



Artist conception of the James Webb Space Telescope. Credit: NASA GSFC/CIL/Adriana Manrique Gutierrez (see Page 8)

## Monthly Meeting January 10<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: Merrill Hess will make a presentation on Solar Events.**

## What's In This Issue?



*President's Message*  
*40<sup>th</sup> Anniversary Parties w. Pics*  
*Business Meeting Minutes*  
*Outreach Report*  
*ALCON 2023*  
*Light Pollution Committee*  
*Globe At Night*  
*BRAS Calendar*



*Article: Webb Launch and L2*

### *HRPO EVENTS*

**OBSERVING NOTES - Piscis Austrinus – The Southern Fish**

**Like this newsletter? See PAST ISSUES online back to 2009**  
**Visit us on Facebook – Baton Rouge Astronomical Society**

**BRAS YouTube Channel**

## President's Message

We start 2022 with some new officers. I am the new President, and am giving up the LPC chair due to time constraints. We do not yet have a Vice President! Roz Readinger is our new Secretary. Trey Anding is staying on as Treasurer. Scott Cadwallader has agreed to be the BRAS PIO (Public Information Officer). Michele has agreed to stay on as Newsletter editor, Fred as Webmaster, Ben on Outreach, and all the other posts are remaining as listed last year.

The annual Christmas Pot-Luck Dinner was also BRAS's **40th Anniversary Party**. Elections were held, Scott gave his presidential farewells, Ben gave out several Outreach Pins, there were some special guests (Page 3). Craig as a founding member, was given the honor to blow out the candles (40 + one to grow on), on our awesome Ambrosia cake, decorated with authentic Louisiana strawberries brought by Merrill Hess, and space cookies baked by Annette Ravy.

The **Public BRAS 40th Anniversary Party** was held the following Friday. ( Page 4).

**ALCon 2023** plans are progressing. Sub-committee members are still needed (see flyer Page 11).

**HRPO is planning to convene all the partners of the Observatory:** BREC, BRAS, and LSU to discuss the future of HRPO. If you have things you would like to see at HRPO, let me know.

**Perkins Rowe Sidewalk Astronomy** is back. The next will be on January 11th from 6 to 9 PM. **The Swamp Fest** will be in March, and **IAD** (International Astronomy Day) will be on May 7<sup>th</sup>. Be sure to check Ben's Outreach Notes for times and dates.

. BRAS will have a table at the IAD for the sale/swap of used equipment – no new equipment – details to be announced later.

The James Webb Space Telescope has finally blasted off, on its way to the L2 (Lagrange 2) point where it will stay. See Michele's article on Pages 8 & 9. She says there may be a quiz!!!!!!

Last of all, the monthly BRAS membership meetings have returned to the second Monday of the month, in-person and via jit-zi. At this time masks are required inside at HRPO, but not social distancing. As conditions change, we will let you know.

Clear Skies

John Nagle, 2022 President

*John R. Nagle*



### 2022 Officers:

**President:** John Nagle  
president@brastro.org

**VP:**  
vicepresident@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  
Merrill Hess  
Lightpollution@brastro.org  
??????

Newsletter@brastro.org  
Michele Fry

Observing@brastro.org  
John Nagle

Outreach@brastro.org  
Ben Toman

Publicity@brastro.org  
Scott Cadwallader

Webmaster@brastro.org  
Frederick Barnett



# YES, We Had A 40<sup>th</sup> Anniversary Party!



First, we combined our Christmas Pot Luck/Member Meeting/Elections with an anniversary party on Monday, December 10<sup>th</sup>. Two founders of BRAS were present, **Craig Brenden**, and **Randy McNabb**. Past President **Melanie Templet**, who presided when the HRPO Project was started, came from New Mexico where she now lives. **Chris Carlton** attended and donated two astrophotography pictures, printed on aluminum, and framed, that are now hanging by the monitor over the globes at HRPO. We plan to raffle the magnificent astro-photos this year. **Dr. Schafer** was unable to attend but wrote a nice letter which John read to everybody (see Page 5).







## In fact ,we had Two 40<sup>th</sup> Anniversary Parties!

Second, we invited the public to help us celebrate at HRPO on Friday December 17<sup>th</sup>, from 6 to 10 pm, and they did!!! There was dessert from City Gelato and a food truck, plus plenty of drink with snacks at the party.

HRPO personnel set up demonstration tables for us, and BRAS set up Light Pollution tables and handed out material.

Special guests included:

- **Randy McNabb**, one of the founders of BRAS, who gave a short talk on how he was contacted to help start BRAS.
- **Melanie Templet**, President of BRAS when the Observatory project was started, helped plan the project, came in from New Mexico where she now lives and gave a short talk about the project.
- **Walt Cooney** came over from Houston where he now lives to talk about the first asteroid (named Baton Rouge) of the over fifty he is credited with discovering using the 20" telescope at HRPO.

- **Carroll Iorg**, President of the Astronomical League (AL) was in town checking out the possible venues for the 2023 ALCon in Baton Rouge. He distributed a bag full of door prizes during the party, and presented BRAS with a Certificate of Appreciation from AL. From my conversations with him, and his conversations with BRAS members present and HRPO personnel, I suspect he was quite impressed by all he had seen and heard.
- **Mr. Hughes**, Special Facilities Director for BREC (Chris K's boss) also attended. I talked to him about getting HRPO designated by the IDA as an **Urban Dark Sky Place**. Discussions on this will continue.
- While sparsely attended due to Covid, we had a good time, and I think the party was a success!

Writeup by John Nagle.  
Photos by Michele Fry,  
John Nagle & Ben  
Toman



***Anniversary Letter from Dr. Schaefer  
(long time active BRAS member/LSU professor who has retired to Arizona) -  
read by John to everyone at the Pot-Luck.***

-----Original Message-----

From: Bradley E Schaefer <[schaefer@lsu.edu](mailto:schaefer@lsu.edu)>

Sent: Saturday, December 11, 2021 7:00 PM

To: [jonagle@cox.net](mailto:jonagle@cox.net)

Subject: Re: BRAS 40th Anniversary

Hi;

Argh, Martha and I will not be along for the grand party. Largely, this is due to the COVID problems with travel. We had been waiting to make a decision until the COVID situation becomes clear, but watching over the last month has shown only an increasing peak, now getting up to near the maximum from last December, and it is now clear that it will not improve to any 'travel-able' level by the party. Martha and I have been keeping rather strict isolations, as we are no longer young, and we can keep this isolation. (We are in a good situation for severe isolation, as we have no kids, no teaching, no office, a stable retirement income, and way too much to do at home. We are much luckier than many people who have bad situations from COVID. We are thankful for our luck.) Travel to the party, with the air travel plus the party, would be a substantial risk, and we hate to lose the effort of nearly two-years of isolation, just to eat some cake and meet some old friends. So now with the COVID prospects being clear, we must decline the wonderful and nice invitation for the grand BRAS party.

