computer cycles to work searching for alien life
- [Sky & Telescope Magazine](#) on observing meteor showers: when, where, how
- [The American Meteor Society](#) – where to report your meteor shower observations and turn it into useable data
- [Heavens-Above.com](#) – make sure your meteor isn't actually a satellite
- [The International Occultation Timing Association \(IOTA\)](#) – help discover the shape of asteroids or mountains on the moon
- [The International Dark-Sky Association \(IDA\)](#) – track and combat light pollution
- [GLOBE at Night](#) – tracking light pollution by looking at Orion

[Astronomy Cast](#) has over 650 episodes explaining the many different facets of amateur astronomical observation. Their webpage says:

***“Astronomy is one of the few sciences where amateurs make meaningful contributions to discoveries. Many professional researchers work hand-in-hand with teams of amateurs to make discoveries that just wouldn't be possible without this kind of collaboration.”***

Article submitted by Michele Fry

BRAS members are welcome to submit articles for consideration to this newsletter.



Editor's Note: Remember when we got 24 Galileoscopes? (November 2018 issue of Night Visions). Well, according to Ben Toman, we still have some and the club is considering how best to use them. Says Ben: *“These scopes are inexpensive and come as build-it-yourself kits. The magnification and refractor design are similar to what Galileo would have been using when he first turned a telescope to the night sky. According to the Galileoscope website, <https://galileoscope.org/>, the program was intended for the 2009 IYA, but worldwide interest has kept the program going a further 8 years. They have now ceased production so we are extremely fortunate to have a good stock of them for our use.”*



# Messages from HRPO

Highland Road Park Observatory



## **FRIDAY NIGHT LECTURE SERIES**

*7:30pm / For ages fourteen and older. / No admission fee.*

**11 August = “STEREO Shows the Sun”** The mission was revolutionary: place two spacecraft at different vantage points to record our parent star simultaneously. BREC Center Supervisor James DeOliveira shows the fascinating science that prepared us for this year’s extreme level of activity.

**18 August = “X-Ray Astronomy”** NASA, JAXA and ESA are collaborating on the soon-to-launch XRISM mission that will investigate the x-ray Universe like never before. The instruments have been tested, the mirror quadrants have been installed. Did we think of everything?

**25 August = “The Krakatoa Eruption”** Some believe it to be the largest Earth volcano eruption ever. Killing tens of thousands and changing the local landscape, the event will be outlined by BREC Education Program Specialist Amy Northrop.



## **EVENING SKY VIEWING**

*No admission fee. For all ages.*

*Fridays (4, 11, 18 and 25 August) from 8:30pm to 10pm*

*Saturday 5 August from 7:30pm to 10pm*

HRPO houses a 50-cm reflector, a 40-cm reflector and several smaller telescopes to bring the majesty of the night sky to the public. Trained operators, sharing duties via a rotating roster, work throughout the year in shifts. Each operator has a pre-planned list of objects to highlight. However, requests will be taken if there is time and if all present have viewed the previous target.



## **SCIENCE ACADEMY**

*For Cadets aged eight to twelve \*\$5 per Cadet per week (\$6 if out-of-parish)  
walk-ins welcome, but advanced registration via WebTrac strongly recommended*

*[activity #531990] \* parents may stay with or leave Cadet  
Four Cadet minimum and sixteen Cadets maximum per session.*

**5 August = “Saturn”**

**12 August = “Uranus and Neptune”**

**19 August = “Jupiter”**



## **MERCURIAN ELONGATION**

*Wednesday 9 August from 7:15pm to 8:45pm*

*for ages six and older / no admission fee*

Periodically Mercury reaches its greatest angular separation in the sky (elongation) from the Sun. This is the safest way to view Mercury by amateurs. Come join us at the Burbank Soccer Complex! The planet will appear as a “half-Mercury”.



## **PERSEID METEOR SHOWER**

*Saturday 12 August from 10pm to 2am*

*for ages six and older / no admission fee*

*Visitors must adhere to all rules.*

The Perseids are one of the major meteor showers of the year, caused by debris left from the passings of Comet Swift-Tuttle. Come learn about meteors and let’s see if we can spot some “earthgrazers”. Although telescopes aren’t needed for the Perseids, we’ll have a telescope available from until midnight for leisurely gazing at other celestial objects. But look fast for the meteors; Perseid meteoroids hit our atmosphere traveling about sixty kilometers a second! If you’re lucky, you may see a fireball...



## **PLUS NIGHT: “The Ringed Beauty”**

*Saturday 19 August from 7pm to 10pm.*

*For all ages. No admission fee.*

During Plus nights sky viewing starts a half-hour earlier and extra features are available to the public...

\*The well-known marshmallow roast commences at the campfire ring behind the building, lasting at least one hour and ending no later than 9:30pm. (The campfire, like the sky viewing, is weather-dependent.)

\*Four to eight of HRPO’s collection of over fifty physical science demonstrations will be on hand to perplex and amaze. Which demos will it be?

\*An unaided eye sky tour takes place, showing the public major features of the sky for that month. The tour takes place at 8pm during Standard Time, and at 9pm during Daylight Time.

