

Night Visions

March 2023

Newsletter of the **Baton Rouge** Astronomical Society

March is the month to run the Messier Marathon, see [Page 10](#) for details. Photo credit: Grand Canyon National Park via Flickr

Monthly Meeting March 13th at 7:00 PM, in person

You may also join this meeting via meet.jit.si/BRASMeet
(Monthly meetings are held on 2nd Mondays of the month, at Highland Road Park Observatory)

**PRESENTATION: Dr. Parampreet Singh, LSU Professor of Quantum Gravity, Cosmology;
presenting "A Journey to the Big Bang and Beyond"**

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**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

March already –only 5 more months until ALCon 2023. We still need sponsors and volunteers. Help us make this ALCon great!



LSU gives “**Saturday Science**” talks (and sometimes on Sunday) at the Goodwood Library. The first Michele and I attended was “LSU Campus Mounds: Oldest man-made structures in the Americas”. It was a fascinating talk and I have arranged for the speaker, Dr. Brooks Ellwood, to give a short talk and tour of the mounds for the attendees of ALCon on Wednesday July 26th at the “Meet and Greet” at LSU. The second talk I attended was “A Journey to the Big Bang and Beyond” by Dr. Parampreet Singh on Sunday, February 26th. He will reprise his talk at the march BRAS meeting on the 13th. Future talks – on Saturday March 25th, from 3 to 4 PM, will be “The First Exciting Discoveries with the James Webb Space Telescope” by Dr. Geoffery Clayton, and on Saturday April 22nd, 1 to 2 PM, “Some Stars Attract Each Other, Dance, and Merge Together”, by Dr. Juhan Frank. These talks gin up interest in astronomy and are worth attending.

While I was at the library I took a better picture of **Apollo 12 Astronaut Alan Bean**, the one I mentioned last month, signed and dedicated to the “*East Baton Rouge Parish Library*, on display in the Children’s Department. Unfortunately, it’s pretty high up to be appreciated.

We have received the BRAS Logo **magnetic signs** (for car/truck/SUV doors) for use with outreach and light pollution work.

I have contacted the Goodwood Library about **storage of BRAS Documents** and am awaiting a response from them.

A club member has offered to donate a 6 year-old **GSO 8” astrograph telescope** and a large three-wheeled scope dolly. If we accept this donation, we might need someone to “foster” it (keep it temporarily) until we can clear out some space in the cramped BRAS closet.

Please note that **Daylight Time** starts on March 12th. Also note: March is prime time for viewing Messier objects. See the article **How to Run the Messier Marathon**, on Page 10,

The Spring **Vernal Equinox** is on March 20th – the official start of Spring in the Northern hemisphere.

SpaceX has sent into orbit the first batch of **Starlink 2.0**. It remains to be seen if these satellites will cause a problem for astronomers.

Construction is underway in Kosovo for the **AOK (Astronomy Outreach of Kosovo)** Observatory/Planetarium. It is scheduled to be completed and dedicated in September. Pranvera Hyseni, founder of AOK, will be one of the speakers at ALCon 2023.

That is about all for now...
Clear Skies,

John R. Nagle

Calendar of Upcoming Meetings

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

Monthly Member Meeting – 7 pm Monday, March 13th at the Observatory, in person and via Jitsi

Monthly Business Meeting: 7 pm Wednesday, March 29th (Members Only), in person and via Jitsi

MOON (Members Only Observing Night) TBA

ALCon 2023 (“Astronomical Gumbo”) Committee Meeting
Two meetings: TBA, online.



Monthly Meeting Minutes – February 21th

- Welcome by the president, John Nagle.
- John introduced himself as the speaker for the evening. The title of his topic was Radio Astronomy: With Support from The Society of Amateur Radio Astronomers (SARA) and The National Radio Astronomy Observatory (NRAO). This was an overview of radio astronomy highlighting the radio end of the electromagnetic spectrum, types of telescopes used, and examples of objects explored.
- Ben sent an email to John about outreach. There is a gala event that we've been invited to do outreach at at the State Archives on March 4th from 6 – 9 pm. Anyone who volunteers for this is encouraged to dress nicely as there will be patrons of the arts there. Mention was made of an 8-inch astrograph that Richard Rogers wants to donate that would be good for outreach events. If we take it on, we'll need a foster home for it until we get the BRAS closet cleaned up. We are also looking forward to 16 feet worth of storage that will be added for BRAS at HRPO. There is also the annual Rockin' at the Swamp outreach coming up at the Bluebonnet Swamp on March 11. This year the question is being raised about whether to do 1 day or 2 days at Zippity Zoo Fest; the idea is we'll get more exposure doing two days. In the past we've usually just participated on Sunday. This will be one of the upcoming weekends in April. LASM has also invited us to show up there for outreach on April 22 from 10 am – 2 pm. The monthly Sidewalk Astronomy at Perkins Rowe is scheduled on Feb. 28th from 6 – 9 pm on the plaza across from the Cinemark Theatre.
- John has some information on the British Astronomical Association for those who are interested.
- The speaker on Mallincams that we had coming to speak for the March meeting had to cancel/postpone because of his wife's back surgery. Hopefully this will be able to be rescheduled.
- There is a Shadow the Scientist event on Zoom coming up that involves the Keck 2 telescope in Hawaii.
- Storage of the BRAS records is still being researched. There is a contact at the East Baton Rouge Parish Library who can work with us to possibly store our records there.
- If anyone is interested in setting up an astronomy course this summer with OLLI, OLLI is looking for an outline for the summer time period by March 15th.



2022 USA Forever Stamp

2023 Officers:

President: John Nagle

president@brastro.org

VP: Joel Tews

vice-president@brastro.org

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secretary@brastro.org

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Open

- We are looking at getting a new laptop to be used for outreach as well as for ALCON this summer. Since this will cost at least \$500, we will need to vote on this as a club. There will be more information coming on this at the next meeting.
- ALCON's next meeting will possibly be this next Thursday. There should be a registration form available by the 1st or 2nd week of March. The website is currently up and running on Facebook. Everyone is encouraged to Like and Share the post as well as to Follow the page also. We're still looking for volunteers and sponsorships as well as donations. It was announced that Melanie Templet from New Mexico is volunteering to help out at ALCON2023.
- Magnetic signs for cars are being manufactured now. They should be ready for use within the next two weeks.
- Scott C. was recognized for receiving the Hydrogen Alpha Solar Observing Program award from the Astronomical League.
- Don Weinell has information on the Nebraska Star Party at Merritt Reservoir on July 16 – 22 if anyone would like to attend.
- John mentioned that there were a few more days to sign up for the Texas Star Party. Registration will be closing for that on Feb. 17th.
- A raffle was held with coffee and cookies available for onsite attendees.

Submitted by Roz Readinger, Secretary



Business Meeting Minutes – February 25th

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

In February, however, due to a triple conjunction of Moon/Venus/Jupiter on Feb 22nd that many members want to attend (at the Burbank Soccer fields), this meeting is rescheduled for Tuesday the 21st.)

- **AL By-Laws Ballot** – After recording the affirmative vote, John photographed all information on this document, sent it off to the Astronomical League, and completed related paperwork.
- **Library Telescope – Goodwood** Dob is missing 2 screws for spyder - There was a discussion about which screws were involved. John is going to go by there to see if he can check the scope out and figure out what needs to be done.
- **Magnetic Signs** – These are ready. Chris K. will go pick these up and get reimbursed this weekend when Trey shows up to operate the 20-inch scope.
- **BRAS Records** – Jay Rica was mentioned as the contact person at the East Baton Rouge Parish Library although someone named Melissa would be the one to talk to. John is still waiting for a response. There was a discussion about what needs to be stored where with the idea that the library would be a repository for public records only and that we will probably limit what we store there.
- **Air Table** – There's been no response yet to query/queries. John will ask Laura at Glen Oaks about it. It was suggested that if training were required, Craig could handle that. John removed the related instructions from the "coffin" to research this item.
- **New Webmaster** – There's been no response yet by anyone in the club wanting to become the new webmaster. We still have the January information up on the website. There was a discussion about different ways and people to handle this. The main idea is still to find someone in the club to handle this if possible. If this is not possible, then we can expand our search to people outside the club. Currently

Ben's outreach information, the Forum, and the dark sky clock by Danko are okay on the website. John will contact Joel about someone he knows who handles websites.