Early this morning, I could not pick up Comet Leonard, so it is not as bright as some predictions would have it. Mr. Leonard, the discoverer lives a few blocks from our house.

I'm still working on various astronomy projects nearly 80 hour work weeks. Some of this is to survey and measure Hohokam petroglyphs a bit outside of town, looking for sun daggers and their statistics. I am nearing completion of a naked-eye front-yard series of measures of the Sun's position that have already given me the eccentricity and obliquity of the Earth's orbit, the inequality of the seasons, the date of Earth's perihelion, and even \*conceptually\* a test of General Relativity. For my nova astrophysics, I have been obsessing too much about the new TESS and ZTF data, now discovering orbital periods for 29 systems. So I'm keepin' active with the sky.

Cheers,  
Brad



## Business Meeting Minutes –December 29, 2021

(meeting is the last Wednesday of the month, in person, at HRPO)

The following items were discussed:

- ALCon 2023 Update – The President of AL, Carroll Iorg, was in town to see the possible venue(s) for the ALCon. He visited/stayed at three hotels, visited the LASM Planetarium, visited HRPO where he attended the BRAS 40<sup>th</sup> Anniversary Party (see write-up in this newsletter), and the LSU Hilltop Arboretum.
- Also discussed was that the AL Insurance would cover the ALCon needs. Steven also said he was thinking about taking out a sponsorship at the 2022 ALCon in Albuquerque. The sponsorship, in BRAS's name, would be used for a promotional opportunity for the ALCon 2023 here in Baton Rouge.
- Stephen wants to have an ALCon 2023 Committee, with sub-committees, meeting for progress reports. No date has been set yet.
- The telescope for the HRPO Raffle at IAD – Chris K will be ordering it within the next few days.
- Library telescope – Contacting the WBRPL and the EBRPL to find out how much usage there is. If there is enough usage, BRAS will get a tabletop telescope, modify it, and donate to a different Library.
- Urban Dark Sky Place – This is a designation by the IDA (International Dark Sky Association) that BRAS would like to see HRPO get. Awaiting to hear from BREC because it requires their active help and commitment.
- Outreach – Perkins Rowe has confirmed for January 11<sup>th</sup>, 6 to 9 PM. In March there is the Swamp Fest and in May there is the IAD.
- HRPO – The Learn Your Sky and Learn to Use Your Binocular training will be done in January. One instructor is still needed for the binocular training – see Chris K if you are interested.
- The Learn to Use Your Telescope training does not have anyone signed up yet. IAD will be on May 7<sup>th</sup>
- HRPO will allow BRAS to set up a table(s) –we must provide the table(s) – for a used equipment sale/swap. No new equipment!
- HRPO wants to set up a meeting with all the partners of HRPO – BREC, BRAS, and LSU to discuss the future of HRPO.
- The Daylight Savings Time Bill has passed the Louisiana Legislature and has been signed into law. If the U.S. Congress approves of it, Louisiana will stay on Daylight Savings Time all year. This would mean that in the summer, it will not get dark until around 9 PM, making outreach very hard for young people.
- Magnetic signs with the BRAS Logo and Name, to be used on car/truck/SUV doors, for identifying BRAS members at the Dark Site, at outreaches, and any other BRAS event has been proposed.
- Training – Scott C says he can train any BRAS member who would like to learn how to use the electronic controlled telescopes (the 8SE and the AVX mounts), in the BRAS closet, that can be used for outreach and/or checked out. If interested in getting training, let Scott C know.
- MOON Night – No date has been set. Looking at a night in late January or February. Daylight Savings Time starts on March 13<sup>th</sup>, and we want to have it before then.

Minutes submitted by John Nagle





# BRAS Outreach Report

Hi Everyone,

Not a whole lot to report on since the end of the year in large part because the weather turned a bit foul on us and forced us to cancel a couple of outreach sessions. We did, however, get a few holes in the clouds at our **event at Farr Park** and those that were there got to see some great views of Venus, Jupiter, Saturn and the Moon. Thanks to Scott C. for helping out with that one, too!

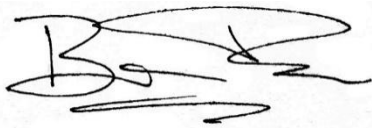
Coming up in the New Year we'll be looking to do some more training on our Night Sky Network toolkits and we'll be ready to heed the calls when they come in for more outreach. Sidewalk Astronomy at Perkins Rowe is still happening at this time (see below), but of course regarding the current COVID situation, we will be adhering to the guidelines put out by the State as well as respecting the policies of those that request our involvement. This may lead to more cancellations, unfortunately. We made it through last year and had a respectable amount of events so I'm confident this year will be a good one, too!

I hope to see some more people become involved with Outreach this year. As I've said before, it's a fun way to start learning more astronomical facts and it's also a great way to provide an awesome service to the community. Let me know if you'd like to help out!

Happy New Year and Clear Skies,  
Ben Toman

## Upcoming Outreach Events

**Tuesday, January 11th**  
6pm-9pm  
Perkins Rowe Sidewalk Astronomy



Clear Skies, Ben Toman

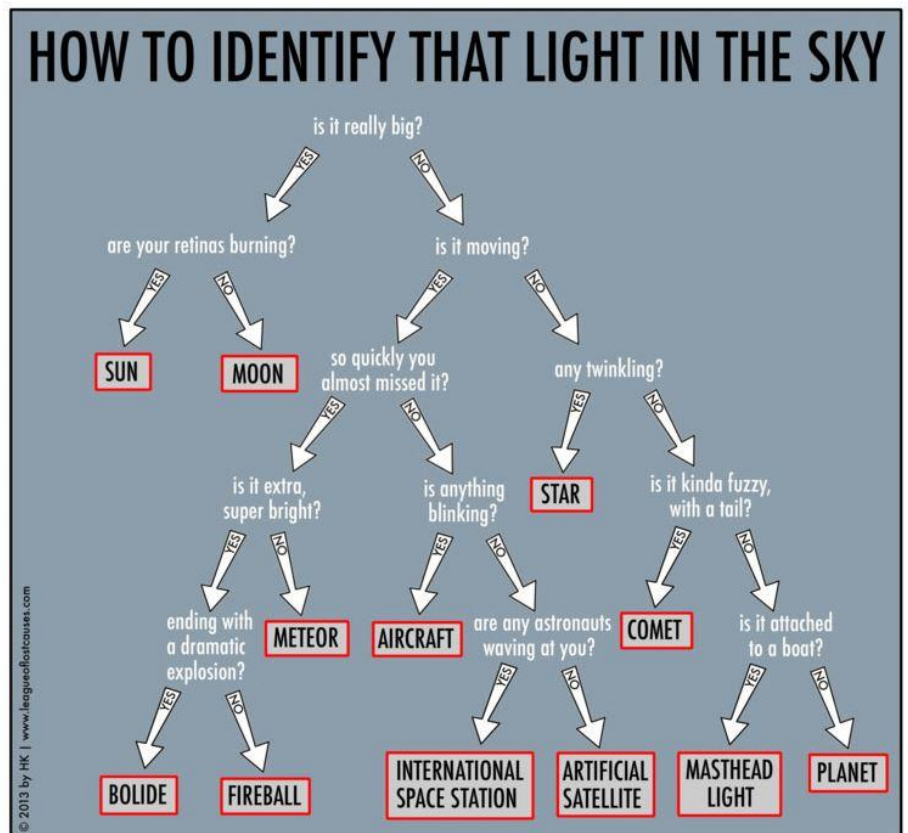


Image courtesy of Craig Brenden



## **BRAS Light Pollution Committee Report**

This committee meets at 6:00, same day as the 7:00 BRAS Business Meeting  
Meetings will be the last Wednesday of the month.  
Everyone is welcome to join in.