\*Filters are inserted into the viewing mechanisms, to show patrons “hidden” details of the Moon, Mars and Jupiter (when they are available).

\*Reveal your age, and be shown any “birth stars” in the sky at that time.



## **SOLAR VIEWING**

*Saturday 26 August from 12pm to 2pm / No admission fee. For all ages.*

Weather permitting, viewing of the Sun’s image in three different manners—transferred onto a white surface, directly with safely-filtered optical light, and directly in safely-filtered hydrogen-alpha wavelength—will take place for two hours. Protective clothing and sunscreen are recommended.



## **STEM EXPANSION: “Astrogeology”**

*Saturday 26 August from 3:30pm to 7:30pm*

*For ages twelve to sixteen. / \$15 each per in-parish registrant; \$18 each per out-of-parish registrant. Advanced registration via WebTrac required [activity #531993].*

This program offers advanced topics, topic extensions and all-new games and activities to an older crowd. Certificates will be earned, and a section of archived experiments, some not seen in over fifteen years (and some *never* performed on site) take place. There are also giveaways and door prizes.



## **SATURNIAN OPPOSITION**

*Saturday 26 August from 10:15pm to 12:15am*

*for ages six and older / no admission fee*

Saturn is exactly 180 degrees from the Sun, rising as the Sun is setting. We are now the closest we’ll be to Saturn this year! Weather permitting viewing of Saturn will take place.



## **SUPERMOON RISING!**

*Wednesday 30 August from 9pm to 10:30pm / No admission fee. For all ages.*

HRPO opens for the closest Supermoon in every calendar year that has one. The thrill comes from a combination of that actual closeness combining with the illusion that makes a Full Moon look closer still when it is near the horizon. Be part of the crowd to experience a Supermoon Rising at HRPO!



## **OBSERVING NOTES AUGUST**

### **Microscopium - The Microscope**

**Position: RA 21, Dec-36°**

*Note: For six years I wrote these Observing Notes, featuring the 60 constellations we can see before midnight from Baton Rouge, containing objects above magnitude 10. For the next three years I expanded that information and put all my research in the same format, ending last April, 2022. Beginning with last May, Named Stars, Deep Sky and Other Stars are expanded to include new discoveries, and updated when more accurate information is available. Monthly updates will be made to Sky Happenings and all that appears below that title.*

#### ***Named Stars***

**Lacaille 8760 (AX Mic)**, mag. 6.68, 21 17 15.3 -38 52 02, is a red dwarf flare star and the brightest red dwarf star in the sky. Also known as **HD 202560**, and **HIP 105090**.

#### ***Deep Sky:***

**NGC 6925**, mag. 9.14, 20 34 20.57 -31 58 51.2, 4.47'x1.23' in size, is a barred spiral galaxy that is quite bright, large, and very elongated; bright, diffuse nucleus; filamentary arms. Located 3.7° west-northwest of **Alpha Microscopii**. A supernova, **SN 2011ei**, was observed in this object in July of 2011. Also known as **IC 5015**, **ESO 463-004**, **ESO 203114-3209.2**, **AM 2031-320**, **MCG-05-48-022**, **IRAS 20312-3209**, **AGC 33592**, and **PGC 64980**.

**All other objects are beyond magnitude 10 – I will list objects to magnitude 11.29:**

**NGC 6923**, mag. 10.73, 20 31 39.07 -30 49 54.8, 1.6'x0.91' in size, is a spiral galaxy that is pretty faint, quite small, and round. Located between two stars. Also known as **IC 5004**, **ESO 462-029**, **ESO 202833-3100.2**, **AM 2028-310**, **MCG-05-48-017**, **IRAS 20285-3100**, **AGC 33539**, and **PGC 64884**.

**IC 5105**, mag. 10.9, 21 24 22.01 -40 32 15.8, 1.76'x1.05' in size, is a galaxy that is very faint, very small, and round. Also known as **ESO 342-039**, **ESO 212112-4045**, **MCG-07-44-001**, **EQ 2121-407**, and **PGC 66694**.

**IC 5011**, mag. 11.2, 20 28 33.82 -36 01 37.6, 1.44'x0.11' in size, is a galaxy that is extremely small and elongated. Also known as **IC 5013**, **ESO 400-029**, **ESO 202521-3611.6**, **AM 2025-366**, **MCG-06-45-003**, and **PGC 64772**.

**IC 5003**, mag. 11.29, 20 43 14.34 -29 51 12.2. Also known as **IC 5029**, **IC 5039**, **IC 5046**, **ESO 463-020**, **ESO 204011-3002.0**, **AM 2040-300**, **MCG-05-49-001**, **IRAS 20401-3002**, **AGC 33738**, and **PGC 65249**.

**Microscopium Void** – is roughly a rectangular region of relatively empty space, bounded by incomplete sheets of galaxies from other voids.

**Microscopium Super Cluster** – it is an over-density of galactic clusters that was first noticed in the early 1990's. Two of the components **Abell Clusters 3695** and **3696** are likely to be gravitationally bound, while the relationship of **Abell 3693** and **3705** – in the same field – is unclear.