- **New ALCor** – Ben's and Trey's names came up for this. This is basically the liaison position between our club and the Astronomical League. It makes sense that Trey could do this as this involves updating the roster and keeping AL current; Trey already has access to the membership list due to being Treasurer.
- **Laptop?** – There was discussion about who should research this. It was decided that since John knows Tim of Tim's Computers, he would go talk to him about what we're looking for. There was discussion about what to include (HDMI port, USB ports) as well as talk about related wiring at HRPO which will need to be cleared by Chris K. if we need to have it.

New Items

- There was discussion about speakers for the March meeting. John is going to check with Dr. Penny of LSU. We have someone coming from the AAVSO in April to lecture; Colin Turley from LSU is planning to speak in May.
- For future **MOON Nights** someone suggested that we look at taking over the observatory after the scheduled Edge of Night programs. These currently take place 3 times a year (March, July, and November). This would be a good opportunity to expose the general public to BRAS. This would not be an obligation for members, just an expansion to include the public as well as simplify scheduling. The next Edge of Night is scheduled for March 10th.
- John created some more copies of the **Light Pollution Petition** sheet for the notebook in front of the Free the Milky Way display on the back table. He has a copy of the master for this, but there should be copies in the BRAS filing cabinet should we need them in the future.
- In addition to the usual outreaches we have this time of year, there is one for the Girl Scouts that's happening at the end of March.

Members attending this evening were John N., Chris K., Scott C., Trey A., and Roz R.

Submitted by Roz Readinger, Secretary

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 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



Outreach Report for March 2023

Hi Everyone,

As I mentioned in my email blast, we've got a busy couple of months ahead. This is always our busiest time of year with all the "Fests" and "STEM/STEAM" nights happening. Please be sure to check out the list below and let me know if you'll be able to help out with any of these events.

Our slow months ended on a high note. We had a very successful Sidewalk Astronomy event at Perkins Rowe last night (Tuesday, February 28th.) Thanks to our volunteers (Chris K., Susan, Roz, Scott C., John, Coy and Ben) we interacted with at least 75 people. After being clouded out for the January event, the clouds took mercy on us and we had clear skies the whole time we were out there. We even got to give some nice views of Jupiter and Venus sitting next to each other before they got too low. Chelsea, our main contact for Perkins Rowe, stopped out and said hello and again let us know how much they enjoy having us out there.

That pretty much concludes my notes for this month. Next month's report will likely be a LOT more involved since we will have had multiple events in March. I hope you'll be able to come join us to help out with some of them!

Clear Skies,
Ben Toman



Our volunteer crew for the Perkins Rowe March Sidewalk Astronomy. L-R: Coy, John, Susan, Roz, Chris K. and Scott C. (Ben was behind the camera for this shot!)



Scott, Coy and Chris (near the street pulling in visitors) are set up and giving some great views of the Moon and even the Orion Nebula at Perkins Rowe.

Upcoming Events

Saturday, March 4th

6pm-9pm

Louisiana State Archives Spring Gala

Telescope viewing only. I need your names ASAP to get them on the VIP list. We will be able to partake in the food and drinks. As this is a formal attire event, we are asking anyone participating to dress closer to business casual than our normal jeans and t-shirts. (Just so we don't clash too much if we go inside to get food and watch the opera performance.)

Let me know if you have questions.

Saturday, March 11th

9am-4pm

Rockin' At The Swamp

Several people needed for shifts throughout the day.

Demos and possible solar viewing.

Wednesday, March 22nd

5:30pm-8pm

Oak Grove Primary STEAM Night

2-4 people needed for demos/info table

Tuesday, March 28th

6pm-9pm

Sidewalk Astronomy at Perkins Rowe

Tuesday, March 28th

8pm-9:30pm (as listed on their website...we can check that time.)

Ascension Parish Library (Gonzales Branch)

Sidewalk Astronomy hosted by Don Weinell of BRAS

Sunday, April 2nd

9:30am-5pm

Zippity ZooFest at the Baton Rouge Zoo

Several people needed for shifts during the event. Demos and possible solar viewing.

Tuesday, April 4th (rescheduled from Thursday, March 2nd)

5:30pm-7:30pm

Westdale Heights Academic Middle (WHAM) School STEAM Night

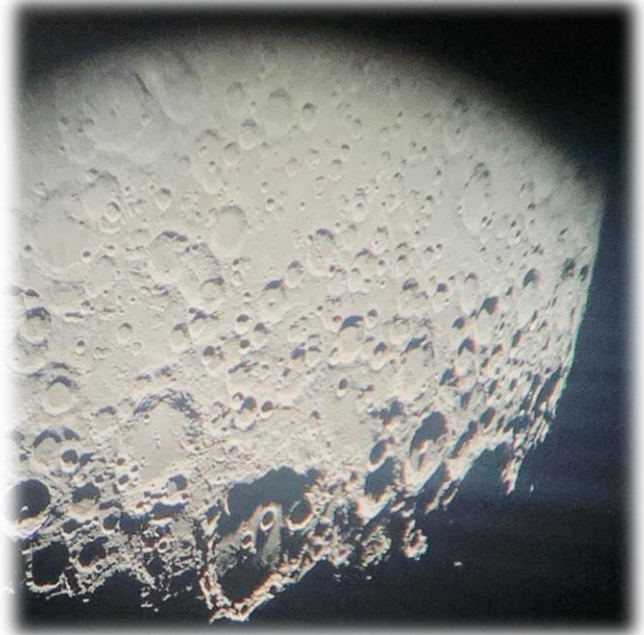
3-4 or more people needed for demos and possible telescope viewing

Saturday, April 22nd

10am-2pm

Louisiana Art and Science Museum Astronomy Day Event

4 or more people for demos and possible solar viewing



Patrons really enjoy getting to take some shots with their cell phones at our Sidewalk Astronomy events. This was a quick snap of the Moon with a cell phone on Tuesday night.



Another fun cellphone shot capturing NOT on the Orion Nebula, but the reflection of the nearby light decorated tree!



LPC (Light Pollution Committee) Report (February)

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

1. Discussed “form” like letter for new construction and projects – Chris and John working on it. Update note: Chris and John had a meeting on March 1st planning out the letter.
2. Clarification of an apparent conflict in the UDC on light level measurements. Might need a lawyer to review the requirements.
3. Complaints to DOTD about lighting on roads – Chris is handling this.
4. Scripts for You-Tube channel about Light Pollution – have a basic plan for the series of short videos, need to write scripts.
5. Discussed possible need to get an office suite software for the BRAS computer – it would also need a data base function to keep records on the LPC Petition, communications with contacts and their replies, etc. Also discussed a possible small printer for the computer.
6. Discussed possible outreaches in North Baton Rouge Parks – Darryl Hughes checking into this.
7. Discussed contacts at Entergy – Chris is doing a follow-up.

New

Chris received a complaint from a citizen about Light Pollution. If we get the contact information, will offer to go to the site with the Light Meter and measure the light level for the citizen.
Attending the meeting were: Chris K. John N., and Trey A.

John Nagle, LPC Chair Pro-Tem

Globe At Night

The target for the Globe at Night program is Orion and Gemini from March 13th through March 22nd

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.

**Get ready for ALCON
2023 BATON ROUGE
Hosted by your own
Astronomy Club.
Get on board.
PARTICIPATE.**

BIENVENUE EN LOUISIANE! (WELCOME TO LOUISIANA!)
Join us for this unique and exciting amateur astronomy gathering!



ALCON 2023

July 26-29, 2023
Hilton Baton Rouge
Capitol Center Hotel
201 Lafayette Street,
Baton Rouge, LA 70801

KEYNOTE SPEAKERS
★ David Eicher—writer, editor-in-chief
of *Astronomy Magazine*
★ Fred Espenak—co-author of
*Totality: The Great American
Eclipses of 2017 and 2024*

FIELD TRIPS
★ Irene W. Pennington Planetarium
★ LIGO (Laser Interferometer Gravitational-
Wave Observatory) Livingston*
★ Louisiana State University
Physics & Astronomy
★ Highland Road Park Observatory
*Spaces are limited for this trip!