There was no meeting held for January due to lack of Quorum.

Due to time constraints as 2022 President of BRAS and as Observing Chairperson, I am looking for someone to take over as the LPC Chairperson. If you are interested, please let me know.

Need to design a form letter and procedure to follow for any new development by the City/Parish.

John Nagle, LPC Chair

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## **Globe At Night**

The target for the Globe at Night program is  
Orion from December 25th through January 3rd, and Orion from January 24th through February 2nd

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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## **Upcoming BRAS Meetings:**

**Monthly Member Meeting –**

**7 pm Monday, January 10th at the Observatory, in person and via Jitsi**

**Light Pollution:**

**6 pm Wednesday, January 26. (In person only, Open to the public), followed by . . .**

**Monthly Business Meeting:**

**7 pm Wednesday, January 26, via Jitsi (Members Only)**

**MOON (Members Only Observing Night)TBA**

**ALCon 2023 (“Astronomical Gumbo”) Committee Meeting TBA**



# What is Webb?

[About Webb/NASA](#)

## Webb is The Premier Observatory Of The Next Decade

The James Webb Space Telescope (sometimes called JWST or Webb) will be a large infrared telescope with an [approximately 6.5 meter](#) primary mirror. The telescope was launched on an Ariane 5 rocket from French Guiana, on December 29, 2021.

Webb will replace the now defunct Hubble Telescope, and be the premier observatory of the next decade, serving thousands of astronomers worldwide. It will study every phase in the history of our Universe, ranging from the first luminous glows after the Big Bang, to the formation of solar systems capable of supporting life on planets like Earth, to the evolution of our own Solar System.

Click on the link above to learn all about NASA's Webb project



# Where Is Webb? NASA/Webb

Find out anytime you like.

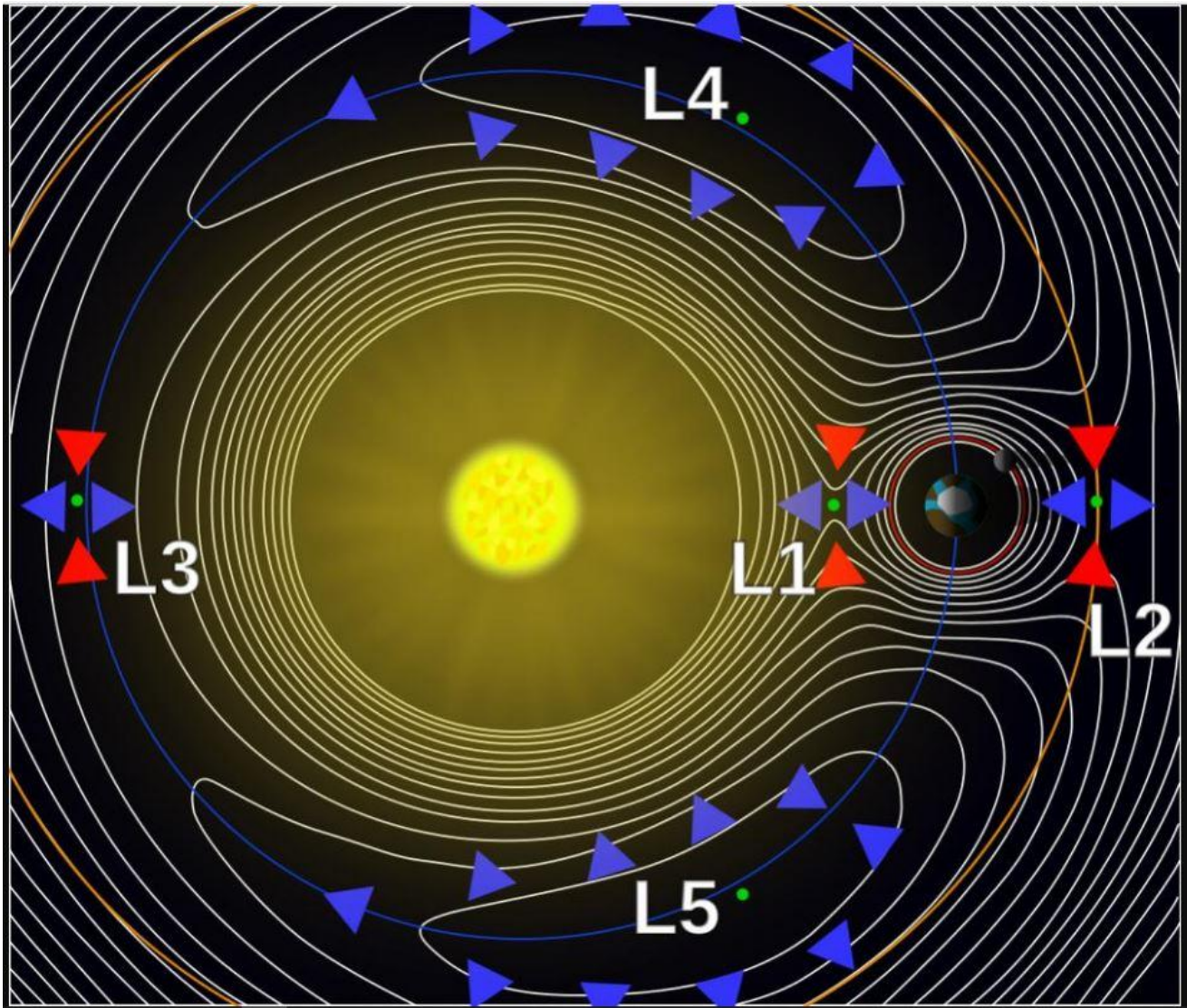
The data-driven infographic on the link above constantly updates as Webb travels, deploys and cools to operating temperature, and shows the status of Webb on its journey to **L2 orbit**. Here's a snapshot:



# What is L2? L-3-4-5?

L2 is one of the so-called **Lagrangian points**, discovered by mathematician **Joseph Louis Lagrange**.