**Deep Sky objects in Microscopium: 11 NGC; 21 IC; 102 ESO; 23 MCG; 13 AGCS; 6 AGC; 2 PGC; 1 Quasar; 2 Radio Galaxies; 2 Str; 1 Void; and 1 Super Cluster for a total of 86 objects.**

#### ***Other Stars:***

**Epsilon Microscopii**, mag. 4.1, 21 17 56.25 -32 10 20.9, is a white dwarf star and a rapid rotator with a rotational velocity of 127 km per second compared to 1.9 km per second for our sun.

**HD 203949**, mag. 5.64, 21 26 22.75 -37 49 45.9, has one planet in orbit. Also known as **HIP 105854**, **Gould 68 Microscopii**, and **SAO 212998**.

**HD 202628**, mag. 6.75, 21 18 27.27 -43 20 04.7, has a proto-planetary disk. Also known as **HIP 105184**, **Gould 61 Microscopii**, and **SAO 230622**.

**AU Microscopii**, mag. 8.63, 20 45 09.53 -31 20 27.2, is a red dwarf flare star with a proto-planetary disk. Also known as **HD 197481**, and **HIP 102409**.

**HD 2093932**, mag. 8.81, 21 26 03.87 -29 55 44.1, is a rapidly oscillating star with a period of 5.9 minutes. Also known as **BI Microscopii**.

**BO Microscopii**, “**Speedy Mic**”, mag. 9.34, 20 47 45.01 -36 35 40.8, is an orange flare star and is one of the fastest rotating stars with a projected rotational velocity of 135 km per second, and it completes a rotation every 0.380 days (9 hours and 7 minutes). Its flares emit energy mainly in the X-ray and Ultraviolet bands of the spectrum. Also known as **HD 197890**, and **HIP 102626**.

**WASP-7**, mag. 9.54, 20 44 10.21 -39 13 30.8, is a yellow-white main sequence dwarf star. It has a transiting hot **Jupiter** planet, with a mass 0.96 times that of **Jupiter**, that orbits the star with a period of 4.954658 days. Also known as **HD 197286**.

**Stars beyond magnitude 10 that are of interest:**

**WASP-94A**, mag. 10.1, 20 55 07.9 -34 08 08, has one transiting planet in orbit.

**AT Microscopii**, mag. 10.36, 20 41 50.16 -32 26 06.8, is a binary with both stars being dwarf flare stars. They are located close to **AU Microscopii** and may form a very wide triple star system. Also known as **HD 196982**, and **HIP 102141**.

**WASP-94B**, mag. 10.5, 20 55 09.2 -34 08 08, has one transiting planet in orbit.

**WASP-182**, mag. 12.0, 20 46 42.0 -41 49 15, has one transiting planet in orbit.

**WASP-133**, mag. 12.9, 20 58 18.0 -35 47 48, has one transiting planet in orbit.

**WASP-144**, mag. 12.9, 21 23 03.0 -40 02 54, has one transiting planet in orbit.

**WASP-92A**, mag. 13.18, 20 55 08.0 -34 08 08, has one transiting planet in orbit.

**PSR J2124-3358**, 21 24 43.85 -33 58 44.67, is a millisecond pulsar star.

**Stars in Microscopium: 9 Greek; 32 Lettered; 2 numbered; 7 h; 4 β; 4 See (λ); 1 B; 2 Dunlop (Δ); 1 Stone; 1 Dawes; 1 Gliese; 1 Jc; 1 MelO; and 1 Lacaille for a total of 67 stars.**

## *Sky Happenings: August 2023*

*(what follows pertains ONLY to the current month. Material above is good year after year.)*

**Aug. 1<sup>st</sup>** - **Full Moon** occurs at 1:32 PM CDT.

**Aug. 2<sup>nd</sup>** - The **Moon** is at perigee (222,022 miles or 357,310 km from **Earth**) at 12:52 AM CDT.

**Aug. 3<sup>rd</sup>** - The **Moon** passes 2° south of **Saturn** at 5 AM CDT.

**Aug. 4<sup>th</sup>** - The **Moon** passes 1.5° south of **Neptune** at 5 PM CDT.

**Aug. 8<sup>th</sup>** - The **Moon** passes 3° north of **Jupiter**, in the southeast, at 5 AM CDT,

**Last Quarter Moon** occurs at 5:28 AM CDT,

The **Moon** passes 3° north of **Uranus** at 8 PM CDT.

**Aug. 9<sup>th</sup>** - The **Moon** is 1.4° south of the **Pleiades (M45)** at 8 AM CDT in the east with **Jupiter** to the upper right,

**Mercury** is at greatest eastern elongation (27°) at 4 PM CDT.

**Aug. 11<sup>th</sup>** - Morning: In the east-northeast the waning crescent **Moon** will rise between the horns of the **Bull**.

