

Night Visions

September 2023

Newsletter of the Baton Rouge Astronomical Society

Will **Comet Nishimura** become visible to the unaided eye this month? Photo credit and more on Page 11

Monthly Meeting September 11th 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: Amy Northrop, a NASA Solar System Ambassador,
will speak on the asteroid probe mission, Osiris Rex***

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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

As reported last month, ALCon 2023 is over, but there will be a meeting of all the committee chairs for the wrap-up and drafting of the final report to AL. Michele couldn't post many pics in this issue, but many are housed on Google Docs (see links on Page 6). Here's one we particularly like, posing with speaker Pranvera Hyseni from Kosovo, who flew in from California.

Our September and October speaker is Amy Northrop – her subjects will be, respectively, the asteroid probe missions Osiris Rex and Psyche. We are currently working on the November and January speakers. The December meeting is, of course, the annual Pot-Luck dinner and Elections.

Elections: the offices of President, Vice-President, and Secretary are open due to the “term limit” in the By-Laws. Nominations are asked for before the November meeting and newsletter (required by the By-Laws). There are only two months left to give your nominations.

The controller for the BRAS on-line events is in, but we are awaiting the cameras, microphones, and associated cables. The laptop, for outreach, is in and BRAS is looking into getting a “locking cable” for it so it can be kept plugged in and the battery charged.

The light meter, used to measure light levels for violations of the light pollution provisions of the UDC – Unified Development Code) has been calibrated and is being sent back to us now.

...While we still don't have a permanent “webmaster”, Michele is sharpening up her rusty HTML skills to help update the brastro.org webpages (per our suggestions and a few of her own), using CoffeeCup's HTML editor (which the club renewed for a year). She says she could possibly have it spiffed up by the end of September if she can untangle her brain as well as some of the old code.

After this month, a quarterly **BRAS STAR PARTY** will be replacing our “MOON” nights. It turns out that as HRPO has nothing else planned after their “Edge of Night” events end – we will be able to set up at 7 PM, the public will be welcomed from 8 PM until 10 PM, after which only BRAS members will be allowed on site. The first “Star Party” will be on November 10th and will be announced in the calendar below.

The **BRAS Member's Handbook** is completed and will be distributed (electronically) soon. Some of the documents (By-Laws, directions to the BRAS Dark Site with legal letter, Proxy voting form, etc.) will be located on the BRAS Members only forums.

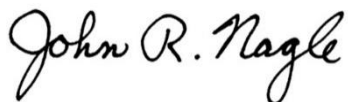
BRAS is planning to have an **auction for excess equipment** – telescopes and accessories – soon. There will be a meeting at HRPO on the 17th at 2 PM to plan what to auction and pricing. BRAS is working on a donation policy – for telescopes, accessories, etc. – to cover all forms of donations.

Observing Programs. Currently, BRAS has only one observing program (Moon Observer) – we are working on developing more as adjuncts to AL Observing programs – if you complete ours, you are about half-way through the AL program. If you have any suggestions for an observing program, please let us know.

BRAS Business Meeting is moved to the last Thursday of the month for September and October, due to LSU teaching at HRPO on Tuesday and Wednesday nights this semester.

We are entering our peak season for **Outreach Events**, so study Ben's list in this newsletter and be looking for emails from him as he calls for volunteers to participate in this important community work.

Clear Skies,
John Nagle, President



P.S. Robert Reeves, who could not make it to speak at ALcon, asked my permission to place his Exploring The Moon book ad in our newsletter. See Page 10





Monthly Meeting Minutes – August 14th

- Welcome by the president, John Nagle.
- John introduced the speaker for the evening, Dr. Tabetha Boyajian, from the Department of Physics and Astronomy at LSU. The title of her topic was “Where’s the Flux Now?”. This talk covered background and current status of a star with high variability in luminosity, KIC 8462852. (“Tabby’s Star”).
- John told us that we did well with the ALCON event at the end of July. He called Steven Tilley up to recognize the committees involved. Steven also thanked all who supported the event and gave a short speech encouraging future endeavors.
- Ben discussed outreach (this is covered elsewhere in the newsletter).
- Scott Cadwallader was recognized for receiving his award for completing the requirements for the Advanced Bright Nebula Observing Program.
- John announced that he got the items for the eclipse. He also announced that the light meter is getting recalibrated.
- A raffle for three books, a calendar, and three of Tabby’s pottery creations was held with coffee and cookies available for onsite attendees.
- Submitted by Roz Readinger, Secretary



September is still upper 90's

2023 Officers:

President: John Nagle

president@brastro.org

VP: Joel Tews

vice-president@brastro.org

Secretary: Roz Readinger

secretary@brastro.org

Treasurer: Trey Anding

treasurer@brastro.org

BRAS Liaison for BREC:

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BRAS Liaison for LSU:

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Open

Calendar of Upcoming Meetings

Monthly Member Meeting – 7 pm Monday, September 11th at the Observatory, in person and via Jitsi

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

Monthly Business Meeting: 7 pm Thursday September 28th at the Observatory, in person and via Jitsi

Last MOON night, HRPO, Saturday, September 16th, 7 til



Business Meeting Minutes – August 30th

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

1. ALCon – reports and financial. – All present agreed that this needed to be a summary of where we stand right now. Carroll Iorg is currently working on a report. Trey reported that he had seen the invoice for the hotel. We need to deduct the prize winners' charges from the hotel bill. Someone asked how many registrants we had for the convention; we came up with 120 – 140 as a ballpark answer. Committee reports are due within 60 days of the end of the convention; we have 30 days to get the club's report in. Carroll and Chuck Allen can help with this, but we need to set a date to get it done.
2. BRAS Website. – Michele has done a few updates to the website. She currently wants to put links that float across the top and make it work better. Scott C. suggested we use a standard message instead of posting where and when we are having events at the dark sky site. There is also an email address to John that will be changed. BRAS maintains email and dark sky site information. Scott C. will send new wording to John for Michele to update on the website. Both Trey and Ben have lists of the BRAS members; requests usually go through them. When membership kits are distributed, they will initially be sent to all the members. Ben uses his membership list for outreach events. Chris K. has requested an updated membership roster once a year. There will be no bylaws in the new membership kit; these will be stored in an online repository.
3. Sale of excess equipment. – Scott C.'s been selling eyepieces from the closet at \$5 for members to \$10 for the general public (these would normally sell for around \$20). The question was raised, can we do an auction? Chris K. told us that we could based on precedent. We think we can sell the Meades for about \$500 a piece. We talked about advertising the sale/auction on the radio and setting prices for items. Maybe have an object of the month available at BRAS meetings to get this stuff moved out. We set a time to have a meeting on this on Sunday, Sept. 17th, at 2pm.
4. Electronics. – Trey has the new controller at home; he forgot to bring it in. He also has the new laptop at home. We are looking to purchase a locking cable to tie down the PC at HRPO so we can keep it charged at a central location. The cameras and microphones are still under discussion. There was talk of tracking down emails on this.
5. Outreaches in BREC Rec Centers. – We will be starting soon with solar viewing across the street at the Highland Road Park Rec Center. This will expand from solar viewing at different rec centers to nighttime viewing at rec centers. There are two different coordinators we'll be working with for this, one for the northern parks, one for the southern parks.
6. Light Meter sent out for calibration. – The Light Meter has been calibrated and is on its way back.
7. Star Party planning for HRPO. – The date has been set for this on the 16th of September. It will be open to members at 7pm to come in and set up. Then it will be open to the public from 8 – 10pm. We will be getting the word out through public and private means, including checking with our radio friend, Brian.
8. Codifying of donation policy. – Someone brought up the policy for accepting telescopes after point 4 above. We are probably looking at maybe some better wording to the existing policy.
9. Club Observing programs. – Moonwatchers is the only one we have currently. People proposed programs for the solar system and double stars. Chris K. has some paperwork that we could use to set this up. We could start with a general policy, then set up programs that involve little training, entry

level, programs that would teach star hopping or urban sky Messier objects. A page on the website and handouts were discussed. Chris K. will send the info he has to John.