**Lagrangian points are locations in space where gravitational forces and the orbital motion of a body balance each other. Therefore, they can be used by spacecraft to 'hover'.**



This graphic is from Physics Stack Exchange, where you can read tons of quiz-worthy discussion on L2. <https://physics.stackexchange.com/questions/36092/why-are-l-4-and-l-5-lagrangian-points-stable>

**From the European Space and Exploration magazine:** L2 is located 1.5 million kilometres directly 'behind' the Earth as viewed from the Sun. It is about four times further away from the Earth than the Moon ever gets and orbits the Sun at the same rate as the Earth. It is a great place from which to observe the larger Universe. A spacecraft would not have to make constant orbits of the Earth . . . . read article here:

[ESA - L2, the second Lagrangian Point](#)



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## 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.

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### 2023 Astronomical League Convention in Baton Rouge!

BRAS has the honor of being the first to host an AL-CON in Louisiana since AL's inception in 1939.

#### Our theme will be "Astronomical Gumbo"

This theme represents the blend of diverse subfields within the vast field of astronomy. People from all over the globe will be in attendance for the biggest yearly gathering of amateur astronomers in the nation. This convention will offer a large range of benefits not only to BRAS, but to HRPO, other nearby astronomy facilities, and the tourism industry of Baton Rouge. For example, the publicity will bring in many new club members and allow us to reach a much larger audience to share our love of astronomy with. There's not a better time than now to get involved, and lots of help will be necessary to make this event one to remember. Volunteers from all areas of any skill level are welcome to join any of the subcommittees: Scheduling, Finance, Publicity/Communications/Photography, Venue & Housing, Transportation, and Reports.

**Next Full committee meeting: TBA**

If you would like to attend this meeting, and/or help by working on a subcommittee please send an email to Steven Tilley at [steveareno225@gmail.com](mailto:steveareno225@gmail.com).

AL-CON 2022 (see flyer below) will take place on July 28-30, 2022 in Albuquerque, NM



# ALCON 2022

July 28 – 30

## EMBASSY SUITES HOTEL

1000 Woodward Pl. NE

Albuquerque, New Mexico 87102

<https://alcon2022.astroleague.org/>

(Website available by January 14, 2022)



Hosted by:

**The Albuquerque Astronomical Society**

[www.TAAS.org](http://www.TAAS.org)





# Messages from HRPO

Highland Road Park Observatory



## FRIDAY NIGHT LECTURE SERIES

All start at 7:30pm. All are for ages fourteen and older.

### 7 January: “Wonders of the Winter Sky”

BREC Education Program

Specialist Amy Northrop will take the audience on a fascinating tour of Baton Rouge’s winter season. She’ll highlight the celestial gems and events that will sparkle throughout the next three months—gems visitors will be able to see live if they continue to visit HRPO!

### 14 January: “2021—The Space Year in Review”

The Perseverance Rover lands in Mars’ Jezero Crater...Richard Branson leaves Earth in his own rocket...Comet Leonard closes out fall with an incredible show.... These are just some of the grand moments of previous year. We’ll touch upon all of them and see which ones will stay with us.

### 21 January: “Atmospheric Phenomena”

Sun dogs, dewbows, lunar halos and aurorae. BRAS member and asteroid discoverer Merrill Hess opens the doors to a bizarre and beautiful menagerie of rare sights.

### 28 January: “Our Birth Stars”

A person’s birth star is a star whose light took as long to reach Earth as he’s been alive. Of course, birth stars change over the course of a human lifetime and are as varied as human beings themselves!



## EVENING SKY VIEWING

No admission fee. For all ages.

Friday (7, 14, 21 and 28 January) from 8:30pm to 10pm

Saturdays (8, 22 and 29 January) 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

Saturdays from 10am to 12pm

For ages eight to twelve. \$5/\$6 per child.

### **8 January = “Winter Day”**

Cadets will partake of a variety of activities and challenges that do not fit into the regular rosters of sessions!

### **15 January = “Meteor Showers”**

From where do meteors originate, and why are there more of them on certain nights? Cadets will unlock the mystery of the streaks of light that grace the natural sky.

### **22 January = “Asteroids and Comets”**

Whether a large rock that orbits close near the Sun or a icy/rocky nucleus that visits the inner Solar System from the Kuiper Belt, these objects have thrilled and concerned humanity for centuries. Cadets will learn how to see them, and how we protect ourselves from them.



## ADULT COURSES

Saturdays from 3:30pm to 7:30pm

Must be eighteen or over to register. \$15/\$18 per registrant.

### **8 January: Learn Your Binocular**

This class is a hands-on introduction to the operations of your personal binocular. We’ll even take it outside for some practice, weather permitting. Also included will be an overview of all major sky events for the next twelve months. Please bring all parts and accessories belonging to the binocular, including the instruction manual. This one-day course focuses specifically on binocular views of the Baton Rouge sky.

### **22 January: Learn Your Sky**

This class is an introduction to the unaided-eye Baton Rouge sky. We’ll even go outside for some practice, weather permitting. Also included will be an overview of all major sky events for the next twelve months ( This one-day course focuses specifically on the unaided-eye Baton Rouge sky.)



## SOLAR VIEWING

Saturday 15 January from 12pm to 2pm.

For all ages. No admission fee. 20OGS Tour at 1pm.

(Solar Viewers, \$2 each. Add-on Activity: \$2.50.)

The hobby of astronomy immediately brings to mind thoughts of darkened backyards and dimly-lit nighttime activities at HRPO. But patrons also have the option of visiting during daylight hours to see our parent star.

Weather permitting, once monthly HRPO personnel offers three views of the Sun...

12pm to 12:30pm - indirect projection onto white viewing surface // [Learning Technologies Sunspotter]

12:15pm to 1:15pm - safely-filtered optical light sent through standard telescope [Orion 10" Skyquest Dobsonian Reflector]

12:30pm to 2:00pm - hydrogen-alpha light [Coronado Solar Max II 90mm]





## PLUS NIGHT: “Beginnings and Endings”

Saturday 15 January from 7pm to 10pm.

For all ages. No admission fee. Binocular recommended.

During Plus Nights and extra features are available to the public...

- The well-known marshmallow roast takes place at the campfire ring (weather-dependent).
- Six 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.
- 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.



## STEM EXPANSION: “Skygazing”

Saturday 29 January from 3:30pm to 7:30pm.

For ages twelve to sixteen. \$15/\$18 per kid.

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.

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# OBSERVING NOTES JANUARY

## Piscis Austrinus – The Southern Fish

**Position: RA 22, Dec-30°**

*Note: For six years I have been writing these Observing Notes, featuring the 62 constellations we can see before midnight from Baton Rouge, that contain objects above magnitude 10. Beginning with the February 2019 newsletter, I began to update the constellations with new and expanded material, but the Sky Happenings calendar and associated information are new each month. The last of the updates will be in February 2022.*

### *Named Stars*

**Fomalhaut A** (Alpha PsA), from the Arabic “Fum al Hût,” “The Mouth of the Fish” or “The Mouth of the Whale,” or from 1384 “Fom Alhout Algenubi”, also sometimes called “Al Difdi al Awwal” – “The First Frog”, and from the Chinese “Pi Lo Sze Mun”, mag. 1.17, 22 57 38.83 -29 37 18.6, forms a binary system with **TW PsA (Fomalhaut B)**. The star emits an excess of infrared radiation indicating it has a circumstellar disk in orbit. The star is the 18<sup>th</sup> brightest star in the night sky and has one planet in orbit. Also known as **HD 216956, HIP 113368, SAO 191524, HR 8728, and 24 Piscis Austrini**.