**Aug. 13<sup>th</sup>** - Morning: The **Perseid Meteor Shower** peaks,

Morning: The thin lunar crescent forms a triangle in the east-northeast with **Caster** and **Pollux**,

**Venus** is in inferior conjunction at 6 AM CDT,

**Pollux** is 1.7° north of the **Moon** at 5 PM CDT.

**Aug. 16<sup>th</sup>** - **New Moon** occurs at 4:38 AM CDT,

The **Moon** is at apogee (252,671 miles or 406,634 km from **Earth**) at 6:54 AM CDT.

- Aug. 18<sup>th</sup>** - The **Moon** passes  $1.1^\circ$  north of asteroid **Pallas** at 6 AM CDT,  
The **Moon** passes  $7^\circ$  north of **Mercury** at 6 AM CDT,  
The **Moon** passes  $2^\circ$  north of **Mars** at 6 PM CDT.
- Aug. 23<sup>rd</sup>** - **Mercury** is stationary at 12 AM (midnight) CDT.
- Aug. 24<sup>th</sup>** - **First Quarter Moon** occurs at 4:57 AM CDT,  
The **Moon** passes  $1.1^\circ$  north of **Antares** at 9 PM CDT – an occultation will occur for most of the USA.
- Aug. 27<sup>th</sup>** - Asteroid **Flora** is at opposition at 3 AM CDT,  
**Saturn** is at opposition at 3 AM CDT.
- Aug. 28<sup>th</sup>** - **Uranus** is stationary at 10 PM CDT.
- Aug. 30<sup>th</sup>** - The **Moon** is at perigee (221,942 miles or 357,181 km from **Earth**) at 10:54 AM CDT,  
The **Moon** passes  $2^\circ$  south of **Saturn** at 1 PM CDT,  
**Full Moon** occurs at 8:36 PM CDT.
- Sept. 1<sup>st</sup>** - **Neptune** is  $1.4^\circ$  north of the **Moon** at 2 AM CDT.
- Sept. 2<sup>nd</sup>** - **Venus** is stationary at 11 PM CDT.
- Sept. 4<sup>th</sup>** - **Jupiter** is  $3^\circ$  south of the **Moon** at 3 PM CDT,  
**Jupiter** is stationary at 4 PM CDT.
- Sept. 5<sup>th</sup>** - **Uranus** is  $3^\circ$  south of the **Moon** at 4 AM CDT,  
The **Moon** is  $1.2^\circ$  south of the **Pleiades (M45)** at 3 PM CDT.

## *Planets:*

**Mercury** – **Mercury**, on August 1<sup>st</sup>, will stand  $6^\circ$  high in the western sky 30 minutes after sunset shining at magnitude 0.1. By August 10<sup>th</sup>, the planet will dim to magnitude 0.4 and will be only  $5^\circ$  high 30 minutes after sunset. On the 9<sup>th</sup>, the planet reaches greatest eastern elongation ( $27^\circ$  east of the Sun). The planet will have a morning apparition in September (at dawn).

**Venus** – **Venus** is in inferior conjunction on August 13<sup>th</sup> and will spring into the morning sky nearly  $4^\circ$  high 30 minutes before sunrise on the 21<sup>st</sup>. By month's end, the planet is  $26.5^\circ$  west of the **Sun** and almost  $10^\circ$  high among the dim stars of **Cancer** about 1 hour before sunrise. A telescope will show a beautiful 11%-lit crescent spanning  $50''$ .

**Mars** – **Mars** is a challenge to observe at magnitude 1.8 in the twilight sky, but on August 18<sup>th</sup> it will stand  $1.25^\circ$  south of the waxing crescent **Moon** in the west after sunset. The pair will set just over an hour after the Sun.

**Jupiter** – **Jupiter** rises shortly after midnight on August 1<sup>st</sup>. Best observing will be in the hours before dawn, when it will stand more than  $40^\circ$  above the eastern horizon, in Aries. On the morning of the 8<sup>th</sup>, the planet, at magnitude -2.4, is less than  $1.5^\circ$  below the Last Quarter Moon at 1:30 AM CDT. On the morning of the 13<sup>th</sup>, Ganymede will be occulted by the planet around 4:33 AM CDT, to reappear by 4:51 AM CDT. The planet will come within  $1'$  to  $2'$  of Arietis on the 21<sup>st</sup> and 22<sup>nd</sup>.