New Items

John went to a recent BREC Commission meeting where he saw Brandon who said to say "hi" to everyone. Brandon mentioned that the generator for HRPO has not been approved yet. BREC is still working on the hydraulic cylinders. Chris K. has a scheduled meeting with Claire Coco tomorrow to discuss light pollution. Steven will check his schedule to possibly set up an ALCON meeting. He would prefer to take care of most things by email. He is looking to get copies of the related bank statements.

We are going to temporarily move the business meeting to the last Thursday in the month for the fall semester as LSU astronomy classes are meeting at HRPO on Tuesdays and Wednesdays.

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

Submitted by Roz Readinger, Secretary

A Message from our 2023 ALCON Chairman



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



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

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

Steven T. Tilley



**PICTURES & MEMENTOS
FROM ALCON 2023 Baton Rouge**
(too many to post here)
can be found on this page.

ALcon 2023 Google Photos
and

**Click on thi link below to visit the
ASTRONOMICAL LEAGUE FACEBOOK PAGE.**

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

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

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



Outreach Report for August 2023

Hi Everyone,

Aside from ALCON, the Summer was a nice break for us. That's about to change! With the end of Summer and the arrival of Fall comes the return of Sidewalk Astronomy at Perkins Rowe, STEM nights all around the community and more. While I don't have anything new to report on from last month, you'll see we have a whole slew of new outreach opportunities that can use your helping hands. Be sure to take a look at the list and let me know if you want to help out with any of them!

We DID get a nice group shot at the August monthly meeting of the majority of volunteers that helped out with ALCON, including a bonus shot of our August speaker, Tabettha Boyajian (of Tabby's Star fame (far right))



Left to Right: Craig B., Mary L., Joey L., Tammy W., Troy B., Joel T., John N., Trey A., Roz R., Chris R., Chad L., Steven T., Abigail G., Scott C., Brandon G., Ben T., Nat B., Merrill H., and Dr. Tabettha Boyajian

One more big THANK YOU to all those that donated their time. I wish we could have a picture that included everyone, but it was hard enough to get all of the volunteer shifts covered over the course of 4 days and, I think, virtually impossible to get everyone together in one spot on the same day!

Again, please take a look at the following list of dates and let me know ASAP if you can help out. As just about any of our volunteers would tell you, it's a fun time and a great way to learn more about astronomy yourself.

Clear Skies,
Ben Toman

Upcoming Outreach Events

Friday, September 15th

9:00am-11:30am

Port Hudson Historic Site School Day

2 or more people needed for demos/exhibits and solar observing if possible

Tuesday, September 19th

6pm-9pm

Sidewalk Astronomy at Perkins Rowe

Saturday, September 23rd

9am-2:30pm

Girl Scout BIG Event

Campus of Southeastern University in Hammond

Demos and possible solar observing

(At least 2 person shifts. You do not need to stay for the entire event.)

Saturday, October 7th

10am-5pm

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

Several people needed to take shifts to cover the day

Demos, club info, solar observing

Friday, October 20th

6pm-8pm

West Baton Rouge Museum Halloween Event

Primary: Telescope viewing

Secondary: Demos/exhibits

3 or more people needed

Saturday, October 21st

11am-4pm

Livingston Library 8th Annual Book Festival

Solar viewing, demo/info table

(At least 2 person shifts. You do not need to stay for the entire event.)

Tuesday, October 24th

6pm-9pm

Sidewalk Astronomy at Perkins Rowe

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





LPC (Light Pollution Committee) Report August

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

1. A form Letter discussed. An e-mail thread to be initiated with everyone at the LPC meeting focusing on one ongoing construction taking place somewhere in the HRPO Service Area. This procedure will build a historical record showing that BRAS is taking action on light pollution.
2. UDC is now controlled by the Planning Commission. Researching how to for each produced get on the agenda for one of their meetings.
3. A meeting with DOTD (about complaints) will be scheduled before the end of the month.
4. You Tube scripts will have a basic template for each produced.
5. Outreaches will start at South Baton Rouge BREC Rec Centers (first to be the Highland Road Park) – to be started in the fall due to the excessive heat this summer.
6. Light Meter is ready to send out for calibration. Update: Meter sent.
7. Researching the LSU Campus Lighting Project.
8. Entergy contact – Entergy Economic Development.

John Nagle, LPC Chair Pro-Tem

Globe At Night

This month's target for the Globe At Night program is
Cygnus from September 5th through September 14.

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.

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.

Available now! Immediate delivery!

Exploring the Moon with Robert Reeves

Observing and Understanding our Natural satellite

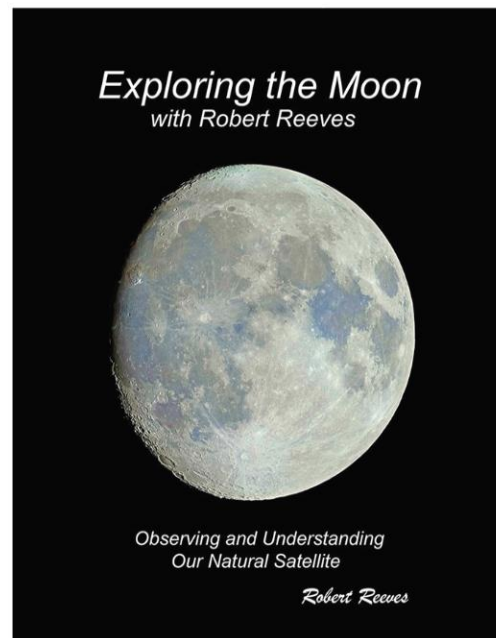
Written and illustrated by *Robert Reeves*

The Moon is a perfect urban backyard target for your telescope, visible most of the month and unaffected by light pollution. Through dozens of issues of *Amateur Astronomy Magazine*, Robert Reeves showed us that a look at the Moon through a telescope is much an exercise in cosmic art as it is science.

In his new book *Exploring the Moon with Robert Reeves*, Robert helps the reader appreciate the Moon's beauty as well as the science of the Moon. Robert helps us see the Moon as both a mysterious world puzzled over in the past and a world full of promise for future exploration. Robert explains the nuances of the Moon and its varied geology to bring context to its face and give the Moon a personality, and making the Moon a valued nighttime friend.