SPEAKERS ★ Pranvera Hyseni ★ Guy Consolmagno ★ Dan Davis ★ And many more

Brought to Baton Rouge by the **Baton Rouge Astronomical Society**
Registration info coming soon! Check alcon2023.org

2023 Astronomical League Convention Update!

We now have our own ALCON Web Page. Check it out. Bookmark and watch it grow.

<https://alcon2023.org/>

HELP! We Need More Sponsors!!!

From now on, we will be doing planning and work by way of subcommittees, making use of small group meetings, e-mail, phone, etc, without the need to have the full committee meeting. We have a lot to get done. If you like to help, please EMAIL Steven M. Tilley smtilley@alcon2023.org

We are looking for Sponsors, please check with the ALCon 2023 committee before, so we do not re-ask anyone.

The 2023 ALCON Sponsorship Levels

Level	Price	Benefits
Galaxy	Above \$5000	Same as "Solar System" plus a 10-minute presentation[time slots are limited] during the conference.
Solar System	\$2000 to \$5000	Same as "Star" plus a large logo displayed on all conference signs and all slides used in the conference room between speakers. One full page for sponsor information in the Convention Program.
Star	\$1000 to \$1999	Same as "Planet" plus small Logo displayed on all conference signs and on schedule display. 1/4 page in Conference Program for logo and sponsor information
Planet	\$500 to \$999	Same as "Moon" plus Name displayed on Conference Hall display during breaks. 1/8 page in Conference Program for logo and sponsor
Moon	\$100 to \$499	Name listed in Conference program and can provide items for inclusion in attendee bags.

After you sign someone up, let us know and have them send a check made out to "Astronomical League" with **ALCon 2023** in the memo line, to the attention of

Carroll Iorg (AL President)
Astronomical League
9201 Ward Parkway, Suite #100
Kansas City, MO 64114

How to Run the Messier Marathon in March 2023

From the Space Tourism Guide blog at
<https://spacetourismguide.com/messier-marathon/>

Are you new to astronomy and looking for a challenge? This guide will introduce you to the Messier Marathon and provide you tips on how to 'run' your own Messier Marathon this year. The linked article covers the basics

about Messier objects, why it's called a Messier Marathon, and the best "route" and night(s) to run the Marathon in 2023 if you're up for a long, late night of gazing deep into space.



In a **Messier Marathon**, you try and see all 110 Messier objects in a single night, which takes planning and pacing to quickly move through over 100 deep space objects in a single night.

You'll need to have 1. the right equipment. 2. the right date. 3. the right location. 4.) a Resource Guide.

In 2023, the New Moon will occur on March 21st. This means there are *two* opportunities to run a weekend Messier Marathon in 2023: the weekends on either side of this Tuesday night New Moon, which is the **18th/19th** and **25th/26th**.

Mark your calendars!

It's important to run the Messier Marathon in the right order. The Space Tourism Guide website (linked below) posts a list based on the list provided by Machholz in his book, *The Observing Guide to Messier Marathon: A Handbook and Atlas.*, beginning:

1. Start in **Cetus**, find **M77** (spiral galaxy).
2. Move to **Pisces**, find **M74** (spiral galaxy).
3. Shift to **Triangulum**, find **M33**, The Triangulum Galaxy (spiral galaxy).
4. In neighboring **Andromeda**, find **M31**, The Andromeda Galaxy (spiral galaxy); **M32** (satellite galaxy); and **M110** (satellite galaxy).
5. Move to **Cassiopeia** to find **M52** (open cluster) and **M103** (open cluster).
6. Shift to **Perseus** to find **M76** The Little Dumbell, Cork, or Butterfly Planetary Nebula and **M34** (open cluster).
7. Progress to **Taurus** to find **M45**, the Pleiades open cluster.
8. Move to **Lepus** to find **M79** (globular cluster).
9. Shift to **Orion** to find **M42**, the Great Orion Nebula; **M43**, de Marian's Nebula; and **M78** (diffuse reflection nebula)..

<https://spacetourismguide.com/messier-marathon/>

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.





Messages from HRPO

Highland Road Park Observatory



FRIDAY NIGHT LECTURE SERIES

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

3 March = "Recent Unidentified Objects" This timely talk will disseminate what we know of the ongoing news stories regarding balloons in the atmosphere above North America.

24 March = "Solar System Protection" As part of an initiative to present updated versions of classic lectures, BREC Center Supervisor James DeOliveira will outline NASA's in-place guidelines to keep other bodies of the Solar System from 'contamination' by Earth microbes.

31 March = "Starliner" Now is the time for it to prove itself. The vital space capsule in the Commercial Crew agreement between NASA and its private partners will be tested in April!



EVENING SKY VIEWING

No admission fee. For all ages.

Fridays (3, 17, 24, 31 March) from 8:30pm to 10pm

Saturdays (4, 11 and 18 March) 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 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.

4 March = "Visible Light"

11 March = "Infrared, Microwaves and Radio Waves"

25 March = "Air and Space Navigation III"



THE EDGE OF NIGHT (Winter Session)

Friday 10 March from 5:45pm to 7:45pm / No admission fee.

For all ages. / Binocular strongly recommended.

It's not light, it's not dark. It's that special time called twilight, and HRPO wants to introduce you to it! Are all sections of the sky the same shade of blue? Which stars are seen first? Are Mercury and Venus or the Moon out? Is that moving object a plane, a satellite or space debris? How much actual darkness should I expect in a light-polluted city when twilight has passed? There is no other time like twilight. Bring it into your life!



SKYGAZING: A PURSUER'S GUIDE

Friday 17 March from 7pm to 8:30pm / No admission fee. For ages eleven and older.

The Baton Rouge Astronomical Society gives a special presentation toward middle and high school students and families to introduce the how this timeless science hobby can support a lifetime of intellectual and aesthetic fulfillment.



SOLAR VIEWING

Saturday 18 March 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: "Rocket Engineering"

Saturday 18 March 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.



PLUS NIGHT: “Nano Extension”

Saturday 25 March from 12pm to 2pm.

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.





OBSERVING NOTES **MARCH - 2023**

Puppis – The Stern

Position: RA 20, Dec.+25°

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 repeated here, for convenience. Monthly updates will be made to Sky Happenings and all that appears below that title.

Named Stars

Naos (Zeta Pup), from the Greek “Ship”, also from the Arabic “Suhail Hadar” – “The Roaring Bright One”, and **Muliphein**, mag. 2.21, 08 03 35.07 -40 00 11.5, is a hot blue supergiant star that can be seen with the naked eye. Located just 2.5° to the northwest of **NGC 2427**. Also known as **HD 66811, HIP 39429, SAO 198752, and Gould 248.**

Markab (Kappa¹ Pup), or Markeb, mag. 4.50, 07 38 49.88 -26 48 14.0. **Kappa² Puppis**, magnitude 4.69, 07 38 49.80 -26 48 13.0. **Kappa¹ Puppis** is also known as **HD 61555, HIP 37229, SAO 124198, and Gould 133.** **Kappa² Puppis** is also known as **HD 61556, SAO 174199, and Gould 134.**

Azmid (Xi Pup), “Gunwale”, or Asmidiske or Azmidiske, mag. 3.34, 07 49 17.66 -24 51 35.2, is a yellow supergiant star located just 1.6° southeast of **M93**. **NGC 2467** is 1.7° to the south-southeast. Also known as **HD 63700, HIP 38170, SAO 174601, Gould 191, and 7 Puppis.**

Ahadi (Pi Pup), mag. 2.71, 07 17 08.56 -37 05 51.0, is an orange super giant star with a companion at magnitude 6.86. Also known as **HD 56855, HIP 35264, SAO 197795, and Gould 82.**

Tureis (Rho Pup), “Little Shield”, mag. 2.83, 08 07 32.70 -24 18 16.0, is a yellow-white giant star. Also known as **HD 67523, HIP 39757, SAO 175217, Gould 253, and 15 Puppis.**

Nosaxa (HD 48265), mag. 8.07, 06 40 01.73 -48 32 31.0, has one planet in orbit. Also known as **HIP 31895.**

Tislit (WASP-161), mag. 11.1, 08 25 21.1 -11 30 03.0, has one transiting planet in orbit.