**Saturn** – **Saturn** will reach opposition on August 27<sup>th</sup> and will be visible from dusk to dawn against the background stars of **Aquarius**. On the 1<sup>st</sup>, the planet will rise by 9:30 PM local daylight time and will be well placed  $25^\circ$  above the southeast horizon by midnight in **Aquarius**. In early August the illuminates the north side of the rings that are tilted  $8^\circ$  to our line-of-sight, and  $9^\circ$  by the 31<sup>st</sup>. The planet's disk will span  $19''$  at opposition, at magnitude 0.4, with the rings spanning  $43''$ . **Titan**, the planet's largest moon, shines at magnitude 8.5 and will stand north of the planet on the 7<sup>th</sup> and the 28<sup>th</sup>, and south of the planet on the 15<sup>th</sup> and 31<sup>st</sup>. **Rhea** (magnitude 9.7), **Tethys** (magnitude 10.3), and **Dione** (magnitude 10.5) orbit closer to the rings. **Dione** will be occulted by the planet on the 7<sup>th</sup>, skimming the northern limb at about 2:15 AM CDT to 3:45 AM CDT. **Tethys** and its shadow transit the planet starting with the shadow just before 3:40 AM CDT, with the moon following 6 minutes later. **Iapetus** will reach eastern elongation on the 1<sup>st</sup>, standing  $9'$  east of the planet at magnitude 11.9 – its darker hemisphere facing **Earth**. **Iapetus** will reach inferior conjunction on the 20<sup>th</sup> at 11 PM CDT, just  $25'$  northwest of the planet, shining at 11<sup>th</sup> magnitude.

**Uranus** – **Uranus** will stand between  $7.5^\circ$  and  $9^\circ$  northeast of **Jupiter** all month, rising close to local midnight in **Aries** at magnitude 5.8. Best viewed before dawn when it is  $60^\circ$  high in the southeast and roughly level with the **Pleiades (M45)**. The stars **Delta** ( $4^{\text{th}}$  magnitude) and **Zeta** ( $5^{\text{th}}$  magnitude) **Arietis**

are 1.5° apart to the northwest of the planet. East of the two stars is the star **63 Arietis**, which lies 2.6° north of the planet. The planet is stationary on the 28<sup>th</sup> and will then begin retrograde motion. A telescope will show a 4" wide disk with a greenish hue.

**Neptune** – **Neptune** will rise just after 10 PM local time on August 1<sup>st</sup>, and before 8:30 PM on the 31<sup>st</sup>. The planet is at magnitude 7.7 amid the background stars in **Pisces** not far from the **Circlet of Pisces**. The planet is just northwest of a line of 3 stars – 6<sup>th</sup> magnitude **20** and **24 Piscium**, and 5<sup>th</sup> magnitude **27 Piscium**. This trio of stars is 5.6° southeast of **Lambda Piscium** – the southeast end star in the **Circlet**. The planet will show a 2" bluish disk. As the month opens, the planet will form a triangle with **20** and **24 Piscium**. The planet will end the month 19' from **20 Piscium**.

**Moon** – Favorable librations – **Pythagoras Crater** on the 1<sup>st</sup>; **Mouchez Crater** on the 2<sup>nd</sup>; **Anaximenes Crater** on the 30<sup>th</sup>; and **Petermann Crater** on the 31<sup>st</sup>.

Greatest North declination on the 12<sup>th</sup> (+27.9°)

Greatest South declination on the 27<sup>th</sup> (-28.1°)

Libration in Longitude: East limb most exposed on the 8<sup>th</sup> (+7.6°)

West limb most exposed on the 25<sup>th</sup> (-7.6°)

Libration in Latitude: North limb most exposed on the 1<sup>st</sup> (+6.5°) and on the 28<sup>th</sup> (+6.6°)

South limb most exposed on the 15<sup>th</sup> (-6.6°)

**Asteroids / Minor Planets** All information given is from the *RASC Observers handbook, 2023 USA Edition*, unless otherwise noted.

Asteroid **1 Ceres** – **Ceres's** position on August 4<sup>th</sup> is 12 59.27 +01 12.9, at magnitude 8.8 in **Virgo**.

Asteroid **4 Vesta** – **Vesta's** positions are as follows: On August 14<sup>th</sup> – 05 17.92 +18 41.2, at magnitude 8.4 in **Taurus**; and on the 24<sup>th</sup> – 05 32.16 +18 53.9, at magnitude 8.3 in **Taurus**.

Asteroid **8 Flora** – **Flora's** positions are as follows: On August 4<sup>th</sup> – 22 50.17 -14 10.3, at magnitude 8.9 in **Aquarius**; on the 14<sup>th</sup> – 22 44.63 -15 38.0, at magnitude 8.6 in **Aquarius**; and on the 24<sup>th</sup> – 22 36.69 -17 12.2, at magnitude 8.3 in **Aquarius**.

Asteroid **10 Hygiea** – **Hygiea's** positions are as follows: On August 4<sup>th</sup> – 21 19.85 -12 19.0, at magnitude 9.7 in **Aquarius**; on the 14<sup>th</sup> – 21 11.95 -12 45.8, at magnitude 9.6 in **Aquarius**; and on the 24<sup>th</sup> – 21 04.45 -13 12.8, at magnitude 9.9 in **Aquarius**.