300 pages, 422 illustrations, 44 full page illustrations

Available in Kindle \$17.99, paperback \$39.95 or hardback \$54.95
from Amazon at: <https://www.amazon.com/dp/B0CGL3RN5F>
(Note the second alphanumeric character is a "zero")



• 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

Discover the cosmos!

Each day a different image or photograph of our fascinating universe is featured on Discover The Cosmos, along with a brief explanation written by a professional astronomer.

Comet Nishimura

2023 August 21



Introducing Comet Nishimura
Credit & Copyright: [Dan Bartlett](#)

Explanation:

Will Comet Nishimura become visible to the unaided eye? Given the unpredictability of comets, no one can say for sure, but it currently seems like a good bet. The comet was [discovered](#) only ten days ago by Hideo Nishimura during 30-second exposures with a standard digital camera. Since then, [C/2023 P1 Nishimura](#) has increased in brightness and its path across the inner [Solar System](#) determined. As the comet dives toward the Sun, it will surely continue to [intensify and possibly become](#) a naked-eye object in early September. A problem is that [the comet](#) will also be angularly near the Sun, so it will only be possible to see it [near sunset or sunrise](#). The comet will get so [close to the Sun](#) – inside the orbit of [planet Mercury](#) – that its nucleus may [break up](#). [Pictured](#), Comet Nishimura was imaged three days ago from [June Lake, California, USA](#) while sporting a green coma and a thin tail.



Members/Community Corner

Here's where we feature articles and photos about BRAS members' astronomy-related accomplishments and adventures outside of BRAS activities (as if there were any spare time for such things!), and/or other astronomical happenings in our neck of the Universe. Send your contributions to Michele at newsletter@brastro.org

My Visit to Fox Park Observatory

by Ben Toman

Sometimes the stars line up, so to speak. A few years after I moved to Louisiana from Michigan (around 18 years ago), I learned of an observatory not far from my old Michigan stomping grounds. I followed them on Facebook and always hoped to get a chance to see it in person someday. On my most recent trip up to visit family a couple of weeks ago, that chance finally came.

The Fox Park Observatory is located in Pottersville, MI. (a small suburb of Lansing, MI.) It was opened in 1998 and was completely the product of donations from Lansing area business. The observatory was operated by a group of amateur astronomers along with the Capital Area Astronomy Association (CAAA). When the group ran into financial difficulties maintaining the facility, a plan was worked out where it was sold to the Eaton County Parks Department while still being run by the volunteers.

It was Thursday, August 17th and my wife Ashley and I had just arrived in MI the day before. I happened to see via my Facebook newsfeed that this was also the first night of the FPO's annual starparty. With nothing else scheduled for us that evening and the weather prospects looking good, we decided to head out there.

The observatory feels like it is situated in a pretty rural area even though it was only 20 minutes or so from the large city of Lansing. (Michigan's capital, for those that don't remember!) Looking around the grounds before nightfall, I had a feeling we'd be treated to some nice, dark skies.

Being that it would be the first night of the star party and we were there pretty early, there weren't too many people on site yet. I found the director, Jason Blashcka, and introduced ourselves. (Ashley had come along, too!) He was very happy to have us there and graciously gave us a full tour of the facility and introduced us to the other folks already there setting up.

The observatory itself is a 30'x30' space with an attached 10'x30' office/control room. It has a roll off roof that opens the entire 30'x30' space to the sky. There are 3 permanent cement piers which each held a telescope, and several other portable scopes in various states of storage or being set up for the star party.

The main space also has a projector screen and speakers. Jason told me they do everything from using it for lectures and live astrovideo views to just playing sci-fi movies if the weather stops cooperating on public nights. At the time, some classic rock was playing through the speakers at a comfortable volume which



really gave the place an inviting, fun vibe while preparations were under way for the oncoming night.

We met, talked and joked with several of the members and attendees for the next hour or so. There were all the usual last minute details being attended to including who was getting the coffee made. (Apparently, we're not the only club with the need to have coffee brewed for every event!) Ashley and I were proud to have taken over the title of "Traveled the farthest" to be at the star party, too. We were also happy to meet Emily Palmer, a young high-schooler that is also in charge of the observatory's Instagram page.

At last, it was time to roll back the roof and get the scopes ready for some observing. It was all done so quickly, I didn't even realize it had happened and I missed seeing the operation unfold. Darkness descended



and we were treated to an absolutely beautiful night sky. Limiting magnitude was around 5.5-5.6 so the Milky Way was clearly visible and the sky glow from the cities felt like a long ways off even though I knew they were closer.

We were pulled from scope to scope and had great views of a bunch of familiar deep sky objects. I even saw my first Starlink "train" of satellites. We all agreed that even though they're the bane of astronomy right now...they do look pretty cool when you see them. (Why is it that the things that are bad for you often are the most appealing?!)



After a few hours, we called it a night and said our goodbyes to our new friends. Everyone was very friendly and happy to meet us and it really made our visit to the observatory a memorable one. We wished them good luck with the rest of the star party and the continuing efforts to bring astronomy to the public. (Their model has them being open to the public 2 weekends a month with a \$2/person or \$5/family fee all of which goes to help maintain the observatory.) I'll continue to follow their progress on social media and sincerely hope to get back up there.





Messages from HRPO

Highland Road Park Observatory



EXPERIMENTAL MUSIC SERIES

For ages fourteen and older. / No admission fee.

Want to prime yourself for nebulae, stars of all colors and the occasional sporadic meteor? HRPO proudly presents those who have been inspired by outer space to create sounds you will remember every time you put your eyes on the skies. Each session will have a playtime of all fifty to seventy-five minutes.

1 September at 7:30pm = "Session I"

---[Musicians: Erin Demastes, Dylan Burchett, Hal Lambert, Mitchell Mobley, Tammy Duplantis]

8 September at 6:30pm = "Session II"

---[Band: Pink See-Through Fantasia (Billy, Paula, Lynn, Greg, Garrin)]



EVENING SKY VIEWING

No admission fee. For ages six and older.

Fridays (1, 8, 15, 22 and 29 September) from 8:30pm to 10pm

Saturday (2, 23, and 30 September) 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.

2 September = "Asteroids and Atomic Fusion"

9 September = "Power in the House I"

16 September = "Power in the House II"

30 September = "Power in the House III"



PLUS NIGHT: “Ice Giants and Comets”

Saturday 9 September from 7pm to 10pm

for ages six and older / 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.



FRIDAY NIGHT LECTURE SERIES

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

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

22 September = “The Visible Passes” Since 1958 defunct satellites, rocket bodies, active payloads and space stations have peppered the views of those with little to no light pollution and/or magnification devices. How can you see these manmade objects. Do they cause problems for glamour shots of space or active scientific data gathering? [Postponed from 4 August.]

29 September = “Artificial Intelligence” No other year of our lives has seen such a social shift in awareness regarding the day-to-day effect government and private use of AI has on the existence of the human species. What is AI? Who is developing it and to what end? What do futurists and policy makers have to say about it? Should we welcome AI with open arms or cautious optimism?



NEPTUNIAN OPPOSITION

Monday 18 September from 9:45pm to 11:45pm

for ages six and older / no admission fee

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



SOLAR VIEWING

Saturday 23 September from 12pm to 2pm
for ages six and older / no admission fee

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: "Astrobiology"

Saturday 23 September 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].