Deep Sky:

M 46 (NGC 2437), mag. 6.1, 07 41 46.8 -14 15 38, 25.3’x25.3’ in size, is an open cluster of over 150 stars; detached, no concentration of stars; moderate range in brightness; very bright, very large; magnitude of brightest star is 8.7. The planetary nebula **NGC 2438**, at magnitude 11, lies in front of the cluster, some 7’ north of the center of **M46**. **M47** is about 1.3° to the west. Also known as **Mel 75, OCl 601.1, and C0739-147.**

M47 (NGC 2422), mag. 4.4, 07 36 35.3 -14 29 20, 31’x31’ in size, is an open cluster of about 50 stars; detached, no concentration of stars; moderate range in brightness; bright, very large; magnitude of brightest star is 5.7. About 40’ to the north and slightly east – connected by a string of five 8th magnitude stars – is the small cluster **NGC 2423**. **M46** is 1.3° to the east. Also known as **H8-38, Mel 68, OCl 596.0, and C0734-143.**

M 93 (NGC 2447), “The Butterfly Cluster”, “The termite Hole Cluster”, mag. 6.2, 07 44 33.8 -23 51 11, 24.2’x24.2’ in size, is an open cluster of about 80 stars; not well detached from the surrounding star field; large; small range in brightness; magnitude of brightest star is 8.2. Central mass

is distinctly triangular, or wedge shaped. Located 9° south of **M 46**. About 3° to the southeast is **NGC 2467**. Also known as **Cr 160**, **OCI 649.0**, and **C0742-237**.

Cr 173, mag. 0.6, 08 03 30 -46 16, 370' in size. Also known as **Lund 424**, **OCI 741**, **OCI 741.0**, and **C0802-461**.

Cr 135, mag. 2.1, 07 17 18 -36 50, 136' in size, 77 stars, brightest star, **Pi Puppis**, an orange super-giant star, is magnitude 2.71. Also known as **Lund 312**, **OCI 700**, and **C0715-367**.

NGC 2451, mag. 2.8, 07 45 24 -37 57, 45'x45' in size, is an open cluster of about 153 stars; detached, weak concentration of stars; moderate range in brightness; extremely large; magnitude of brightest star is 3.6. This cluster is in fact two clusters – **NGC 2451A** at a distance of 197 parsecs, while **NGC 2451B** is at a distance of 358 parsecs. The star **c Puppis** is near the center. Two clusters, **PMG 1**, and **PMG 2**, surround **NGC 2451**. Also known as **Cr 161**, **vdB-Ha 9**, **Lund 380**, **ESO 311-008**, **OCI 716**, and **C0743-378**.

NGC 2477, mag. 5.8, 07 52 10 -38 32, 20'x20' in size, is an open cluster of about 900 stars; detached, strong concentration of stars; large range in brightness; very large, bright; magnitude of brightest star is 9.8. The star **b Puppis** is just to the north. Located about 2.5° west-northwest of **Zeta Puppis**. Also known as **Cr 165**, **Mel 78**, **C 71**, **Dunlop 535**, **Raab 65**, **vdB-Ha 13**, **OCI 720**, **Lund 395**, **ESO 311-017**, and **C0750-387**.

Bo 15, mag. 6.3, 07 40 15 -33 32 36, 3'x3' in size, 33 stars, brightest star is magnitude 7.65, is a knot of 3 stars plus a nebula. Also known as **Lund 113**, **C0738-334**, **BRAN 61**, and **IRAS 07383-3325**.

NGC 2546, mag. 6.3, 08 12 24 -37 37, 27.5' in size, 40 stars, magnitude of brightest star is 8.2. Also known as **ESO 369-007**, **Cr 178**, **Lund 436**, **OCI 726**, **vdB-Ha 22**, and **C0810-374**.

NGC 2527, mag. 6.5, 08 04 53 -28 08 18, 22'x22' in size, 45 stars, magnitude of brightest star is 8.6. Center star is **GSC 6566-0092**. Also known as **NGC 2520**, **ESO 430-015**, **H8-30**, **Cr 174**, **Lund 429**, **OCI 685**, **685.0**, and **C0803-280**.

NGC 2539, mag. 6.5, 08 10 38 -12 49 00, 15' in size, 59 stars, magnitude of brightest star is 9.1, is an open cluster; detached, weak concentration of stars; very large. The triple star **19 Puppis** is on its southeast edge. Also known as **H7-11**, **Cr 176**, **Mel 83**, **OCI 611**, **Raab 70**, and **C0808-126**.

NGC 2423, mag. 6.7, 07 38 12 -13 55 34, 19'x19' in size, 80 stars, brightest star is magnitude 9.0. Also known as **H7-28**, **Cr 153**, **Lund 359**, **Mel 70**, **OCI 592**, **Raab 57**, and **C0734-137**.

NGC 2439, “**Bold Arrow Cluster**”, mag. 6.9, 07 40 46 -31 41 30, 10'x10' in size, 181 stars, magnitude of brightest star is 8.9. There is a horseshoe shaped asterism of 1 orange and 6 white stars. **Bo 4** is just to the southwest with **Bo5 5'** to the north. The star **R Puppis** is on the north edge. Also known as **ESO 429-011**, **Cr 158**, **Lund 370**, **Mel 74**, **OCI 688**, **Raab 61**, **vdB-Ha 6**, and **C0738-315**.

Bo 5, mag. 7.0, 07 30 54 -17 04, 11' in size, 50 stars, magnitude of brightest star is 7.78. It is centered on the star **HD 59986**. Located on the west edge of **Sh2-302** and **vdB 97**. Also known as **vdB 97**, **Sh2-302**, **RCW 7**, **Lund 1129**, and **C0728-169**.

NGC 2220, mag. 7.0, 06 21 53 -44 46 29, 22' in size, 20 stars. **ESO 255-005** is on its east side. Also known as **ESO 255-004**.

NGC 2396, mag. 7.0, 07 29 09 -11 46 11, 10'x10' in size, 30 stars, magnitude of brightest star is 11.0. The star **β 332** is 7' to the north. Also known as **H8-36**, **Cr 148**, **Lund 344**, **OCI 579**, and **C0725-116**.

NGC 2467, “**The Skull and Crossbones Nebula**”, mag. 7.0, 07 52 36 -26 23, 16'x16' in size, 50 stars, is an emission nebula with an open cluster. **Haf 18** is 4' to the northeast, **Haf 19** is 40' to the north. Also known as **ESO 493-025**, **Sh2-311**, **Gum 9**, **Cr 164**, **Lund 396**, **OCI 668**, **668.0**, **H4-22**, **Ben 37a**, **C0750-263**, and **CTB 23**.

NGC 2571, mag. 7.0, 08 18 57 -29 45 00, 7' in size, 49 stars, magnitude of brightest star is 8.8. Also known as **ESO 431-005**, **H7-39**, **Cr 181**, **Lund 446**, **OCI 701**, **vdB-Ha 27**, and **C0816-295**.

Mel 71, “**Wilk's Cluster**”, mag. 7.1, 07 37 30 -12 04 00, 9' in size, 80 stars, magnitude of brightest star is 10.18. Also known as **Cr 155**, **C0735-119**, and **FSR 1222**.

Ru 44, mag. 7.2, 07 58 50 -28 34 42, 5' in size, 84 stars. Also known as **Lund 413**, **OCI 681**, and **C0757-284**.

Al 3, mag. 7.3, 07 16 24.0 -46 36, 72' in size.

NGC 2409, mag. 7.3, 07 32 40 -17 14 32, 16' in size, 6 stars. Also known as **Bo 4=BD-16 1994**, **Lund 1128**, and **C0728-168**.

NGC 2482, “The Starfish Cluster”, mag. 7.3, 07 55 10 -24 15 30, 12'x12' in size, 40 stars, magnitude of brightest star is 10.0. Also known as **ESO 494-003**, **H7-10**, **Cr 166**, **Lund 405**, **OCI 653**, **653.0**, and **C0752-241**.

vdB 98, mag. 7.3, 07 36 24 -25 20, 10'x10' in size, is a reflection nebula.

NGC 2567, mag. 7.4, 08 18 30 -30 38 42, 10'x10' in size, 117 stars, magnitude of brightest star is 10.1. Also known as **ESO 431-003**, **H7-64**, **Cr 181**, **Mel 86**, **Lund 446**, **OCI 701**, **vdB-Ha 27**, and **C0816-295**.

