

Night Visions

May 2022



Newsletter of the Baton Rouge Astronomical Society

Illustration: SpaceX Crew Dragon spacecraft approaches the International Space Station for docking – April 2022.. **Credits: NASA**

Monthly Meeting May 9th 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:

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ALCON 2023

HRPO EVENTS

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OBSERVING NOTES – Libra – The Scales

***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

I have just returned from the 42nd annual Texas Star Party (TSP) at the Prude Ranch in Fort Davis, in the Davis Mountains of west Texas (It is only about ten miles from the MacDonald Observatory). Next month's newsletter will have a write-up of the event.

For those of you who have not heard, one of our long-time BRAS members (Forrest Smith) has passed on after an accident in Alabama. There will be a memorial service for Forrest on Saturday, May 7th, at the Lifehouse Church at 3556 West Airline Highway in Reserve, Louisiana. Visitation will be from 10 AM to 11:30 AM, with a service at 11:30 AM, followed by a reception at the church. Burial will take place in Hammond. Michele will take care of sending flowers and circulating a card. We will both be attending, and if you have not volunteered to work IAD – also on Saturday – I encourage you to attend the service for Forrest.

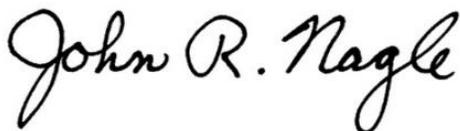
IAD is on Saturday, May 7th. BRAS will have a table to sell our used equipment from our closet. If you would like to volunteer to help at the BRAS table, contact Ben. I will be at IAD after attending Forrest's funeral.

There is a new supernova (SN 2022hrs) in NGC 4647 – a close companion to M60 in Virgo. There were imaging and visual sightings of it at the TSP.

ALCon 2023 is moving along. I have spoken to four possible speakers/panelists at TSP – all have expressed interest in ALCon 2023. We still need volunteers to help on the ALCon 2023 committees. If you would like to help, contact Steven Tilley. Help us make a memorable ALCon!

The By-Laws still need to be amended to specify what a quorum would be for all committees that are formed. At the last meeting, we had only 16 members present (and one proxy vote). Currently, our by-laws require one-fourth of the membership (a quorum) for a vote. We still need to vote on this subject. If you can not attend the meeting, send a proxy vote (stating who you are, how you vote, and who you are giving your proxy vote to). You can send an e-mail to me at president@brastro.org with your proxy. Thank you!

Clear Skies
John Nagle, 2022 President



Upcoming BRAS Meetings:

Monthly Member Meeting – 7 pm Monday, May 9 at the Observatory, in person and via Jitsi

Light Pollution: 6 pm Wednesday, May 25. (In person only, Open to the public), followed by . . .

Monthly Business Meeting: 7 pm Wednesday, May 25 (Members Only), in person and via Jitsi

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

ALCon 2023 (“Astronomical Gumbo”) Committee Meeting Sunday May 22, 7 p.m., online.



Monthly Meeting Minutes – April 11th, 2022, 7 p.m.

Welcome by the president, John Nagle.

- John introduced himself as the speaker for the evening; his topic was the 42nd Annual Texas Star Party. This was an overview of the annual Texas star party that takes place near Ft. Davis in the shadow of the McDonald Observatory. This year at TSP John will give a talk on sky atlases in newsletters. There was a general discussion of star parties at the end of the lecture with it being noted that Don Weinell will be researching venues this summer for a possible BRAS star party next year.
- Concerning the BRAS computer John mentioned that a new one has been found; this will be replacing the current one that has issues.
- There was supposed to be a vote to change the bylaws on the quorum issue, but fewer than a quarter of the 85 members showed up to the April meeting; according to current bylaws we needed 22 members to show up (we had 16 present). The vote was therefore put off to the next month.
- John clarified that the proposed quorum for the Light Pollution Committee applied only to BRAS members and not to the general public.
- Different businesses have been talked to about the car decals; Chris K. is going to go ahead and get a specific quote on this.
- There was the State of the Observatory meeting on Wednesday, April 6th, attended by representatives of the three partners (BREC, LSU, and BRAS). This was to tie up loose ends, discuss the four outstanding work orders, and talk about the cooperative endeavor agreement which Brandon Smith wants by the end of the year. The summary of the state of HRPO will be discussed at the next business meeting.
- Steven will set up an ALCON meeting soon. He has contributed \$500 for a sponsorship for ALCON 2022. He has suggested that small Louisiana items be included in the ALCON 2022 participant's bags and is looking for volunteers who are going out there this summer to help transport these items. John will be talking up ALCON 2023 when he shows up at the Texas Star Party at the end of April. Chris K. has answered Natalia's question regarding how BRAS will advertise locally within 500 km.
- Chocolate chip cookies and brownies were available to those onsite after the meeting.