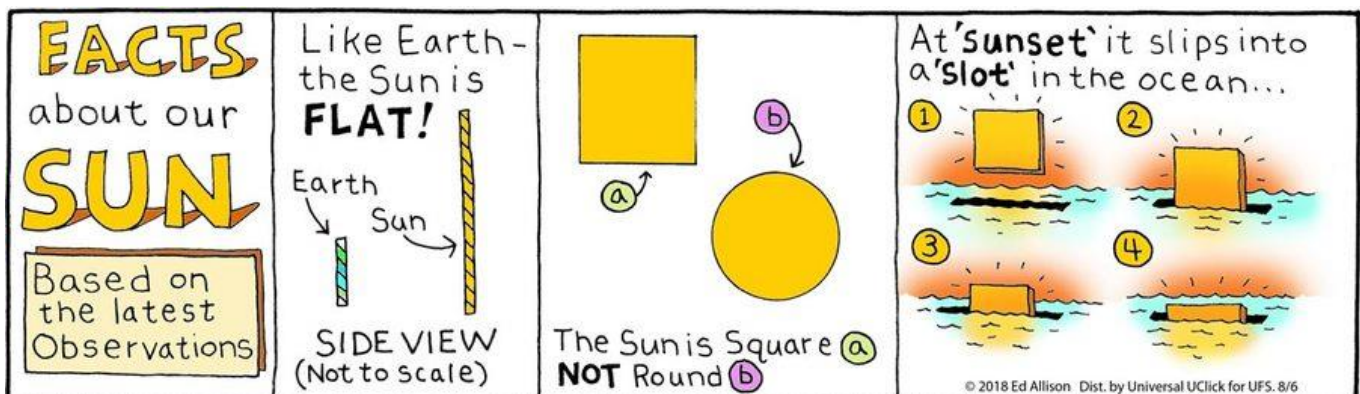
This program offers advanced topics, topic extensions and all-new games and activities to an older crowd. Certificates will be earned, and a section of archived experiments, some not seen in over fifteen years (and some *never* performed on site) take place. There are also giveaways and door prizes.



PARTIAL SOLAR ECLIPSE

Saturday 14 October from 9am to 2pm
for ages six and older / no admission fee

A wonderful display of Earth-Moon-Sun geometry occurs on this day. Several telescopes will be set up and participants should be able to detect contact between the Sun and the Moon at about 10:33am CDT, when the Sun is sixteen degrees up. Maximum coverage will occur at about 12:05pm CDT, when the Sun is fifty degrees up. WARNING: Do not ever attempt a viewing of the Sun for the first time, unless you are with someone with experience.





OBSERVING NOTES **SEPTEMBER**

Crux – the Southern Cross

Position: RA 12.5, Dec. -60°

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

Named Stars

Acrux (Alpha¹ Cru), Alpha Crucis A, probably called as such due to it being the “A” star of **Crux**, mag. 1.4, 12 26 35.94 -63 05 56.6, is a spectroscopic binary star and the 23rd brightest star in the night sky. Also known as **HD 108248**, **HIP 60718**, **Gould 26 Crucis**, and **SAO 251904**.

Alpha² Crucis (Alpha Crucis B), mag. 2.09, 12 26 36.5 -63 05 58.0, is also known as **HD 108249**, and **Gould 27 Crucis**.

Alpha Crucis C, mag. 4.86, 12 26 30.9 -63 07 21.0, is probably an optical double with the **Alpha Crucis** system. Also known as **HD 108250**, **Gould 25 Crucis**, and **SAO 251903**.

There are at least 5, with 3 more possible, members in the **Alpha Crucis** system.

Mimosa (Beta Cru), from the Latin “mimus” – “an actor”, and **Becrux**, mag. 1.25, 12 47 43.32 -59 41 19.4, is a giant blue-white binary star in a 5-star system and is the 19th brightest star in the night sky. There is a spectroscopic companion at a separation of 8.7 au, and a low-mass pre-main sequence companion to the southeast at a projected 4” separation. **Mimosa** is believed to be the hottest star (28,000° Celsius) of all first magnitude stars. **DY Crucis** (CGCS 3284), a magnitude 9 carbon star (one of the reddest known) is 2.4’ to the west. **NGC 4755** (Herschel’s “Jewel Box”) is 1° to the southeast. Immediately south of **Beta Crucis** is the **Coal Sack**. Also known as **HD 111123**, **HIP 62434**, **Gould 46 Crucis**, and **SAO 240259**.

Gacrux (Gamma A Cru), probably called as such due to it being the “Ga(mma)” star of **Crux**, and is sometimes called **Rubidea**, mag. 1.64, 12 31 09.93 -57 06 45.2, is a binary star that has a high proper motion and has stopped fusing hydrogen and maybe even helium in its core. Also known as **HD 108903**, **HIP 61084**, **Gould 34 Crucis**, and **SAO 240019**.

Gamma B Crucis, mag. 6.42, 12 31 16.7 -57 04 52.0, is a white dwarf star at a separation of about 2”. It is an optical companion only. Also known as **HD 108925**.

Imai (Delta Cru), also called “**Palida**” from the Portuguese for “the pale one”, mag. 2.79, 12 15 08.76 -58 44 56.0, is a hot, massive blue-white sub-giant star in the process of becoming a red giant star. It is a rapid rotator with a rotational velocity of 210 km per second and has a rotational period of less than 1.3 days. Also known as **HD 106490**, **HIP 59747**, **Gould 18 Crucis**, and **SAO 239791**.

Ginan (Epsilon Cru), also called “**Intremetida**” – “the intrusive one” in Portuguese, mag. 3.59, 12 21 21.81 -60 24 04.9, is an orange giant star. Also known as **HD 107446**, **HIP 60260**, **Gould 22 Crucis**, and **SAO 251862**.

Tupā, (HD 108147), mag. 6.99, 12 25 46.27 -64 01 19.5, has one planet in orbit. Also known as **HIP 60644**.

Deep Sky:

NGC 4755, “Herschel’s Jewel Box,” “Kappa Crucis Cluster,” mag. 4.2, 12 53 37.1 -60 21 23, 10’x10’ in size, is an open cluster of about 218 stars; detached, strong concentration of stars; large range in brightness; very large and rich; magnitude of brightest star is 5.8. This cluster is visible to the naked eye. Also known as **ESO 131-016**, **C1250-600**, **IRAS 12511-0621**, **C 94**, **AGC 52 0228**, **LEDA 43826**, **MCG-01-33-043**, **UGCA 306**, **Lac.II.12**, **Cr 264**, **Lund 627**, **Mel 114**, **vdBH 141**, **Raab 96**, **OCI 892**, **Dunlop 301**, and **GSC 04956-01262**.

NGC 4609, “Coal Sack Cluster,” mag. 6.9, 12 42 16.8 -62 59 45, 13’x13’ in size, is an open cluster of about 52 stars; detached, weak concentration of stars; small range in brightness; magnitude of brightest star is 9.0; pretty large, elongated, and compressed. Also known as **C 98**, **ESO 095-014**, **C1239-627**, **Cr 263**, **Lund 625**, **vdBH 138**, **Dunlop 272**, and also = **CPD-62 2888**.