NGC 2579, mag. 7.5, 08 20 53 -36 12 48, 1' in size, 10 stars. It is an emission and reflection nebula at 08 21 00 -36 15 (also known as **Gum 11**), and an open cluster at 08 21 06 -36 11, 8' in size, 20 stars with the brightest star at magnitude 9.5. Also known as **ESO 370-008**, **ESO 370-009**, **ESO 081903-3604.2**, **PNG 254.6+00.2**, **Cr 182**, **Lund 449**, **OCI 724**, and **C0819-360**.

Cr 185, mag. 7.8, 08 23 19 -36 20 06, 15' in size, 30 stars, magnitude of brightest star is 10.08. Located 15' east of **NGC 2579**. Also known as **Lund 451**, **OCI 725**, and **C0820-368**.

Mel 66, mag. 7.8, 07 26 19 -47 40 48, 10.6' in size, 821 stars. Also known as **Cr 147**, **Lund 336**, **OCI 739**, **Raab 53**, and **C0724-476**.

Ru 55, mag. 7.8, 08 12 19 -32 34, 6' in size, 36 stars, magnitude of brightest star is 8.56. Also known as **Lund 435**, **OCI 713**, and **C0810-324**.

Cr 146, mag. 7.9, 07 27 18 -23 58, 5' in size, 30 stars, magnitude of brightest star is 9.13. Also known as **Tr 7**, **Cr 146**, **Lund 340**, **OCI 635**, **FSR 1288**, and **C0725-239**.

NGC 2414, mag. 7.9, 07 34 17 -15 30 24, 4'x4' in size, 35 stars, magnitude of brightest star (**HD 60308**) is 8.21. Also known as **H8-37**, **Cr 150**, **Lund 352**, **OCI 598**, and **C0731-153**.

NGC 2489, mag. 7.9, 07 56 16 -30 03 54, 8'x6' in size, 112 stars, magnitude of brightest star is 11.1. Located 13' north of an East-West arc of stars. Also known as **ESO 430-003**, **H7-23**, **Cr 169**, **Ben 38**, **Lund 408**, **Mel 79**, **OCI 690**, **Raab 66**, **vdB-Ha 15**, and **C0754-299**.

NGC 2421, mag. 8.3, 07 37 14 -20 40, 10'x10' in size, 70 stars, magnitude of brightest star is 10.5, center star is **ADS 6216**. Also known as **ESO 560-002**, **H7-67**, **Cr 151**, **Lund 355**, **Mel 67**, **OCL 626**, **Raab 54**, and **C0734-205**.

NGC 2453, mag. 8.3, 07 47 35 -27 11 42, 5'x5' in size, 76 stars, magnitude of brightest star is 9.5. Also known as **ESO 493-012**, **Cr 162**, **Lund 385**, **OCI 670**, and **C0745-271**.

Ru 32, mag. 8.4, 07 45 06 -25 31 30, 6' in size, 30 stars, magnitude of brightest star is 9.55. Also known as **Lund 378**, **OCI 651**, **651.0**, **IRAS 07429-2523**, **C0742-254**, **BRAN 66A (WB89 1049)**, and **BRAN 66B (GSC 6544-0130)**.

Tr 9, mag. 8.7, 07 55 40 -25 55 12, 4.4' in size, 20 stars, magnitude of brightest star is 10.1. Also known as **Harvard 2**, **Cr 168**, **Lund 407**, **OCI 663**, and **C0753-258**.

NGC 2509, mag. 9.0, 08 00 48 -19 03, 12' in size, 70 stars. Also known as **ESO 561-007**, **H8-01**, **Cr 171**, **Lund 417**, **Mel 81**, **OCI 630**, **Raab 68**, and **C0758-189**.

NGC 2587, mag. 9.0, 08 23 25 -29 30 30, 10' in size, 40 stars. Also known as **ESO 431-007**, **Cr 184**, **Lund 453**, **OCI 706**, **vdB-Ha 30**, and **C0821-293**.

Ru 59, mag. 9.0, 08 19 22 -34 28 51, 3' in size, 20 stars, magnitude of brightest star is 10.17. Probably not a cluster. Also known as **Lund 447**, **OCI 717**, and **C0817-343**.

Ru 46, mag. 9.1, 08 02 10 -19 27 54, 3' in size, 15 stars, magnitude of brightest star (**HD 66290**) is 9.43. Also known as **Lund 420**, **OCI 367**, and **C0759-193**.

Haf 18, mag. 9.3, 07 52 44 -26 22 42, 3.8' in size, 25 stars. Located just northeast of **NGC 2467**. Also known as **Haf 18a**, **Haf 18b**, **Haf 18ab**, **Haf 18c**, and **C0750-262**.

Haf 15, mag. 9.4, 07 45 30 -32 50 30, 3.5' in size, 35 stars, magnitude of brightest star is 10.45. Also known as **Lund 351**, **OCI 696**, **vdB-Ha 8**, **FSR 1340**, and **C0743-326**.

Haf 19, mag. 9.4, 07 52 46 -26 16 42, 2' in size, 39 Stars. Located 10' north-northeast of **NGC 2467**. Also known as **Lund 400**, **OCI 662**, and **C0750-261**.

NGC 2298, mag. 9.4, 06 49 50 -36 02 07, 6.8'x6.8' in size, magnitude of brightest star is 13.4, has a 4"

halo. Also known as **ESO 366-022**, **Mel 53**, **Ben 37**, **EQ 0647-359**, and **C0647-359**.

NGC 2440, “**Bat Nebula**, **Insect Nebula**, mag. 9.4, 07 42 59 -18 15 56, 0.5’x0.5’ in size, is a planetary nebula; quite bright; not well defined (almost stellar); center star is a hot (200,000K) white dwarf star - **ADS 6309** or **HD 62166** (magnitude 18.9). Also known as **ESO 560-009**, **IRAS 07396-1805**, **PNG 234.8+08.4**, **H4-64**, **PK 234+02.1**, **Best 84**, and **Sa2-14**.

Ru 34, mag. 9.5, 08 02 10 -19 27 54, 8.2’ in size, 35 stars, magnitude of brightest star (**HD 66290**) is 9.43. Also known as **Lund 382**, **OCI 628**, **Berkley 38**, and **C0743-202**.

Cr 187, mag. 9.6, 08 24 12 -29 10 12, 5’ in size, 20 stars. Also known as **Lund 454**, **OCI 704**, and **C0822-289**.

NGC 2479, mag. 9.6, 07 55 06 -17 42 30, 11’ in size, 45 stars. Also known as **ESO 561-001**, **H7-58**, **Cr 167**, **Lund 406**, **OCI 623**, **Tr 8**, and **C0752-202**.

Ru 36, mag. 9.6, 07 48 24 -26 17 54, 5’ in size, 30 stars, magnitude of brightest star is 10.28, located 0.3° south of **Omicron Puppis**. Also known as **Lund 386**, and **C0746-261**.

Ru 47, mag. 9.6, 08 02 18 -31 04 42, 5’ in size, 20 stars, magnitude of brightest star is 10.9. Also known as **Lund 421**, **OCI 699**, **FSR 1344**, **C0800-309**, and **GSC 7120-1160**.

Ru 49, mag. 9.6, 08 03 17 -26 46 17, 2.5’ in size, 10 stars, magnitude of brightest star is 10.11. Also known as **Lund 423**, **OCI 676**, and **C0801-266**.

NGC 2580, mag. 9.7, 08 21 28 -30 17 30, 8’x8’ in size, 50 stars. Also known as **ESO 431-006**, **Cr 183**, **Lund 450**, **OCI 709**, **vdB-Ha 28**, and **C0819-301**.

Bo 6, mag. 9.9, 07 32 00 -19 26, 10’ in size, 40 stars, magnitude of brightest star is 10.65. Also known as **Lund 1130**, and **C0729-193**.

vdB 97, mag. 9.9, 07 32 30 -16 54, 2’x2’ in size, is a reflection nebula. Also known as **Sh2-302**, **B0 4**, **Bo 5**, and **BD-16 2003**.

Haf 16, mag. 10.0, 07 50 21 -25 27 06, 3.7’ in size, 30 stars, magnitude of brightest star is 11.62. Located 35’ south-southeast of **Xi Puppis** and 40’ northeast of **Omicron Puppis**. Also known as **Lund 396**, **OCI 655**, and **C0748-253**.