Submitted by Roz Readinger, Secretary

2022 Officers:

President: John Nagle

president@brastro.org

VP: Joel Tews

vice-president@brastro.org

Secretary: Roz Readinger

secretary@brastro.org

Treasurer: Trey Anding

treasurer@brastro.org

BRAS Liaison for BREC:

Chris Kersey

BRAS Liaison for LSU:

Greg Guzik

Committees/Coordinators:

al_awards@brastro.org

Merrill Hess

lightpollution@brastro.org

??????

newsletter@brastro.org

Michele Fry

observing@brastro.org

John Nagle

outreach@brastro.org

Ben Toman

public_relations@brastro.org

Scott Cadwallader

webmaster@brastro.org

Frederick Barnett



Business Meeting Minutes –April 27th, 2022, 7 p.m.

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

Note: Agenda items were not available for the meeting due to John being absent. Below is a summary of what was discussed.

1. BRAS table for IAD. There are currently no volunteers signed up to help with the BRAS table at IAD; therefore this may not happen. There was a brief discussion about various possibilities for this. This will have to be decided quickly within the week. More discussion later in the meeting covered promotion and payment issues as well as a possible time period for selling (from 3 – 5pm). Ben said he would send an email out to check on interest.
2. The speaker for the May meeting on May 9th will be Tom Northrup who will be doing an encore presentation of his recent Friday Night lecture, Apollo 16 @ 50.
3. BRAS computer. The BRAS computer is mostly back up and running on BREC Open. Trey has asked James D. to take a look; the current belief is that old connections may need to be replaced. Also Ben is going to check with some people he knows about audio and webcam improvements for streaming the online meetings.
4. Outreach. Outreach coming up involves an event at St. Luke's this Friday with another one next Friday for the Makers Market with the time for that roughly between 5 – 10 pm. There is another event at Port Hudson on May 6th. Chris and Annette Raby will be helping with the Girl Scout event on the 7th as well as possibly the Port Hudson event on the 6th. There was also discussion about the LA National Guard Youth Camp events; dates seem to be set at the end of June: June 23 – 25 for the small group and June 28 – 30 for the larger group. There will be the possibility of a small star party for club members who volunteer for the National Guard outreaches. There is also a possible event coming up at Avondale for the Boy Scouts. There is also an event coming up on Wednesday, June 1st, at the EBR Parish Library from 10am – 2pm.
5. Magnetic car signs. Chris needs the vector copy of the BRAS logo for the magnetic car signs; Krista will be contacted for information on this.
6. Library telescopes. There was some discussion about telescopes for libraries. John has the numbers, but we may still be waiting on feedback from West Baton Rouge Parish. If we do donate more telescopes, the thinking is that these should be new and easy to set up.
7. Craig's proposal was briefly discussed. This has to do with a new dome being installed on the HRPO site to house BRAS telescopes. The 16-inch in the closet was mentioned as a possible scope for either this observatory or a possible observatory for the Boy Scouts at Avondale.
8. We are looking to set up MOON nights for the spring and summer seasons. It was announced that Forrest Smith had passed away earlier in the day.
9. **Steven gave an update on ALCON2023 business**
 - The AL got the [\$500] Sponsorship Payment check and said thanks. Their website upgrade is finished so they are talking with the Hilton Baton Rouge Capitol Center
 - I sent the BRAS logo and text "Don't miss the first ALCon hosted in Louisiana!" to TAAS President for the ALCon2022 program
 - I ordered 1000 Original Tony Chachere's Seasoning, Packets - 1000 Count for ALCon attendee bags.
 - TAAS is hoping they will have 300 registrants. Currently at about 50. We will be able to put three packets in each bag. this being shipped to Albuquerque.

- Carroll Lorg The publicity/communications subcommittee thinks it will be helpful if there were email addresses using the ALCon2023 domain name (i.e. info(at) ALCon2023(dot)org) this way attendees will get replies from a "trusted" email address. *NOTE: BRAS's webpage server does not allow for alias email addresses to send replies.* I have not answered her on this yet.