C1155-642, mag. 7.0, 11 58 51.6 -64 34 52, 100.2”x100.2” in size, is an open cluster of about 50 stars; detached, weak concentration of stars; moderate range in brightness; magnitude of brightest star is 8.9. Also known as **Ru 98**, **vdBH 125**, **OCI 868**, and **Lund 600**.

Ru 165, mag. 7.0, 12 28 26.4 -56 25 48, 20’x20’ in size, is an open cluster of about 35 stars; magnitude of brightest star (**HD 108570** = **HR 4749**) is 7.0. Located 46’ northwest of **Gamma Crucis**. Also known as **C1225-561**, **Lund 618**, and **OCI 881**.

C1226-604, mag. 7.1, 12 27 11.5 -60 46 01, 15.4’x15.4’ in size, is an open cluster of a few stars; detached, slight concentration of stars; large range in brightness; magnitude of brightest star is 8.4. Also known as **Harvard 5**, **C1224-605**, **Cr 258** – not **Cr 257**, not **Hogg 74**, **vdBH 133**, **Lund 615**, **Lund 1091**, and **OCI 880**.

Cr 257, mag. 7.1, 12 24 46.0 -60 53 12.0, 5’ in size, is an open cluster of about 25 stars. Located 50’ east-southeast of **Epsilon Crucis** in a distorted “T” shape. Two of the stars are **HD 107978** and **HD 107980**. Not **Harvard 5** and not **Hogg 74**.

NGC 4463, mag. 7.2, 12 29 55.2 -64 47 23, 6.8’x6.8’ in size, is an open cluster of about 30 stars; detached, strong concentration of star; large range in brightness; magnitude of brightest star is 8.3. Located on the **Crux-Musca** border. Also known as **C1227-645**, **vdBH 135**, and **OCI 885**.

NGC 4103, mag. 7.4, 12 06 39.6 -61 15 00, 13.8’x13.8’ in size, is an open cluster of about 45 stars; detached, strong concentration of stars; large range in brightness; magnitude of brightest star is 10.0; pretty large, irregularly round. Located less than 3° south-southwest of **Delta Crucis**. Also known as **ESO 130-005**, **C1204-609**, **BRAN 380**, **Cr 252**, **Mel 109**, **Lund 604**, **vdBH 127**, **Raab 94**, **Dunlop 291**, **OCI 871**, and **OCI 871.0**.

NGC 4349, mag. 7.4, 12 24 06.0 -61 52 14, 9.0’x9.0’ in size, is an open cluster of about 30 stars; detached, strong concentration of stars; moderate range in brightness; magnitude of brightest star is 10.9; very bright, very large. Located just about midway between **Alpha** and **Epsilon Crucis**. Also known as **ESO 131-003**, **C1221-616**, **Cr 255**, **Mel 110**, **Raab 95**, **Lund 611**, **vdBH 130**, **Dunlop 292**, **OCI 882**, and **OCI 882.0**.

NGC 4052, mag. 8.8, 12 02 05.2 -63 13 25, 12.1’x12.1’ in size, is an open cluster of about 80 stars. Located 8.5’ west-northwest of **Theta¹ Crucis** or 16’ west of **Theta² Crucis**. Also known as **ESO 094-010**, **C1159-629**, **vdBH 126**, **Cr 251**, **OCI 870**, and **OCI 870.0**.

NGC 4337, mag. 8.9, 12 24 03.3 -58 07 26, 6.6’x6.6’ in size, is an open cluster of about 16 stars. Also known as **C1221-578**, **vdBH 129**, **Lund 610**, **Cr 254**, and **OCI 878**.

Ru 97, mag. 9.1, 11 57 28.6 -62 42 29, 3.6’x3.6’ in size, is an open cluster of about 20 stars; magnitude of brightest star is 12.0. The star **BrsO 20** (7.8 and 9.3 magnitudes, 18.8’ separation at a PA of 226°) is 18’ to the west-northwest. Also known as **C1154-623**, **vdBH 124**, **Lund 599**, and **OCI 867**.

C1225-595, mag. 9.5, 12 28 44.4 -59 48 36, 3’x3’ in size, is an open cluster. Also known as **Hogg 14**, **OCI 883**, **Lund 617**, and = **GSC 08658-0949**.

Harvard 7, mag. 10.1, 12 39 31.7 -60 38 13, 13.4’x13.4’ in size, is an open cluster. Also known as **Tr 20**, **C1236-603**, **vdBH 137**, **FSR 1624**, **Lund 624**, and **OCI 888**.

Coal Sack, “The Southern Coal Sack,” 12 53 00 -63 00, 55’x55’ in size, is a 1° long cone shaped

dark nebula that runs south and east of Alpha Crucis with a cone-shaped protrusion called “The Emu’s Beak.” NGC 4755 (Jewel Box Cluster) is to the north. Also known as C99, and the Coal Sack Nebula.

“The Jelly Fish Nebula, (PNG 296.3+03.1), 12 00 16.3 -59 04 43.86, 98” in size. Also known as KFR 1 and BRAN 378.

“The Dragonfish Nebula, 12 11 27.5 -62 55 10, 130”x130” in size, is near the star HD 106068.

Deep Sky objects in Crux: 9 NGC; 25 ESO; 14 PK; 12 PNG; 28 C; 7 IRAS; 10 Cr; 3 Caldwell; 10 Ru; 3 RCW; 11 He2; 16 vdBH; 7 Loden; 5 Sandqvist; 3 Mel; 5 Dunlop; 4 Hogg; 2 Harvard; 3 ARO; 1 UGCA; 9 Wray; 23 Lund; 29 OCl; 9 Sa; 3 FSR; 1 PGC; 1 LEDA; 1 MCG; 1 AM; 4 BRAN; 3 Raab; 2 ESO+; 1 AGC; 1 Gum; 1 Lac; 3 SDC; 3 Al; 1 CD; 5 GSC; 1 VBRC; 1 SSWWZ; 1 Tr; 1 KFR; 1 DuRe; 1 Al-Teu; 1 ASCC; 1 Pat; 1 Sr; 1 Alessi; 1 Ju; 1 Stock; 1 Teu; 1 Gulliver; and 7 HD for a total of 295.

Other Stars:

HD 110432, mag. 5.17, 12 42 50.28 -63 03 31.0, is a high-mass X-ray binary star. Also known as HIP 62027, Gould 40 Crucis, SAO 252002, and BZ Crucis.

HD 112244, mag. 5.34, 12 55 57.14 -56 50 08.9, is an emission-line star. Also known as HIP 63117, Gould 54 Crucis, and SAO 240385.

DS Crucis, mag. 5.71, 12 51 17.98 -60 19 47.2, is an emission-line star. Also known as HD 111613, HIP 62732, Gould 47 Crucis, and SAO 252054.

Kappa Crucis, mag. 5.98, 12 53 48.92 -60 22 34.5, is a member of NGC 4755, the “Jewel Box Cluster” (usually Kappa refers to the cluster itself). Also known as HD 111973, HIP 62931, Gould 50 Crucis, and SAO 252054.