NGC 2432, mag. 10.0, 07 40 54 -19 05 06, 8’x8’ in size, 50 stars, magnitude of brightest star is 8.21. Also known as **ESO 560-006**, **H6-36**, **Cr 157**, **Lund 369**, **Mel 23**, **OCI 620**, **Raab 60**, and **C0738-189**.

NGC 2438, “**Calabash Nebula**”, mag. 10.0, 07 42 55 -14 47 34, 1.1’x1.1’ in size, center star is magnitude 17.5, located in **M46**. Also known as **IRAS 07395-1437**, **PNG 231.8+04.1**, **H4-39**, **PK 231+04.2**, and **Sa2-13**.

NGC 2455, mag. 10.0, 07 48 59 -21 12 54, 15’ in size, 50 stars. Also known as **ESO 560-015**, **Cr 163**, **Lund 388**, **Mel 77**, **OCI 636**, **Raab 64**, and **C0746-211**.

Be 135 (**Bernes Dark Nebula**), 07 19 35 -44 37 14, 13’ in size. Contains a small reflection nebula.

Objects in Puppis: 3 messier; 58 NGC; 7 IC; 48 MGC; 83 CGCG; 174 ESO; 109 ESO+; 14 AGC; 11 BRAN; 89 OCI; 6 Raab; 48 PK, 11 Alessi; 3 Bennett; 111 Lund; 17 Haf; 45 Ru; 16 Mel; 1 CTB; 2 vdB; 4 vdBH; 29 vdB-Ha; 25 Herschel; 1 SSWZ; 39 Cr; 23 PNG; 20 Wray; 5 Gum; 3 He2; 1 MWC; 113 PGC; 5 RCW; 1 HII; 1 HIII; 2 HIV; 1 [FM80]; 7 LBN; 2 Pismis; 1 Puppis A; 2 Po; 2 PKS; 12 VV; 7 Min; 8 Sandqvist; 4 Teutsch; 9 FSR; 12 Sanduleak; 4 Bo; 3 Lacaille; 1 King; 1 AH 03; 1 OJ; 2 Klemola; 3 Tr; 7 Radio Galaxies; 2 Quasar; 6 SAI; 6 Y-C; 3 Berkley; 1 Bernes; 7 Karhula; 8 LDN; 1 Ced; 3 Cz; 1 MrWe; 1 Ns; 2 Str; 8 CG; 1 Abell; 4 Al; 8 AS; 3 Slo; 2 Waterloo; 1 Hu; 1 Harvard; 3 PN; 1 SaSt; 1 CRL; 1 Best; 1 Mayer; 1 Ivanov; 1 Kronberger; 1 DC; 1 Hill; 1 Stock; 1 AM; 1 Hartigan; 2 ASCC; 1 Longmore; 1 Valk; 1 HFG; 1 Caldwell; 1 S; 2 BBW; 1 UB 89; 1 IE; 2 OH; 21 ARO; 1 UKS; 1 HS; 1 HH; 1 GGC; 1 CTA; 2 DG; 24 AM; 4 LEDA; 66 IRAS; 3 NPM1G; 8 DCId; and 4 BHR for a total of 1459 objects.

Other Stars:

HD 60532, mag. 4.46, 07 34 03.18 -22 17 45.8, is a yellow-white star halfway between main sequence and the subgiant evolutionary stage. It has two planets in orbit. The inner planet has a mass of 3.15 **Jupiter**, an orbital period of 201.83 days and a separation of 0.759 au. The outer planet has a mass of

7.46 **Jupiter**, an orbital period of 607.6 days at a separation of 1.58 au. Also known as **HIP 36795**, **SAO 174009**, and **Gould 108**.

HR 2998, mag. 5.04, 07 42 57.16 -45 10 18.4, was originally called **T Puppis** by Lacaille. Also known as **HD 62644**, **HIP 37606**, **SAO 218923**, and **Gould 159**.

HR 2462, mag. 5.05, 06 38 37.63 -48 13 12.8, was called **V Puppis** by Lacaille, called **Y Puppis** in later catalogs. It is not **V** or **Y Puppis** variable stars. Also known as **HD 47973**, **HIP 31765**, **SAO 218093**, **V/Y Puppis**, and **Gould 21**.

9 Puppis, mag. 5.16, 07 51 46.34 -13 53 49.9. Also known as **HD 64096**, **HIP 38382**, **SAO 153500**, **HR 3064**, **Gliese 291**, and **Gould 205**.

MY Puppis, mag. 5.68, 07 38 18.21 -48 36 05.2, called **Y Puppis** by Lacaille. Also known as **HD 61715**, **HIP 37174**, **SAO 218852**, **Gould 142**, and **y³ Puppis**.

HD 61391, mag. 5.69, 07 36 43.93 -48 49 48.6, called **Y Puppis** by Lacaille. Also known as **HIP 37043**, **SAO 218841**, **Gould 130**, and **y² Puppis**.

HD 69830, mag. 5.95, 08 18 23.78 -12 37 47.2, is an orange dwarf star with three **Neptune** mass planets in orbit, the first multi-planetary system without any **Jupiter**-like or **Saturn**-like planets, and an asteroid belt between the middle and outer planet. The inner planet has a mass of at least 10.48 **Earth** with an orbital period of 8.667 days; the middle planet has at least 12.07 **Earth** masses with an orbital period of 31.56 days; and the outer planet has 18.43 **Earth** masses with an orbital period of 197 days. The outer planet is believed to be within the star's habitable zone, where liquid water would remain stable. Also known as **HIP 40693**, **SAO 154093**, and **Gould 285**.

HD 70642, mag. 7.18, 08 21 28.14 -39 42 19.5, has one planet in orbit. Also known as **HIP 40952**, and **SAO 199126**.

HD 50499, mag. 7.22, 06 52 02 -33 54 56, has one confirmed and one unconfirmed planet in orbit. Also known as **HIP 32970**.

HD 55696, mag. 7.9, 07 12 15.0 -38 10 28, has one planet in orbit. Also known as **HIP 34801**.

NGC 2423-3, mag. 9.45, 07 37 09 -13 54 24, is an individual star in **NGC 2423**. It has one planet in orbit – the star has 2.4 the mass of the **Sun**. The planet is 10.6 the mass of **Jupiter** with a 714-day orbit – it may be a brown dwarf star.

HIP 38594, mag. 9.7, 07 54 11.0 -25 18 11, m has two planets in orbit.

Stars of interest beyond magnitude 10:

WASP-121, mag. 10.4, 07 10 24.0 -39 05 51, has one transiting planet in orbit.

WASP-122, mag. 11.0, 07 13 12.0 -42 24 35, has one transiting planet in orbit.

WASP-168, mag. 11.0, 06 26 59.0 -46 49 17, has one transiting planet in orbit.

WASP-23, mag. 12.7, 06 44 31.0 -42 45 43, has one transiting planet in orbit.

Stars in Puppis: 12 Greek; 6 Σ ; 4 GSC; 52 h; 9 Hu; 2 S; 27 I; 15 β ; 8 B; 4 Rst; 2 A; 26 Numbered; 3 Howe; 2 Gliese; 128 Lettered; 81 V; 1 Rss; 2 R; 8 See (λ); 2 ho; 2 Daw; 1 Arg; 20 Dunlop (Δ); 1 Hn; 1 HN; 1 Hh; 1 Hrg; 2 Hd; 1 He; 1' EB; and 1 \emptyset for a total of 425 stars.

Sky Happenings: March 2023 *(what follows pertains ONLY to the current month. Material above is good year after year.)*

Mar. 1st - Dusk: In the west **Venus** and **Jupiter** are just 0.5° apart.

Mar. 2nd - **Venus** passes 0.5° north of **Jupiter** at 5 AM CST,
Evening: High in the southeast, the waning gibbous **Moon** is about 1.5° from **Pollux**.

Mar. 3rd - The **Moon** is at apogee (252,207 miles or 405,888 km from **Earth**) at 12 noon CST.

Mar. 5th - Evening: The **Moon**, in **Leo**, is about 4° or less to the left of **Regulus**.

Mar. 7th - **Full Moon** occurs at 6:40 AM CST.

Mar. 9th - Dusk: The waning gibbous **Moon** and **Spica** rise together with about 5° between them. By dawn, only 2° or so will separate them.

Mar. 12th - **Daylight Time** begins at 2 AM CST (it then becomes 1 AM CDT).