Asteroid **15 Eunomia** – **Eunomia's** positions are as follows: On August 4<sup>th</sup> – 18 40.93 -23 42.8, at magnitude 9.2 in **Sagittarius**; on the 14<sup>th</sup> – 18 35.14 -23 05.7, at magnitude 9.4 in **Sagittarius**; and on the 24<sup>th</sup> – 18 32.27 -22 28.8, at magnitude 9.6 in **Sagittarius**. **Eunomia's** positions, *by my estimates*, are as follows: On August 1<sup>st</sup> – about 1.7° south-southwest of **28 Sagittarii** or about 1.8° east and a touch north of **24 Sagittarii**; on the 5<sup>th</sup> – about 1.5° east-northeast of **24 Sagittarii** or about 0.7° northeast of **M22**; on the 10<sup>th</sup> – about 1° northeast of **24 Sagittarii** or about 1° due east and a touch north of **NGC 6642**, or about 0.6° due north of **M22**; on the 15<sup>th</sup> – about 1° due north and a touch east of **24 Sagittarii**, or about 0.7° northeast of **NGC 6642**; on the 20<sup>th</sup> – about 1.5° due north and a touch west of **24 Sagittarii** or 0.8° due north and a touch east of **NGC 6642**; on the 25<sup>th</sup> – about 1.8° north-northwest of **24 Sagittarii**; and on the 30<sup>th</sup> – about 2° north-northwest of **24 Sagittarii**.

Asteroid **18 Melpomene** – **Melpomene's** positions are as follows: On August 4<sup>th</sup> – 02 19.06 +06 46.3, at magnitude 9.8 in **Cetus**; on the 14<sup>th</sup> – 02 35.84 +06 43.4, at magnitude 9.6 in **Cetus**; and on the 24<sup>th</sup> – 02 50.88 +06 19.1, at magnitude 9.4 in **Cetus**.

Asteroid **29 Amphitrite** – **Amphitrite's** positions are as follows: on August 14<sup>th</sup> – 00 56.16 +05 53.0, at magnitude 9.9 in **Pisces**; and on the 24<sup>th</sup> – 00 55.05 +06 12.6, at magnitude 9.7 in **Pisces**.

**Comets** – Positions given are from *ALPO*.

Comet **103P/Hartley** – **Hartley's** positions are as follows: On August 10<sup>th</sup> – 00 38.7 +33 34.9, at magnitude 10.2 in **Andromeda**; on the 20<sup>th</sup> – 01 23.2 +38 18.7, at magnitude 9.4 in **Andromeda**; and on the 30<sup>th</sup> – 02 22.9 +42 01.4, at magnitude 8.6 in **Andromeda**. **Hartley's** positions, *by my estimates*, are as follows: On August 1<sup>st</sup> – about 1.8° due east and a touch north of **Alpha Andromedae**; on the 5<sup>th</sup> – about 3° northeast of

**Delta Andromedae**; on the 10<sup>th</sup> – about 2° due east and a touch north of **Pi Andromedae**; on the 15<sup>th</sup> – about 1° due north of **Beta Andromedae**; on the 20<sup>th</sup> – about 2.5° due south and a touch west of **Upsilon Andromedae**; on the 25<sup>th</sup> – about 1.5° due south of **Gamma Andromedae**; and on the 30<sup>th</sup> – about 1° due west and a touch south of **M34**.

Comet **C/2020 V2 (ZTF) – V2's** positions are as follows: On August 10<sup>th</sup> – 03 06.6 +01 09.6, at magnitude 9.1 in **Cetus**; on the 20<sup>th</sup> – 02 58.8 -04 08.0, at magnitude 9.0 in **Eridanus**; and on the 30<sup>th</sup> – 02 46.7 -10 18.3, at magnitude 9.0 in **Eridanus**.

Comet **C/2021 T4 (Lemmon) – T4's** positions are as follows: On August 10<sup>th</sup> – 15 26.2 -31 02.0, at magnitude 9.0 in **Lupus**; on the 20<sup>th</sup> – 15 04.0 -23 42.8, at magnitude 9.7 in **Libra**; and on the 30<sup>th</sup> – 14 54.9 -19 26.7, at magnitude 10.2 in **Libra**.

**Meteor Showers** – All information given comes from the *International Meteor Organization*.

There are 2 **Major (Class I)** meteor showers active in August - the **Southern Delta Aquarids**, active from July 18 through August 21<sup>st</sup>, peaks on July 31<sup>st</sup>; and the **Perseids**, active from July 14<sup>th</sup> through September 1<sup>st</sup>, peaks on August 13<sup>th</sup> with a maximum zenith hourly rate (mzhr) of 100.

There are 4 **Minor (Class II)** meteor showers active in August – the **July Pegasids**, active from July 4<sup>th</sup> through August 8<sup>th</sup>, peaked on July 11<sup>th</sup>; the **Alpha Capricornids**, active from July 7<sup>th</sup> through August 15<sup>th</sup>, peaks on July 31 with a mzhr of 4; the **Kappa Cygnids**, active from August 1<sup>st</sup> through August 27<sup>th</sup>, peaks on August 14<sup>th</sup> with a mzhr of 3; and the **Aurigids**, active from August 26<sup>th</sup> through September 4<sup>th</sup>, peaks on September 1<sup>st</sup> with a mzhr of 6.

There is 1 **Variable (Class III)** meteor shower active in August – the **Beta Hydusids**, active from August 15<sup>th</sup> through August 19<sup>th</sup>, the mzhr is variable.