HD 106906, mag. 7.8, 12 17 53.19 -55 58 31.89, has one planet in orbit. Also known as HIP 59960.

Stars of interest beyond magnitude 10

GX 301-2, mag. 10.66, 12 26 37.56 -62 46 13.2, is a high-mass X-ray binary star. Also known as BP Crucis.

WR 46, mag. 10.8, 12 05 18.72 -62 03 10.1, is a Wolf-Rayet star. Also known as HD 104994, HIP 58954, and DI Crucis.

HDE 311884, mag. 10.81, 12 43 51.0 -63 45 14.8, is a Wolf-Rayet star. Also known as CD Crucis.

NGC 4349-127, mag. 10.82, 12 24 35.47 -61 49 11.7, has one planet in orbit.

BI Crucis, mag. 11.0, 12 23 25.99 -62 38 16.1, is a symbiotic star.

Asterisms:

The Southern Cross is a cross-shaped, or kite-like asterism made up of Alpha, Beta, Delta, and Epsilon Crucis. The constellation Crux is named for this asterism.

The False Cross, not to be confused with the Southern Cross, is composed of the stars Kappa and Delta Velorum with Epsilon and Iota Carinae.

The Diamond Cross can also be mistaken for the Southern Cross – it is composed of Beta, Theta, Upsilon, and Omega Carinae.

Stars in Crux: 16 Alpha; 51 Lettered; 4 h(erschel); 4 Dunlop; 3 CorO; 2 Cp; 2 I; 2 Numbered; 1 Hld; 1 Hdo; 1 BrsO; 1 CapO; 1 R; 1 Ø; 1 A; and 1 Rst for a total of 92.

Sky Happenings: September 2023

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

- Sept. 1st The Moon passes 1.4° south of Neptune at 2 AM CDT.
- Sept. 2nd Venus is stationary at 11 PM CDT.
- Sept. 4th The Moon passes 3° north of Jupiter at 3 PM CDT,
Jupiter is stationary at 4 PM CDT.
- Sept. 5th The Moon passes 3° north of Uranus at 4 AM CDT,

The **Moon** is 1.2° south of the **Pleiades (M45)** at 3 PM CDT,
Evening: The **Moon**, one day before last quarter, follows the **Pleiades** by less than 5° as they rise above the east-northeast horizon.

- Sept. 6th** **Mercury** is in inferior conjunction at 6 AM CDT,
Last Quarter Moon occurs at 5:21 PM CDT.
- Sept. 9th** **Pollux** is 1.5° north of the **Moon** at 11 PM CDT.
- Sept. 10th** Dawn: The waning crescent **Moon**, high in the east, will hang 4° below **Pollux**, with **Castor** completing a line of three stars.
- Sept. 11th** Dawn: In the east the thin lunar crescent, in **Cancer**, is about 3.5° to the left of the **Beehive Cluster (M44)**,
The **Moon** passes 11° north of **Venus** at 8 AM CDT.
- Sept. 12th** The **Moon** is at apogee (252,457 miles or 406,291 km from **Earth**) at 10:43 AM CDT.
- Sept. 14th** **Mercury** is stationary at 7 PM CDT,
New Moon occurs at 8:40 PM CDT (Lunation 1246).
- Sept. 16th** The **Moon** passes 0.7° north of **Mars** at 2 PM CDT – most of **North America** will see an occultation.
- Sept. 19th** **Neptune** is at opposition at 6 AM CDT,
Venus is at greatest brilliancy (magnitude -4.8) at 9 AM CDT.
- Sept. 21st** The **Moon** passes 0.9° north of **Antares** at 3 AM CDT.
- Sept. 22nd** **Mercury** is at greatest western elongation (18°) at 8 AM CDT,
First Quarter Moon occurs at 2:32 PM CDT.
- Sept. 23rd** The **Autumn Equinox** occurs at 1:50 AM CDT – the official start of **Fall** in the **Northern Hemisphere**.
- Sept. 26th** The **Moon**, in the southeast, passes 3° south of **Saturn** at 8 PM CDT.
- Sept. 27th** The **Moon** is at perigee (223,639 miles or 359,911 km from **Earth**) at 7:59 PM CDT,
The dark limb of the **Moon** will occult **Psi¹ Aquarii** from 9:11 PM CDT to 10:15 PM CDT,
The dark limb of the **Moon** will occult **Psi² Aquarii** from 10:09 PM CDT to 10:45 PM CDT.
- Sept. 28th** **Neptune** is 1.4° north of the **Moon** at 12 PM (**Noon**) CDT.
- Sept. 29th** **Full Moon** occurs at 4:58 AM CDT.

Planets:

Mercury – **Mercury** will have its best morning apparition of the year for **Northern Hemisphere** observers this month. After the planet's September 6th inferior conjunction, the planet will be at magnitude 1.0 by the 16th, standing 8° below **Regulas**. Four days later, on the 20th, after quickly brightening to magnitude 0.0, the planet will rise 90 minutes before the **Sun**. The planet will reach its greatest western elongation (18°) on the 22nd, shining at magnitude -0.3 at 10.5° above the east-southeast horizon. On the 29th, the planet will reach magnitude -1.0, 9° high 30 minutes before sunrise.

Venus – **Venus** will dominate the morning sky in the hour before dawn. On September 1st, the planet is at magnitude -4.6, brightening to its greatest brilliancy of -4.8 by the 9th. On the 1st the planet will rise in southern **Cancer** just before 5 AM local time. On the 11th, the planet is 11° due south of the crescent **Moon**, with the **Beehive Cluster** 4° to the southwest of the **Moon**. On the 1st, the planet will show a 50"-wide crescent that is 11% illuminated. By the 11th, it is 21% illuminated and spanning 43". The planet will continue to shrink, reaching 32" on the 30th with its crescent 36% lit. On the 25th, the planet will cross over into **Leo**, and will end the month 7.8° west of **Regulas**.

Mars – **Mars** will be a challenge to observe at magnitude 1.7 low in the western sky after sunset. The planet will stand 3° high 30 minutes after sunset, and 15 minutes later it will be 1.5° high. The crescent **Moon** will pass in front of the planet (showing a 4" disk), taking 8 seconds to cover the planet for a daytime occultation on the afternoon of the 16th. By evening, the planet will be almost 2° west of the two-day old thin **Moon**.

Jupiter – **Jupiter** will start the month in **Aries** at magnitude -2.6, and will rise around 10 PM early in the month, standing 20° high by 10 PM on the 30th. The best views will be in the early morning hours when the planet is more than 60° high in the southern sky. The 6th magnitude star **Sigma Arietis** will stand due north

of the planet on the 18th. There will be four transits of **Io** and its shadow this month – on the nights of September 3/4, 12/13, 19/20, and 26/27. **Io**'s shadow will first appear, followed by the moon. In early September, the moon will trail the shadow by 74 minutes, shrinking to 54 minutes by the 26th. **Ganymede**'s shadow will be on the planet's southern polar region on the 7th starting at 12:51 AM CDT on the 7th, and ending at 2:40 AM CDT. On the night of the 7th, **Europa**'s shadow will transit the planet starting at 11:30 PM CDT on the 7th, with its exit at 1:49 AM CDT on the 8th. **Europa** will begin transit 8 minutes later at 1:57 AM CDT. **Ganymede** will be occulted behind the planet's northern limb on the 17th, beginning at 11:28 PM CDT and will reappear at 12:22 AM CDT on the 18th.