**Tiāngāng** (Delta PsA), mag. 4.20, 22 55 56.89 -32 32 22.9, is a yellow giant star. Also known as **HD 216763, HIP 113246, Howe 91, and 23 Piscis Austrini**.

**Fomalhaut B** (TW PsA), mag. 6.48, 22 56 23.83 -31 33 54.6, is an orange dwarf star and a flare star with a period of 10.3 days. Its estimated orbital period (around **Alpha PsA**) is 2,000 years. Also known as **HD 216803, and HIP 113283**.

**Lacaille 9352**, mag. 7.34, 23 05 52.04 -35 51 11.1, is a red dwarf star and one of the nearest known star systems to **Earth**. It is located about 1° south-southeast of **Pi Piscis Austrini**. Also known as **HD 217987, HIP 114046, LFT 1758, and Cordoba 31353**.

**Sāmaya** (HD 205739), mag. 8.56, 21 38 08.41 -31 44 14.9, has one planet in orbit. Also known as **HIP 106824**.

### *Deep Sky:*

**There are no Deep Sky Objects above magnitude 10 in Piscis Austrinus.**

**There are 2 Voids in Piscis Austrinus:**

**SSR S2-14**, 21 28 -29 28, 21.3 Mpc in size, also known as the **Piscis Austrinus/Sculptor Void**,  
**SSR S2-17**, 23 03 -32 35, 25.0 Mpc in size, also known as the **Piscis Austrinus/Microscopium Void**.

**Objects in the Deep Sky of Piscis Austrinus: 40 NGC; 21 IC; 145 ESO; 146 MCG; 61 PGC; 28 IRAS; 22 AM; 2 Voids; 3 UGCA; 4 Klemola; 3 Arp; 2 Quasars; 2 radio galaxies; 2 HCG; 7 VV; 3 Abell; 1 A; 1 Ring Galaxy, and 1 Variable Galaxy for a total of 496 objects.**

### *Other Stars:*

**UU Piscis Austrini**, mag. 5.97, 22 04 36.76 -26 49 20.4, is a Be star. Also known as **HD 209522, and HIP 108975**.

**HD 216770**, mag. 8.10, 22 55 53.7 -26 39 31.6, has one planet in orbit. Also known as **HIP 113238**.

**HD 207832**, mag. 8.79, 21 52 36.0 -26 01 36, has two planets in orbit. Also known as **HIP 107985**.

**Stars of interest beyond magnitude 10:**

**WASP-124**, mag. 12.7, 22 10 51.0 -30 44 58, has one transiting planet.

**WASP-112**, mag. 13.3, 22 37 57.0 -35 09 14.0, has one transiting planet.

**Asterisms in Piscis Austrinus:**

**“Tien Kang,”** from the Chinese for **“The Heavenly Rope”** consists of **Beta, Delta, and Zeta PsA.**

**“Tien Tsien,”** from the Chinese for **“Heavenly Cash,”** consisting of **Eta, Theta, Iota, and Mu PsA.**

**“The Air Balloon,”** 21 30 00 -25 30, 48’x40’ in size, is a closed loop of stars located 3.3° southwest of **M30**. It is an old, now unused constellation once known as **“Globus Aerostaticus” – “The Balloon.”**

**Stars in Piscis Austrinus: 14 Greek; 20 Numbered; 26 Lettered; 7 B; 3 Howe; 2 β; 1 Rss; 1 HN; 1 Pz; 1 Stn; 2 Dunlop; 1 Daw; 1 HD; 1 HVI; 1 LFT; 1 Cordoba; 1 See; and 1 Lacaille for 93 total.**

## ***Sky Happenings: January 2022***

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

- Jan. 1<sup>st</sup> -** The **Moon** is at perigee (222,471 miles or 358,053 km from **Earth**) at 4:55 PM CST, Dusk: **Jupiter, Saturn, Mercury, and Venus** are arranged in a line above the southwest horizon.
- Jan. 2<sup>nd</sup> -** **New Moon** occurs at 12:33 PM CST. (Lunation 1225)
- Jan. 3<sup>rd</sup> -** **Quadrantid Meteor Shower** peaks at 2:40 PM CST, The **Moon** passes 3° south of **Mercury** at 7 PM CST.
- Jan. 4<sup>th</sup> -** **Earth** is at perihelion (91.4 million miles or 147,105,052 km from the **Sun**) at 1 AM CST, The **Moon** passes 4° south of **Saturn** at 11 AM CST, Dusk: The **Moon**, still in the southwest, is now higher in the sky with **Saturn** about 5° above.
- Jan. 5<sup>th</sup> -** Dusk: The waxing crescent **Moon** and **Jupiter** are 5° apart in **Aquarius**, The **Moon** passes 4° south of **Jupiter** at 6 PM CST.
- Jan. 7<sup>th</sup> -** The **Moon** passes 4° south of **Neptune** at 4 AM CST, **Mercury** is at greatest eastern elongation (19°) at 5 AM CST.
- Jan. 8<sup>th</sup> -** **Venus** is in inferior conjunction at 7 PM CST.
- Jan. 9<sup>th</sup> -** **First Quarter Moon** occurs at 12:11 PM CST.
- Jan. 11<sup>th</sup> -** The **Moon** passes 1.5° south of **Uranus** at 5 AM CST, Asteroid **Juno** is in conjunction with the **Sun** at 4 PM CST.
- Jan. 12<sup>th</sup> -** Dusk: **Mercury** and **Saturn** will grace the southwest horizon with a little more than 3° separation before they set. Higher up in **Taurus**, the waxing gibbous **Moon** is closing in on the **Pleiades**, and will be less than 4° away by mid-evening, The **Moon** passes 1.2° north of the dwarf planet **Ceres** at 6 PM CST.
- Jan. 13<sup>th</sup> -** Double shadow transit of Jupiter starts at 1:50 AM CST, Asteroid **Iris** is at opposition at 3 PM CST, Evening: Still in **Taurus**, the **Moon** is now some 6° from **Aldebaran**, **Mercury** is stationary at 7 PM CST.
- Jan. 14<sup>th</sup> -** The **Moon** is at apogee (252,155 miles or 405,805 km from **Earth**) at 3:26 AM CST.
- Jan. 15<sup>th</sup> -** The **Moon** is 1.8° north of **M35** at 3 PM CST.
- Jan. 16<sup>th</sup> -** **Pluto** is in conjunction with the **Sun** at 9 AM CST, Dwarf planet **Ceres** is stationary at 4 PM CST.
- Jan. 17<sup>th</sup> -** **Full Moon** occurs at 5:48 PM CST. (Smallest of 2022)
- Jan. 18<sup>th</sup> -** **Uranus** is stationary at 2 PM CST.
- Jan. 20<sup>th</sup> -** Dawn: The waning gibbous **Moon** is above the western horizon in **Leo**, with 4° separating it from **Regulus**.
- Jan. 23<sup>rd</sup> -** **Mercury** is in inferior conjunction at 4 AM CST.
- Jan. 24<sup>th</sup> -** Dawn: The **Moon**, in **Virgo**, is 5° to the upper right of **Spica**.
- Jan. 25<sup>th</sup> -** **Last Quarter Moon** occurs at 7:41 AM CST.