- Mar. 13th** - **Antares** is 1.6° south of the **Moon** at 8 PM CDT.
- Mar. 14th** - Morning: In the southeast, the **Moon** is trailing **Antares** by more than 4°, **Last Quarter Moon** occurs at 9:08 PM CDT.
- Mar. 15th** - **Neptune** is in conjunction with the **Sun** at 7 PM CDT.
- Mar. 17th** - **Mercury** is in superior conjunction at 6 AM CDT.
- Mar. 19th** - The **Moon** passes 4° south of **Saturn** at 10 AM CDT,
The **Moon** is at perigee (225,369 miles or 362,696 km from **Earth**) at 10:12 AM CDT.
- Mar. 20th** - The **Spring Vernal Equinox** occurs at 4:24 PM CDT – Spring begins in the **Northern Hemisphere**.
- Mar. 21st** - Dwarf planet **Ceres** is at opposition at 3 AM CDT,
New Moon occurs at 12:23 PM CDT (lunation 1240).
- Mar. 22nd** - The **Moon**, just 1 day past new, passes 0.5° south of **Jupiter** at 3 PM CDT,
Dusk: Low above the western horizon, the thin **Moon** is 1.5° to the upper left of **Jupiter**.
- Mar. 24th** - The **Moon** passes 0.1° south of **Venus** at 5 AM CDT,
The **Moon** passes 1.5° north of **Uranus** at 8 PM CDT.
- Mar. 25th** - High in the west the crescent **Moon** is about 1.5° to the left of the **Pleiades (M45)**.
- Mar. 27th** - Dusk: Right after sunset look toward the west to see a string of planets. They stretch from the **Moon**, one day before first quarter, in **Taurus**, with **Mars** to the upper left and **Venus** farther to the lower right. **Mercury** and **Jupiter** are on the western horizon with less than 1.5° between them.
- Mar. 28th** - The **Moon** passes 2° north of **Mars** at 8 AM CDT,
Mercury passes 1.5° north of **Jupiter** at 10 AM CDT,
First Quarter Moon occurs at 9:32 PM CDT.
- Mar. 30th** - **Mars** is 1.2° north of **M35** at 12 AM (midnight) CDT,
The **Moon** is 1.6° south of **Pollux** at 5 AM CDT.
- Mar. 30th** - **Venus** passes 1.3° north of **Uranus** at 1 AM CDT,
The **Moon** is at apogee (251,605 miles or 404,919 km from **Earth**) at 6:17 AM CDT.

Planets:

Mercury – **Mercury** is in conjunction with **Saturn** on March 2nd, shining at magnitude -0.6, with **Saturn** fainter at magnitude 0.8. This conjunction is only 13° west of the **Sun**, with the pair rising less than 20 minutes before the **Sun**. **Mercury** is in conjunction with the **Sun** on March 17th and will reappear in the evening sky. On the 27th, 30 minutes after sunset, the planet (at magnitude -1.5) is in a near conjunction with **Jupiter** (at magnitude -2.1) 1.3° to the right of **Mercury**. The two planets will stand just 3.5° above the horizon and will set within 20 minutes.

Venus – **Venus** is visible even before sunset if you look carefully. At the opening of the month the planet will be 30° high in **Pisces** in the west, shining at magnitude -3.9. Just 30' to the southeast will be **Jupiter**, at magnitude -2.1. **Venus**, in a telescope, will reveal an 86% illuminated disk spanning 12". The planetary duo will set before 8:30 PM local time. The waxing crescent **Moon** will be in a very close conjunction (0.1°) south of **Venus** on the 24th, and on the 31st the planet will be 1.3° north of **Uranus**.

Mars - **Mars** is in **Taurus**, outshining **Aldebaran**, at magnitude 0.9, for most of March. During the first week of the month the planet will span 8". By mid-month it has shrunk to 7". During the month the planet's path will carry it roughly midway between the horns of the **Bull**, marked by the stars **Zeta** and **Beta Taurii**, on the 11th. The planet will cross into **Gemini** on the 26th. On the 29th, the planet will be 1.1° north of **M35** in **Gemini**, now glowing at magnitude 0.9. The best time to view the planet is a couple of hours after sunset, with the planet being very high in the sky. By the end of the month, the planet will set before 2:30 PM local time.

Jupiter – **Jupiter**, at magnitude -2.1, and **Venus**, at magnitude -3.9, will be only 30' apart in **Pisces** on March 1st. The actual conjunction occurs on the morning of the 2nd, well after the pair has set for the U.S. **Jupiter** will be attended by three of its **Galilean Moons** – **Europa** will be hidden behind the planet in the early evening, and when it is clear of the planet's limb, it will remain in the planet's shadow. On the 22nd, the planet, at magnitude -2.0, is 7° high above the west horizon 30 minutes after sunset. The crescent **Moon**

is only 1.5° away – a very young, thin crescent (only 1 day past new) with just over 2% illumination.

Jupiter will be in conjunction with the **Sun** on April 11th and will disappear from sight at the end of March.

Saturn – **Saturn**, at magnitude 0.9, will reappear in the sky on March 19th, very low in the east, after its conjunction with the **Sun** on February 16th.

Uranus – **Uranus** is an easy binocular target all month, starting March near **Sigma** and **Pi Arietis**. On the 1st, the planet is located midway between the two stars. The planet will wander northeastward, and on the 24th the crescent **Moon** and the planet (at magnitude 5.8) will be less than 1.5° apart. On the 30th, the planet and Venus are in conjunction, with the planet spanning 3", being 1.2° due south of **Venus** (78% illuminated spanning 14"). On the 31st, both planets are still less than 2° apart, and will set before 10:30 PM local time.

Neptune – **Neptune** is in solar conjunction on March 15th. The planet is not visible all month.

Sun – **Sun** will be in the **Vernal Spring Equinox** at 4:24 PM CDT on March 20th.

Moon – The **Moon** will be a little more than 1.5° below **Pollux**, at magnitude 1.1, on March 2nd. On the 22nd, the **Moon** will be only 1.5° away from **Jupiter**.

Favorable Librations: **Lyot Crater** on March 1st; **Newton Crater** on the 5th; **Lacus Vens** on the 10th; and **Stokes Crater** on the 16th.

Greatest North Declination on the 2nd (+27.6°) and the 29th (+27.9°)

South 16th (-27.8°)

Libration in Longitude: east Limb most exposed on the 25th (+6.2°)

West 13th (-6.3°)

Libration in Latitude: North Limb most exposed on the 18th (+6.7°)

South 4th (-6.7°) and the 31st (-6.8°)

Asteroids / Minor Planets The information that follows comes from the *RASC Observer's Handbook, 2023 USA Edition*, unless otherwise designated:

Asteroid **1 Ceres** - **Ceres** positions are as follows: On March 7th – 12 39.07 +14 02.8, magnitude 7.1 in **Coma Berenices**; on the 17th – 12 31.56 +15 03.8, magnitude 6.9 in **Coma Berenices**; and on the 27th – 12 23.02 +15 51.1, magnitude 7.0 in **Coma Berenices**. **Ceres** positions, by my estimates, are as follows: On March 1st – Just due north of **NGC 4639** (in **Virgo**); on the 5th – Just over 1° northeast of **M90**; on the 10th – about 0.15° due north of **NGC 4571**; on the 15th – about 0.5° north-northeast of **M88**, or about 0.65° northwest of **M91**; on the 20th – about 0.6° northeast of **NGC 4419**; and on the 25th – about 0.5° east and a little south of **M100**.

Asteroid **2 Pallas** - **Pallas's** positions are as follows: On March 7th – 06 39.01 -13 01.3, magnitude 8.0 in **Canis Major**; on the 17th – 06 47.44 -09 13.1, magnitude 8.1 in **Monoceros**; and on the 27th – 06 58.36 -05 41.4, magnitude 8.3 in **Monoceros**. **Pallas's** positions, by my estimates, are as follows: On March 1st – about 2.5° northwest of **Sirius**; on the 5th – about 4.2° north-northwest of **Sirius**, or 5° due west and a touch north of **Mu Canis Majoris**; on the 10th – about 3.5° due west and a touch north of **Theta Canis Majoris**; on the 15th – about 3.5° northwest of **Theta Canis Majoris**, or 6.5° west-southwest of **M5**; on the 20th – about 3° west-northwest of **M50**, or 6.3° due east and a touch south of **Beta Monocerotis**; and on the 25th – about 3° north-northwest of **M50**, or 7.5° northeast of **Beta Monocerotis**.