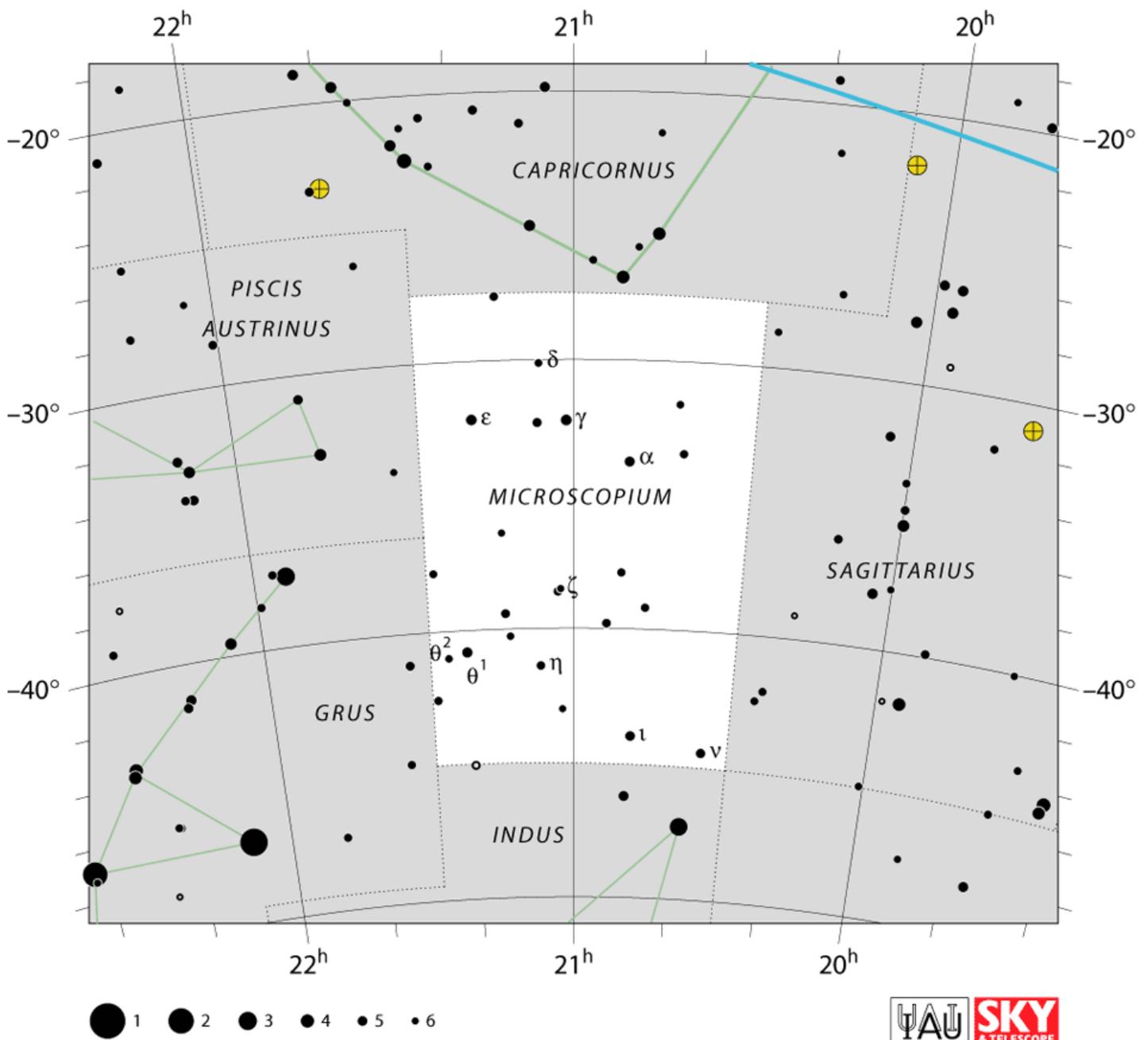
There are 10 **Weak (Class IV)** meteor showers, all with the mzhr of <2, active in August: the **Eta Eridanids**, active from July 10<sup>th</sup> through September 10<sup>th</sup>, peaks on August 6<sup>th</sup>; the **Piscis Austrinids**, active from August 1<sup>st</sup> through August 10, peaks on August 7<sup>th</sup>; the **Northern Delta Aquariids**, active from August 2<sup>nd</sup> through August 17<sup>th</sup>, peaks on August 12<sup>th</sup>; the **August Xi Draconids**, active from August 4<sup>th</sup> through August 28<sup>th</sup>, peaks on August 15<sup>th</sup>; the **Beta Hydusids**, active from August 15<sup>th</sup> through August 19<sup>th</sup>, peaks on August 17<sup>th</sup>; the **August Beta Piscids**, active from August 17<sup>th</sup> through September 8<sup>th</sup>, peaks on August 21<sup>st</sup>; the **Zeta Draconids**, active from August 12<sup>th</sup> through September 5<sup>th</sup>, peaks on August 26<sup>th</sup>; the **August Gamma Cepheids**, active from August 17<sup>th</sup> through September 6<sup>th</sup>, peaks on August 29<sup>th</sup>; the **Nu Eridanids**, active from August 31<sup>st</sup> through September 21, peaks on September 11<sup>th</sup>; and the **September Lyncids**, active from August 30<sup>th</sup> through September 20<sup>th</sup>, peaks on September 11<sup>th</sup>.