- Jan. 29<sup>th</sup>** - **Venus** is stationary at 2 AM CST,  
 Dawn: The trio of the waning crescent **Moon**, **Mars**, and **Venus** rises in the south-southeast,  
 The **Moon** passes 2° south of **Mars** at 9 AM CST,  
 The **Moon** passes 10° south of **Venus** at 8 PM CST.
- Jan. 30<sup>th</sup>** - The **Moon** is at perigee (225,093 miles or 362,252 km from **Earth**) at 1:11 AM CST,  
 The Moon passes 8° south of **Mercury** at 6 PM CST,  
**New Moon** occurs at 11:46 PM CST.

## ***Planets:***

**Mercury** – **Mercury**, **Venus**, and the **Moon** will form a triangle very low in the west-southwest on January 3<sup>rd</sup>. **Mercury** will be about 12° to the left of **Venus**. On the 7<sup>th</sup>, **Mercury** will reach its greatest eastern elongation (19°), shining at magnitude -0.5. On the evening of the 12<sup>th</sup>/13<sup>th</sup>, **Mercury** and **Saturn** will be separated by 3.4° - they will be only 6° above the west-southwest horizon 45 minutes after sunset. **Mercury** will then start to fade – by the 17<sup>th</sup> it will have dimmed to magnitude 1.7, setting within one hour of sunset. The planet will be in inferior conjunction on the 23<sup>rd</sup>.

**Venus** – **Venus** along with **Jupiter**, **Saturn**, and **Mercury** will be strung out along the line of the ecliptic on January 1<sup>st</sup>. **Venus** will dip out of view after the first few days of the month, heading to a January 8<sup>th</sup> inferior conjunction (with its closest approach to **Earth** in 2022 – 0.133 light seconds or 0.2658 au). On the 1<sup>st</sup>, the planet is at magnitude -4.2, 5° high in the southwest 30 minutes after sunset. The planet will set about 1 hour after the **Sun**. The planet will reappear in the morning sky around mid-month, rising in the east about 1 hour before the **Sun**, shining at magnitude -4.3. On the 31<sup>st</sup>, the planet will stand 12° high an hour before sunrise. The planet will change from a 1' wide slender crescent that is 1 % illuminated on the 15<sup>th</sup> to a 50'' wide, 15% illuminated disk on the 31<sup>st</sup>.

**Mars** – **Mars**, on January 1<sup>st</sup>, is in **Ophiuchus**, standing less than 6° northeast of **Antares**, rising about 2 hours before the **Sun**. During the month, the planet will brighten only 0.1 magnitude – from 1.5 to 1.4 and will span only 4''. The planet crosses into **Sagittarius** by the 19<sup>th</sup>, about 4° west of **M20 (Trifid Nebula)** and **M8 (Lagoon Nebula)**. On the morning of the 25<sup>th</sup>, the planet will stand less than 1° south of **M20**, and roughly 0.5° from **M8**. On the 26<sup>th</sup>, the planet is less than a **Moon's** width from the northeast edge of **M8**. On the 29<sup>th</sup>, the waning crescent **Moon** will stand 3° south of the planet an hour before sunrise, joined by **Venus** at 10.5° to the northeast. **Mars** will end the month 1.3° northwest of **M28**, while **M22** is 3.5° due east of the planet.

**Jupiter** – **Jupiter** on January 1<sup>st</sup> will stand roughly 30° high in the southwest an hour after sunset, shining at magnitude -2.1. On the 5<sup>th</sup>, the planet is 5° north of the crescent **Moon**. The planet's disk spans 35''. On the 5<sup>th</sup>, **Ganymede's** shadow will transit the planet for 3.5 hours, beginning at 5:20 PM CST, ending at 8:50 PM CST. On the 12<sup>th</sup>, **Ganymede** and **Callisto** will transit the planet with **Callisto** starting transit at 4:22 PM CST, followed by **Ganymede** at 5:50 PM CST. **Ganymede's shadow will ingress at 10:23 PM CST, with Callisto's shadow's ingress at about 1:50 AM CST on the 13<sup>th</sup>. Ganymede's shadow will egress one minute later at about 1:51 AM CST. The double shadow transit will last for only 1 minute!** By the 31<sup>st</sup>, the planet will stand only 11° high an hour after sunset.

**Saturn** – **Saturn's** altitude will fall each evening. On January 4<sup>th</sup>, in **Capricornus**, the planet and the **Moon** are side by side, separated by about 5°. On the 12<sup>th</sup>, the planet and **Mercury** are about 3.4° apart, with **Mercury** at magnitude 0.0, and **Saturn** at magnitude +0.7 – they will be only 6° above the west-southwest horizon 45 minutes after sunset. On the 20<sup>th</sup>, the planet is only 5° high 30 minutes after sunset, at magnitude 0.7. The planet will be in conjunction with the **Sun** on February 4<sup>th</sup>.

**Uranus** – **Uranus** is about 60° high in the southeast sky soon after sunset on the first at 0.4° south of **29 Arietis** and will remain visible until the early morning. The planet is in **Aries**, shining at magnitude 5.8, and is located about 11° southeast of **Hamal (Alpha Arietis)** and 5.3° northwest of **Mu Ceti**. The planet will move westward (retrograde) during the first half of the month, reaching a stationary point on January 18<sup>th</sup>, and will then resume an easterly trek for the remainder of the month. The planet spans nearly 4'' in a telescope and will show a distinctly greenish-blue hue.

**Neptune** – **Neptune** is a binocular object at magnitude 7.8 in extreme northeastern **Aquarius**. On January 1<sup>st</sup>, the planet will stand halfway up in the southwest sky as soon as it is dark, setting in the mid-evening.

On January 6<sup>th</sup>, the crescent **Moon** will stand 12° east of **Jupiter**, and **Neptune** will stand 8° northeast of the **Moon**. **Neptune** lies 3.3° northeast of **Phi Aquarii**. By the 31<sup>st</sup>, the planet will stand 4° northeast of **Phi Aquarii**. The planet's disk spans only 2" through a telescope and will show as a bluish-green disk.

**Pluto** – **Pluto**, in **Sagittarius**, will be at 19 53.8 -22 39, magnitude 14.8, 0.1" in size, on January 15<sup>th</sup>. On January 16<sup>th</sup>, **Pluto** will be in conjunction with the **Sun**.