Asteroid **6 Hebe** – **Hebe's** position on March 7th is 08 00.45 +19 07.7, magnitude 9.8 in **Cancer**.

Comets – The information that follows comets come from *ALPO's* journal unless otherwise designated.

Comet **C/2017 K2 (PANSTARRS)** – **K2's** positions: On March 2nd – 02 10.1 -57 25.5, magnitude 7.9 in **Eridanus**; on the 12th – 02 48.5 -51 13.1, magnitude 8.1 in **Horologium**; and on the 22nd – 03 18.7 -45 05.0, magnitude 8.2 in **Eridanus**.

Comet **C2020 V2 (ZTF)** – **V2's** positions: On March 2nd – 01 46.8 +41 28.0, magnitude 9.0 in **Andromeda**; on the 12th – 01 54.4 +37 49.6, magnitude 9.0 in **Andromeda**; and on the 22nd – 02 02.4 +34 47.6, magnitude 9.1 in **Triangulum**.

Comet **C/2022 E3 (ZTF)** – **E3's** positions: On March 2nd – 04 38.5 +00 48.8, magnitude 7.6 in **Taurus**; on the 12th – 04 41.5 -03 19.5, magnitude 8.4 in **Eridanus**; and on the 22nd – 04 46.3 -05 31.9, magnitude 9.1 in **Eridanus**. **E3's** positions, by my estimates, are as follows: On March 1st – about 4.1° due north and a touch east of **Nu Eridani** (in **Taurus**); on the 5th – about 2.6° due north and a touch east of **Nu Eridani**, or about 1.5°

north-northwest of **NGC 1637**; on the 10th – about 1.5° due east and a touch north of **Nu Eridani**, or about 1.1° due east and a touch south of **Mu Eridani**; on the 15th – about 1.5° southwest of **Mu Eridani**; on the 20th – about 2° due west and a touch south of **Omega Eridani**; on the 25th – about 1.7° southwest of **Omega Eridani**; and on the 30th – about 2.5° due west and a touch south of **Psi Eridani**, or about 3° due west of **IC 2118** (The Witch Head Nebula).

Meteor Showers – There are no Major (Class I) meteor showers in March.

There are no Minor (Class II) meteor showers in March.

There are no Variable (Class III) meteor showers in March.

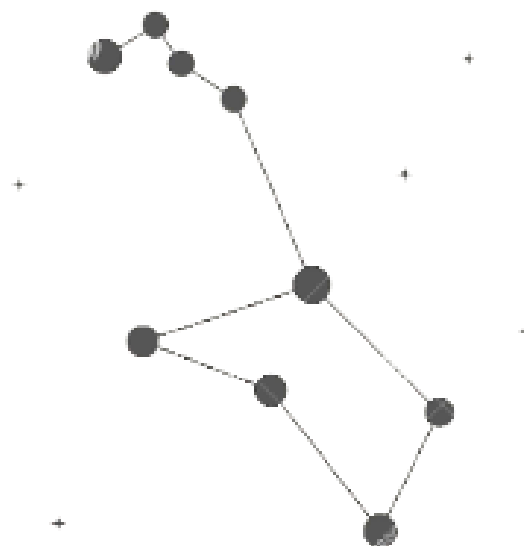
There are five Weak (Class IV) meteor showers, with a maximum zenith hourly rate (mzhr) of <2 in March: The Xi Herculids, active from March 6th through March 20th, peaks on March 12th; the Delta Mensids, active from March 2nd through March 26th, peaks on March 12th; the Beta Tucanids, active from March 2nd through March 26th, peaks on March 13th; the Delta Pavoids, active from March 11th through April 16th, peaks on March 31st; and the April Epsilon Delphinids, active from March 31st through April 20th, peaks on April 9th.

Mythology:

Puppis – The Stern

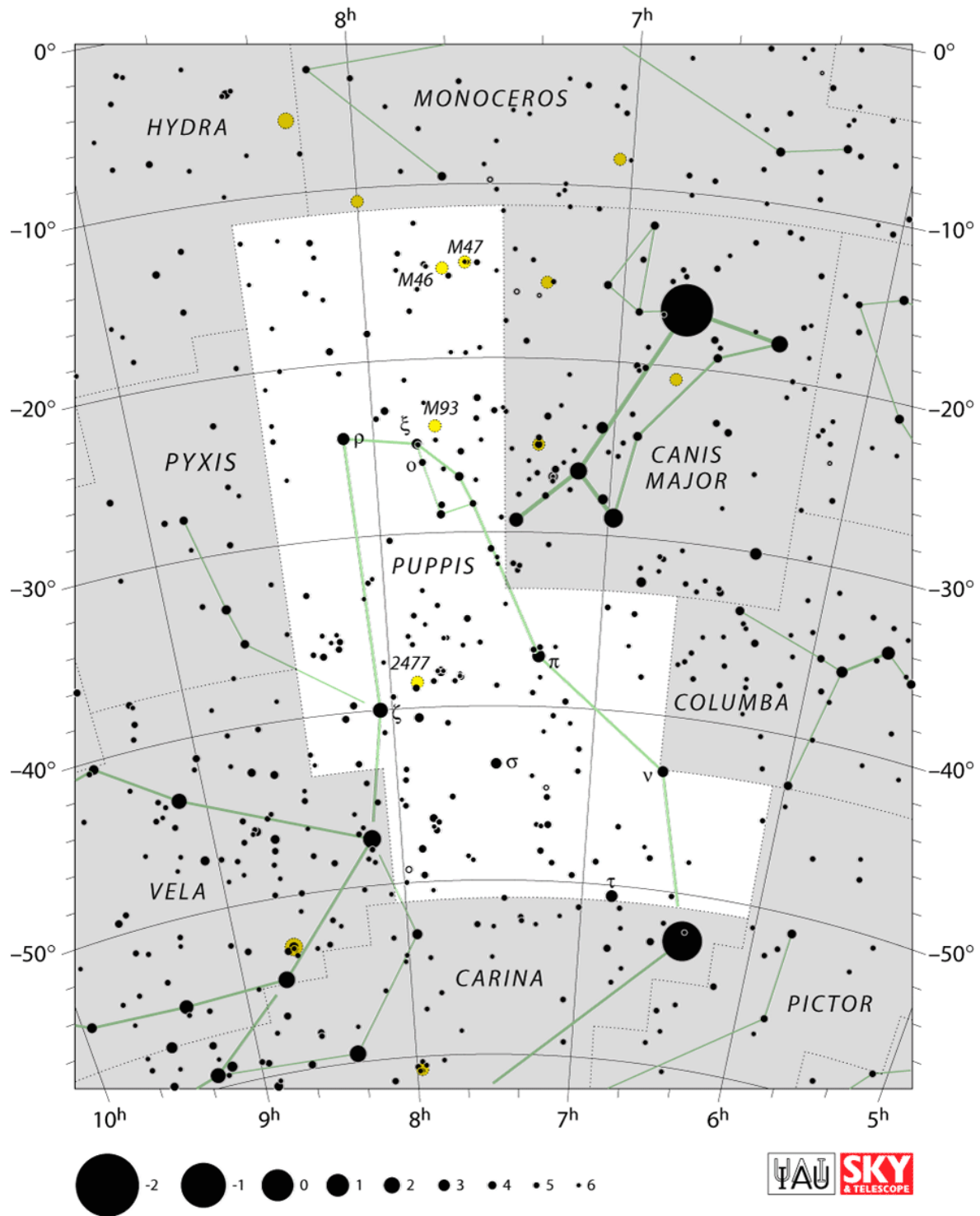
The largest of three sections into which the ancient constellation of Argo Navis, the ship of the Argonauts, which was divided by Nicolas Louis de Lacaille in his catalog of the southern stars published in 1763. Puppis represents the stern, or poop of the ship.

Puppis has no stars labeled Alpha or Beta, because when the Argo Navis was divided up by Lacaille, the original Greek letter designations of the stars of Argo were retained. Alpha and Beta ended up in the subdivision of Carina. The brightest star in Puppis is in fact the second magnitude Zeta Puppis, called Naos from the Greek for “ship”.



CONSTELLATION

Puppis
the Stern



The End