# Mythology:

## Microscopium – the Microscope

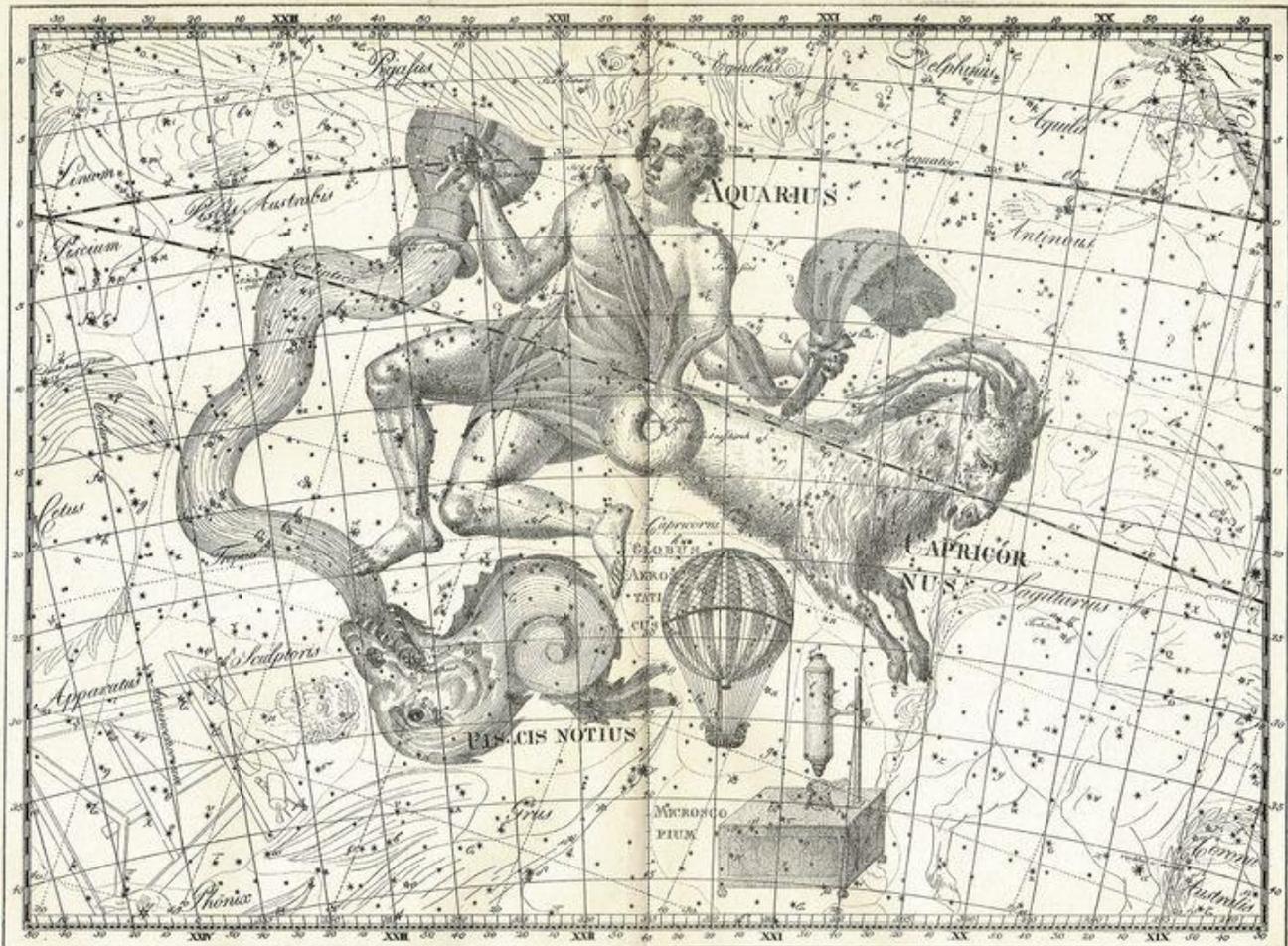
One of the southern constellations, representing scientific instruments, that were invented by the French astronomer Nicolas Louis de Lacaille. (Note: A star named **Lacaille 8760**, or **AX Microscopii**, is in the section Other Stars above) Microscopium lies south of the zodiacal constellation **Capricornus** in an area of sky containing only 5<sup>th</sup> magnitude stars. The only remarkable thing about this constellation is that anyone could imagine a separate constellation here.



KAART XIV.

BODE'S ATLAS VANDEN STERRENHEMEL.

Bladz. 328.



De Steenbok, *Capricornus*. — De Waterman, *Aquarius*. — De Zuidelijke Visch, *Piscis Notius*. — Het Microscop, *Microscopium*. — De Luchtballon, *Globus Aerostaticus*.

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The End