**Moon** – The **Moon**, showing a razor-thin crescent (2% illuminated), will be to the lower left of **Mars** and **Antares** in the southeast at dawn on January 1<sup>st</sup>. On the 3<sup>rd</sup>, the **Moon** will form a triangle, very low in the west-southwest, with **Venus** and **Mercury** in the dusk sky. On the 12<sup>th</sup>, the waxing gibbous **Moon**, riding high in the south, will be about 4° below **M45** (the **Pleiades**). The 80% illuminated **Moon** will make it hard to notice **M45**. On the 29<sup>th</sup>, the dawn sky will see the **Moon**, **Mars**, and **Venus** (after its solar conjunction on the 8<sup>th</sup>) together. The **Moon** and **Venus** (at magnitude -4.8) will be separated by about 13°, with **Mars** (at magnitude 1.4) to the upper left of the **Moon**.

Favorable Librations: **Vashakidze Crater** on January 7<sup>th</sup>; **Wilson Crater** on January 16<sup>th</sup>; **Pilâtre Crater** on January 18<sup>th</sup>; and **Baade Crater** on January 22<sup>nd</sup>.

Greatest North Declination on the 16<sup>th</sup> (+26.2°)

Greatest South Declination on the 3<sup>rd</sup> (-26.1°) and the 30<sup>th</sup> (-26.4°)

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

West Limb most exposed on the 23<sup>rd</sup> (-6.0°)

Libration in Latitude: North Limb most exposed on the 6<sup>th</sup> (+6.7°)

South Limb most exposed on the 21<sup>st</sup> (-6.6°)

**Asteroids / Minor Planets** - Asteroid **1 Ceres** – **Ceres** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On January 1<sup>st</sup> – 03 46.28 +17 43.6, at magnitude 7.7; on the 11<sup>th</sup> – 03 43.16 +18 13.6, at magnitude 7.9; on the 21<sup>st</sup> – 03 42.89 +18 49.9, at magnitude 8.1; and on the 31<sup>st</sup> – 03 45.38 +19 31.5, at magnitude 8.3. **Ceres** positions, *by my estimate*, are as follows: On January 1<sup>st</sup> – about 2° south and slightly east from the star **14 Taurii**; on the 10<sup>th</sup> – about 1.5° south and slightly east of **14 Taurii**; on the 20<sup>th</sup> – about 1° south and slightly east of **13 Taurii**; and on the 30<sup>th</sup> – 0.4° east and a touch south of **14 Taurii**.

Asteroid **7 Iris** – **Iris** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On January 1<sup>st</sup> – 07 50.87 +15 48.9, at magnitude 7.8; on the 11<sup>th</sup> – 07 39.83 +15 42.1, at magnitude 7.6; on the 21<sup>st</sup> – 07 28.87 +15 42.5, at magnitude 7.8; and on the 31<sup>st</sup> – 07 19.63 +15 47.4, at magnitude 8.2. **Iris** positions, *by my estimate*, are as follows: On January 1<sup>st</sup> – 3.3° southeast of **74 Geminorum**; on the 3<sup>rd</sup> – about 2.7° southeast of **74 Geminorum**; on the 5<sup>th</sup> – about 12.5' southeast of **74 Geminorum**, or 12.5' east of **68 Geminorum**; on the 7<sup>th</sup> – about 10' east of **68 Geminorum**; on the 9<sup>th</sup> – about 8' east of **68 Geminorum**; on the 11<sup>th</sup> – about 6' east of **68 Geminorum**, or 2° south and a touch west of **74 Geminorum**; on the 13<sup>th</sup> – 3.6' east of **68 Geminorum**, or just over 2° south and a touch west of **74 Geminorum** – *Note: Iris* is at opposition today, and at opposition will be 10' east of **68 Geminorum**; on the 15<sup>th</sup> – about 1.3' east-southeast of **68 Geminorum**; on the 17<sup>th</sup> – about 0.9' south and a touch west of **68 Geminorum**; on the 19<sup>th</sup> – about 2.4' west and a little south of **68 Geminorum**, or 2.2° north and a touch east of the **Medusa Nebula (PK 205+14.1)**; on the 21<sup>st</sup> – about 5' west and a little south of **68 Geminorum**, or 2.1° north and a touch east of the **Medusa Nebula**; on the 23<sup>rd</sup> – 6.3' west and a little south of **68 Geminorum**, or 2.1° north and a touch west of **NGC 2395**; on the 25<sup>th</sup> – about 7.2' east-southeast of **Lambda Geminorum**; on the 27<sup>th</sup> – about 5.5' southeast of **Lambda Geminorum**; on the 29<sup>th</sup> – about 4.8' southeast of **Lambda Geminorum**; on the 31<sup>st</sup> – 3.3' south-southeast of **Lambda Geminorum**; and on February 2<sup>nd</sup> – 2.9' due south of **Lambda Geminorum**.

Asteroid **10 Hygiea**'s position on January 11<sup>th</sup>, according to the *RASC Observer's Handbook, 2022 USA Edition*, is about 14 04 -16 30, in **Boötes**.

Asteroid **20 Massalia** – **Massalia**'s positions, in **Cancer**, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On January 1<sup>st</sup> – 09 37.86 +12 54.3, at magnitude 9.4; on the 11<sup>th</sup> – 09 34.11 +13 09.6, at magnitude 9.2; on the 21<sup>st</sup> – 09 27.28 +13 40.8, at magnitude 8.9; and on the 31<sup>st</sup> – 09 28.26 +14 23.0, at magnitude 8.6.

**Comets** – Comet **19P/Borrelly** – **Borrelly** positions, *by my estimates*, are as follows: On January 1<sup>st</sup> – about 1.2° northeast of **7 Ceti**, or 6° west and a touch south of **Beta Ceti**; on the 3<sup>rd</sup> – about 3° southeast of **7 Ceti**, or 5.3° west-northwest of **Beta Ceti**; on the 5<sup>th</sup> – 3.5° east and a touch north of **6 Ceti**, or 5° northwest of **Beta Ceti**; on the 7<sup>th</sup> – 2.5° due west of **NGC 210**; on the 9<sup>th</sup> – just over 5° southeast of **Iota Ceti**, or 3° west and a touch south of **NGC 246**; on the 11<sup>th</sup> – 1.5° west and a little south of **Phi Ceti**; on the 13<sup>th</sup> – just over 1° north and a touch west of **Phi Ceti**; on the 15<sup>th</sup> – about 2.8° north and a touch east of **Phi Ceti**, or 3° east and a touch north of **NGC 157**; on the 17<sup>th</sup> – about 2.5° west-northwest of **NGC 337**, or just over 3° southwest of **25 Ceti**; on the 19<sup>th</sup> – just under 2° west and a touch south of **25 Ceti**; on the 21<sup>st</sup> – about 1.5° north-northwest of **25 Ceti**; on the 23<sup>rd</sup> – about 2.7° north and a touch east of **25 Ceti**, or 3° west and a touch north of **39 Ceti**, or 3° east-southeast of **20 Ceti**; on the 25<sup>th</sup> – 2.5° west and a touch south of **42 Ceti**, or 4° east of **20 Ceti**; on the 27<sup>th</sup> – 0.5° south and a touch east of **NGC 428**; on the 29<sup>th</sup> – 1.7° northeast of **NGC 428**, or 3.2° east of **IC 1013**; on the 31<sup>st</sup> - 1° east and a touch north of **NGC 474** (**NGC 474** is in **Pisces**), or 1.5° east of **87 Piscium**; and on February 1<sup>st</sup> – 0.5° north -northeast of **NGC 520**.