Saturn – **Saturn** is at its best early in the month and will be visible all night in **Aquarius**. The planet shines at magnitude 0.4 and will dim by 0.1 magnitude by midmonth. The planet is low in the southeast sky after sunset and will be its highest due south around midnight on the 1st. By month's end the planet will be highest around 10 PM. Through a telescope the ring's northern side is sunlit and is tilted toward **Earth** by 9° early in the month. By the 30th, the angle will be 10°. The planet will show a yellowish disk spanning 19" with the rings extending 42". The moon **Titan**, at magnitude 8.5, is roughly north of the planet on the 7th/8 and 23/24th. Appearing roughly south of the planet on the 15/16th. The moon **Iapetus** will reach western elongation on the 10th, standing 9° west of the planet. **Iapetus** will reach superior conjunction on the 29th. On the 13th, The moon **Tethys** will transit the planet beginning at 10 PM CDT, with its shadow following a few minutes later – the transit will last 90 minutes.

Uranus – **Uranus** stands about 8.5° southwest of the Pleiades (M45) and 7.5° northeast of Jupiter. The planet, glowing at magnitude 5.7, is about 3° below the star Tau Arietis. During September the planet, moving retrograde, moves less than 0.5°. The planet, through a telescope, will show a greenish-hued disk spanning 4".

Neptune – **Neptune** is entering its best month of the year for spotting it. On September 1st, the planet will be 16' northeast of the star 20 Piscium. Each night the planet will move southwestward to a point 4' due north of 20 Piscium on the 10th. The star itself is a binary with a separation of 10". The planet will reach opposition on the 19th, at magnitude 7.8 and showing a 2.3" disk, now 13' west of 20 Piscium. Through a telescope, the bluish hued planet will span 2". By September 30th, the planet is 31' southwest of 20 Piscium.

Pluto – **Pluto** will be around 20 02 -23 16 in eastern Sagittarius.

Moon – favorable librations – Mercurius Crater on September 1st; Poncelet Crater on the 27th; DeSitter Crater on the 28th; and Mare Humboldtianum on the 29th.

Greatest North declination is on the 9th (+28.0°)

Greatest South declination is on the 23rd (-28.3°)

Libration in Longitude: East Limb most exposed on the 6th (+7.7°)

West Limb most exposed on the 21st (-6.8°)

Libration in Latitude: North Limb most exposed on the 25th (+6.7°)

South Limb most exposed on the 10th (-6.7°)

Asteroids / Minor Planets - All positions given are from the *RASC Observer's Handbook, 2023 USA Edition* unless otherwise noted.

Asteroid **4 Vesta** – **Vesta**'s positions are as follows: On September 3rd – 05 45.43 +19 01.3, at magnitude 8.2 in **Taurus**; on the 13th – 05 57.51 +19 04.2, at magnitude 8.1 in **Taurus**; and on the 23rd – 06 08.15 +19 03.9, at magnitude 8.0 in **Taurus**.

Asteroid **8 Flores** – **Flores**'s positions are as follows: On September 3rd – 22 27.59 -18 40.2, at magnitude 8.4 in **Aquarius**; on the 13th – 22 18.85 -19 50.3, at magnitude 8.6 in **Aquarius**; and on the 23rd – 22 12.03 -20 34.4, at magnitude 8.8 in **Aquarius**. **Flores**'s positions, *by my estimates*, are as follows: On September 1st – about 2.3° due north of **NGC 7293 (The Helix Nebula)**, or 2.8° northwest of **Upsilon Aquarii**; on the 5th – about 2.5° north of **NGC 7293**, or due north and a little east of the star **47 Aquarii**; on the 10th – about 2° due north and a touch west of **47 Aquarii**; on the 15th – about 1° north-northwest of **41 Aquarii**; on the 20th – about 0.7° north and a bit west of **41 Aquarii**; on the 25th – about 1.2° west and a bit north of **41 Aquarii**; and on the 30th – about 1.7° west and a touch north of **41 Aquarii**.

Asteroid **15 Eunomia** – **Eunomia**'s positions are as follows: On September 3rd – 18 32.42 -21 53.4, at magnitude 9.7 in Sagittarius; and on the 13th – 18 35.42 -21 19.4, at magnitude 9.8 in **Sagittarius**.

Asteroid **18 Melpomene** – **Melpomene's** positions are as follows: On September 3rd – 03 03.69 +05 33.0, at magnitude 9.2 in **Cetus**; on the 13th – 03 13.74 +04 25.1, at magnitude 9.0 in **Cetus**; and on the 23rd – 03 20.45 +02 57.4, at magnitude 8.8 in **Cetus**.

Asteroid **29 Amphitrite** – **Amphitrite's** positions are as follows: On September 3rd – 00 51.23 +06 18.2, at magnitude 9.5 in **Pisces**; on the 13th – 00 44.85 +06 09.9, at magnitude 9.2 in **Pisces**; and on the 23rd – 00 36.49 +05 49.4, at magnitude 9.0 in **Pisces**.

Comets – All comet positions, unless otherwise noted, are from *ALPO*.

Comet **2P/Encke** – **Encke's** positions are as follows: On September 19th – 08 38.9 +29 07.1, at magnitude 10.2 in **Cancer**; and on the 29th – 10 05.2 +20 30.5, at magnitude 8.6 in **Leo**.

Comet **103P/Hartley** – **Hartley** (in the northeast sky around 10:30 PM CDT) will be at the following positions: On September 9th – 03 38.7 +43 11.2, at magnitude 7.9 in **Perseus**; on the 19th – 05 00.8 +40 16.8, at magnitude 7.4 in **Auriga**; and on the 29th – 06 13.3 +33 28.9, at magnitude 7.1 in **Auriga**. **Hartley's** positions, *by my estimates*, are as follows: On September 1st – about 2.5° north and 10' west of **Beta Persei**, or on the south edge of **M34**; on the 3rd – about 2° north and 5' west of **Beta Persei**, or 2.5° south and 5' west of **Kappa Persei**; on the 5th – about 2° north and 3' east of **Beta Persei**, or 2° south and 5' east of **Kappa Persei**; on the 7th – about 2.5° west and 2' north of **Nu Persei**; on the 9th – about 1.5' due north of **Nu Persei**; on the 11th – 3° east and 2' south of **Nu Persei**, or 5° north and 6' east of **Epsilon Persei**; on the 13th – about 2.5° southwest of **NGC 1582**, or 4.5° east and 8' north of **Epsilon Persei**; on the 15th – about 5° south and 3' west of **NGC 1582**; on the 17th – about 1° south and 8' west of **Zeta Aurigae**; on the 19th – about 2.5° south and 1' east of **Eta Aurigae**; on the 21st – about 1° south and 4' east of **NGC 1857**; on the 23rd – about 4.5° south and 7' west of **Nu Aurigae**, or 2° east and 8' north of **M38**; on the 25th – about 3° south and 5' west of **Theta Aurigae**, or 3° north of **M37**; on the 27th – about 2° south and 8' east of **Theta Aurigae**; on the 29th – about 3.5° north and a touch (1') west of **Kappa Aurigae**; and on October 1st – about 2.5° north and 12' east of **Kappa Aurigae**.