Comet **C/2021A1 Leonard** – **Leonard** now has a tail 36° long. There is so much being published online in social media that I will not add more.

**Meteor Showers** – **Class I (Major) Meteor Shower – The Quadrantids**, active from December 26<sup>th</sup> through January 16<sup>th</sup>, peaks on the night of January 2/3 with a maximum zenith hourly rate of 120. The **Moon** will be 0% full.

There are no **Class II (Minor) Meteor Showers** or **Class III (Variable) Meteor Showers** active in January. There are 10 **Class IV (Weak) Meteor Showers** active in January – with a maximum zenith hourly rate of <2.

## *When to View the Planets:*

### Evening Sky

**Mercury** (west)  
**Venus** (southwest)  
**Saturn** (west)  
**Jupiter** (southwest)  
**Uranus** (south)  
**Neptune** (southwest)

### Midnight

**Uranus** (west)

### Morning Sky

**Venus** (southeast)  
**Mars** (southeast)

# Mythology:

## **Piscis Austrinus – The Southern Fish**

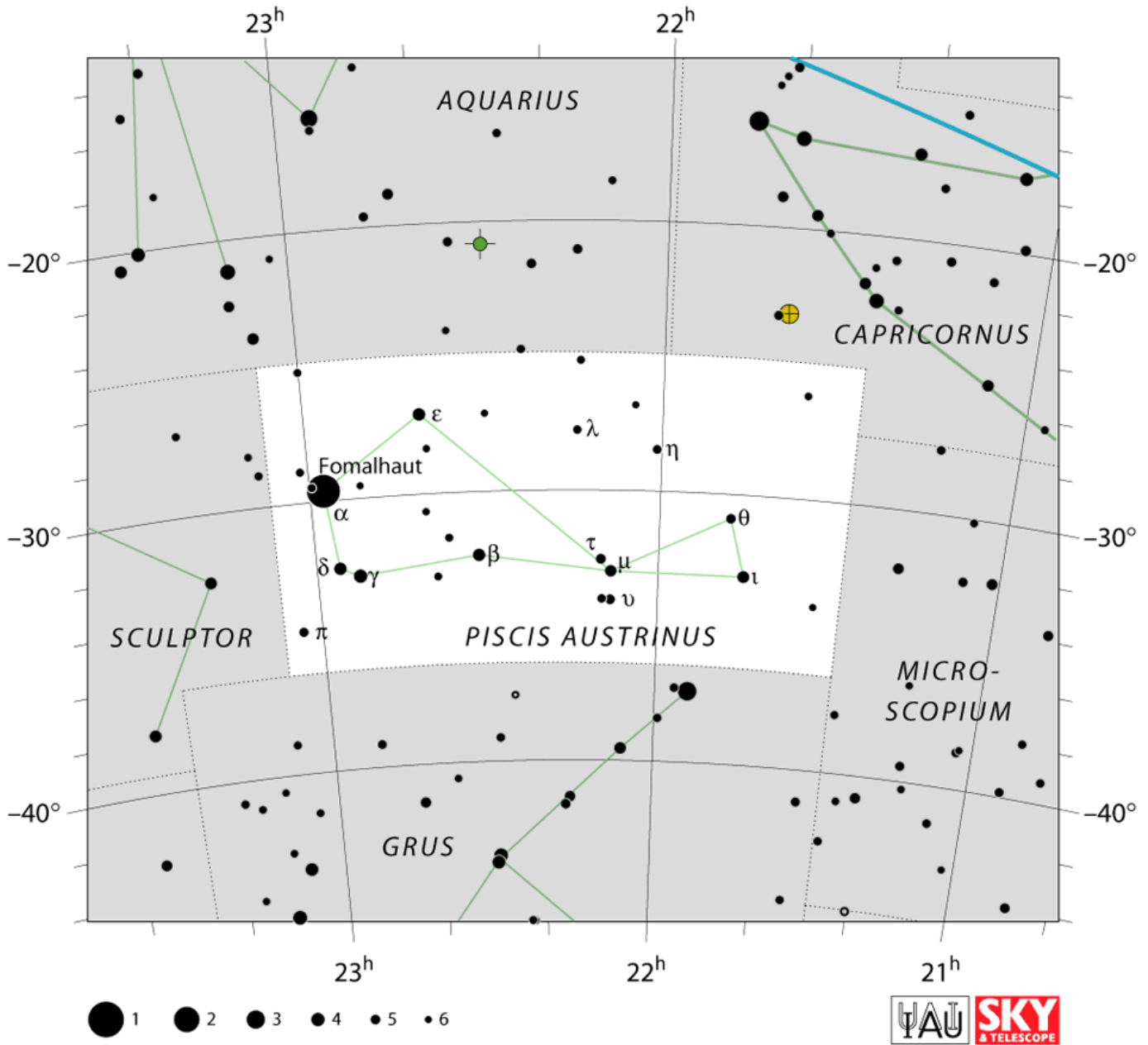
Eratosthenes called this the great fish and said that it was the parent of the two smaller fishes of Pisces. Like Pisces, its mythology has a Middle Eastern setting that reveals its Babylonian origin. According to the brief account of Eratosthenes, the Syrian fertility goddess Derceto (the Greek name for Atargatis) is supposed to have fallen into a lake at Bambyce near the Euphrates River in Syria and was saved by a large fish. Hyginus says, in repletion of his notes on Pisces that, as a result, the Syrians do not eat fish, but they worship the images of fish as gods. All the accounts of this constellation’s mythology are disappointingly sketchy.



Bambyce later became known to the Greeks as Hieropolis (meaning sacred city), now called Membij. Other classical sources tell us that temples of Atargatis contains fishponds. The goddess was said to punish those who ate fish by making them ill, but her priests ate fish in a daily ritual.

According to the Greek writer Diodorus Siculus, Derceto deliberately threw herself into a lake at Ascalon in Palestine as a suicide bid in shame for a love affair with a young Syrian, Caystrus, by whom she bore a daughter, Demiramus. Derceto killed her lover and abandoned her child, who was brought up by doves and later became queen of Babylon. In the lake, Derceto was turned into a mermaid, half a woman and half fish.

Piscis Austrinus is more noticeable than Pisces in the sky because it contains the first magnitude star Fomalhaut. This name comes from the Arabic meaning “fish’s mouth,” which is where Ptolemy describes it. In the sky the fish is shown drinking the water flowing from the jar of Aquarius – a strange thing for a fish to do.



**The End**