Comet **C/2020 V2 (ZTF)** – **V2's** positions are as follows: On September 9th – 02 29.7 -17 08.0, at magnitude 9.0 in **Cetus**; on the 19th – 02 07.0 -24 07.2, at magnitude 9.0 in **Fornax**; and on the 29th – 01 40.9 -30 32.2, at magnitude 9.2 in **Sculptor**.

Meteor Showers – All meteor shower information is from the International Meteor Organization. The maximum zenith hourly rate (mzhr) will be listed for all showers.

There are two **Major (Class I)** meteor showers active in September: The **Perseids** – active from July 14th through September 1st, peaked on August 13th; the **Orionids** – active from September 26th through November 22nd, peaks on October 21st.

There are four **Minor (Class II)** meteor showers active in September: the **Aurigids** – active from August 26th through September 4th, peaked on September 1st with a mzhr of 6; the **September Epsilon Perseids** – active from September 2nd through September 23rd, peaks on September 10th with a mzhr of 5; the **Southern Taurids** – active from September 23rd through November 12th, peaks on October 19th; and the **Epsilon Geminids** – active from September 27th through November 8th, peaks on October 19th.

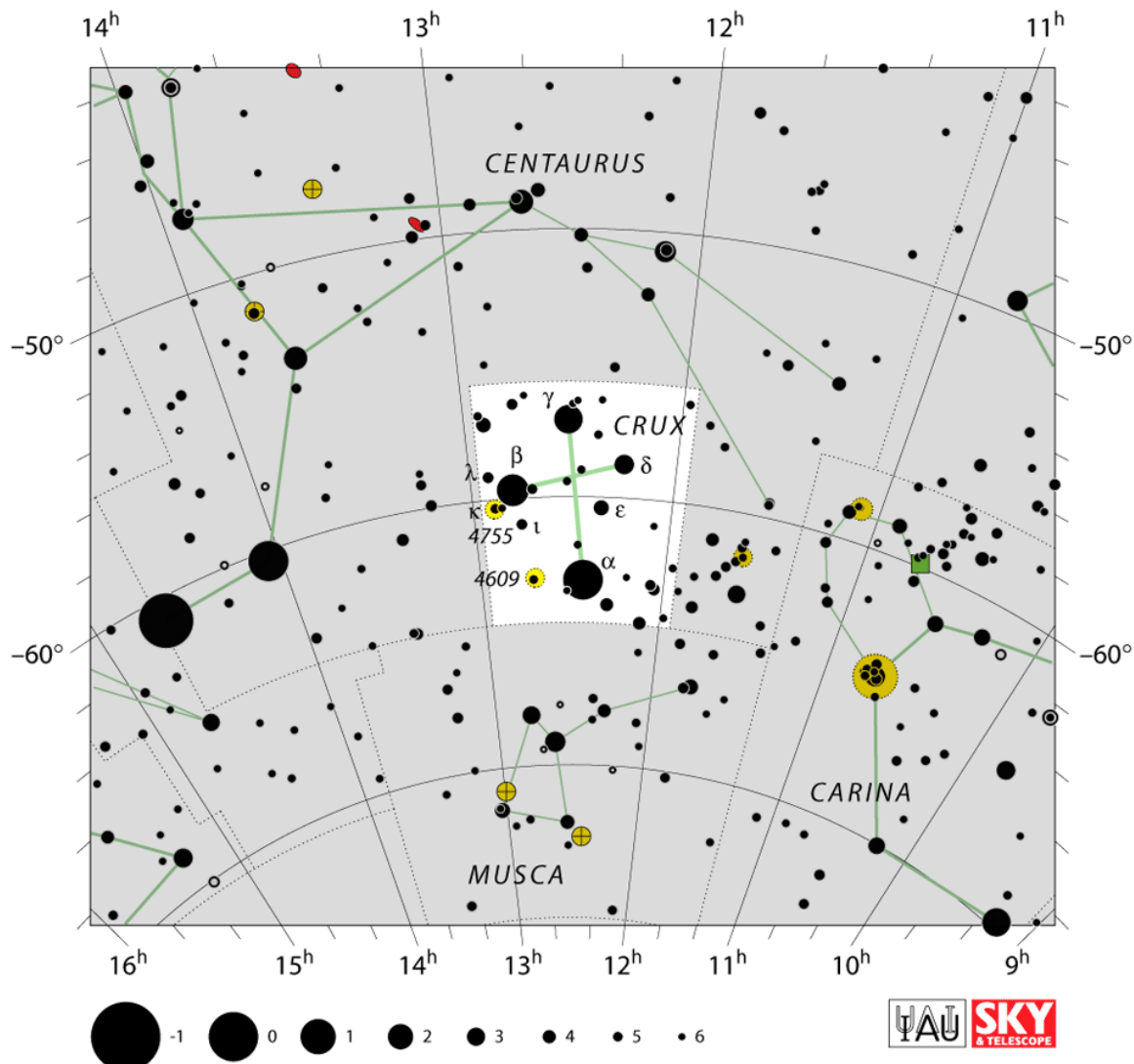
There are no **Variable (Class III)** meteor showers active in September.

There are nine **Weak (Class IV)** meteor showers active in September (all have a mzhr <2): the **Eta Eridanids** – active from July 10th through September 10th, peaked on August 6th; the **August Beta Piscids** – active from August 17th through September 8th, peaked on August 21st; the **Zeta Draconids** – active from August 12th through September 5th; peaked on August 26th; the **August Gamma Cepheids** – active from August 17th through September 6th, peaked on August 29th; the **Nu Eridanids** – active from August 31st through September 21st, peaks on September 11th; the **September Lyncids** – active from August 30th through September 20th, peaks on September 11th; the **Chi Cygnids** – active from September 8th through September 17th, peaks on September 13th; the **Daytime Sextantids** – active from September 22nd through October 13th, peaks on October 3rd; and the **Tau Cancrids** – active from September 23rd through November 12th, peaks on October 21st.

Mythology:

Crux – The Cross

This is the smallest of all the constellations. Its stars were known to the Greeks but were regarded as part of the hind legs of Centaurus, the centaur. The cross itself seems first to have been described in 1516 by the Italian navigator Andreas Corsali, who called it “so fair and beautiful that no other heavenly sign may be compared to it”. The cross was used by navigators as a pointer to the south celestial pole and was adopted by astronomers as a separate constellation by the end of the 16th century. Crux seems first to appear in its modern form on the celestial globes by the Dutch cartographers Petrus Plancius and Jodocus Hondius in 1598 and 1600 respectively; Plancius had earlier shown a stylized southern cross in a completely different part of the sky, south of Eridanus. The constellation’s brightest star is sometimes called Acrux, a name applied by navigators from its scientific designation Alpha Crux. Through small telescopes, Acrux is divisible into two sparkling blue-white points. Crux lies under the hind legs of Centaurus. It contains a dark cloud of dust known to modern astronomers as “the coalsack” but named “Macula Magellanica” on an illustration from the Uranographia of Johann Bode.



The End