Submitted by Roz Readinger

[Bookmark This Website to visit once a day!](https://apod.nasa.gov/apod/ap220201.html)
<https://apod.nasa.gov/apod/ap220201.html>

Astronomy Picture Of The Day

[Discover the cosmos!](#) Each day a different image or photograph of our fascinating universe is featured, along with a brief explanation and/or video written by a professional astronomer.

Moon Phases 2022 – Northern Hemisphere – 4K

Moon Phases 2022
Including Libration and Position Angle

Time	13 Jan 2022 17:00 UT
Phase	84.4% (106.22h 20m)
Diameter	1767.9 arcseconds
Distance	405612 km (31.83 Earths)
Position	04h 10m 09s, 23° 56' 29" N
Subsolar	3.784°S, 48.843°E
Sub-Earth	0.789°S, 2.978°E
Pos. Angle	331.791°

Watch on YouTube

This tip was shared by BRAS member Craig Brenden. If you have something of interest to share with our membership, please send to Michele Fry at newsletter@brastro.org. Contributions are welcome.



Outreach Report

Hi Everyone,

We made it through April! It seemed like a super busy month for us even by pre-pandemic standards. We had successful outings at the Mid City Makers Market, Zippity Zoo Fest, Oak Grove STEAM Night, Port Hudson State Historical Site, St. Luke's Fair, the Girl Scout BIG Event, and I might have missed something else in there, too.

Each of these events was spectacular! The MMM's have been great for doing some solar viewing followed by views of whatever we can get to show up in the light polluted area. **Zippity Zoo Fest** was incredibly busy and was pretty much a nonstop mass of people all day long. The folks at **Oak Grove** were so excited to see us again and said we are one of their more popular exhibits each year. Finally, the **Girl Scout BIG Event in Hammond** was a great opportunity for us to collaborate with our friends in the Pontchartrain Astronomy Society. Two of their members set up with us and provided solar viewing while we utilized our Night Sky Network toolkits. It was a lot of fun just hanging out with them and definitely something we plan on doing more of in the future.



Merrill and Scott explaining the Universe and its workings at the Girl Scout BIG Event in Hammond

None of this would be possible without the assistance of our volunteering members. This month we were assisted by Roz, Chris and Annette, Scott, John, Coy, Merrill, Craig, Chris K. and myself. Thank you so much for donating your time to the community!

We start to slow down a little bit going into the Summer, but we still have a few things happening. Be sure to check out the schedule below and let me know if you'd like to join our ranks of volunteers. It really is a fun time and gives you a chance to learn and share about astronomy and our night (and daytime!) sky.

Again, let me know as soon as you can if you can help out with any of these!

Clear Skies, Ben Toman



Busy times at Zippity Zoo Fest! Roz, Chris R. and Coy doing their best to keep up with the crowd!!

A handwritten signature in black ink, appearing to read "Ben Toman".

Upcoming Events:

Friday, May 6th

9am-11:30am

Port Hudson State Historic Site School Days

2 or more volunteers needed

Demos, info, solar observing possible

Saturday, May 7th

3pm-11pm

International Astronomy Day at the HRPO

A couple of people needed to staff proposed

BRAS sale table

Saturday, May 7th

Evening (30 minutes to 1 hour duration)

Camp Marydale in St. Francisville

1 or more volunteers needed

Talk to Girl Scouts about Science and Astronomy

Telescope viewing. Age range of campers 2nd and 3rd grade (about 15 girls)

* We have enough volunteers for this small event, but we won't turn you away if you want to help!

Wednesday, June 1st

10am-2pm

EBRPL Summer Reading Program Kickoff

Main Library at Goodwood

3 or more volunteers needed for demos and possible solar observing

June 23-25th (We need to pick one day)

National Guard Kids Camp

Feliciana Retreat Center

We need to decide on a day if we want to do this one and coordinate with them.

We would only do one presentation. About 1 hour to 1 1/2 hours.

June 28-30th (We need to pick one day: see below)

National Guard Kids Camp

Feliciana Retreat Center

If we want to tent camp and do night time viewing this week, it would have to be on June 30th.

This will be like past camps. 115 campers separated into rotating platoons. We'd be there most of the day and be fed lunch (and dinner if we stay for night time viewing.)



A peahen checking out what we have to offer at Zippity Zoo Fest, with Scott and Chris R holding down the booth.





LPC (Light Pollution Committee) Report

This committee meets at 6:00, same day as the 7:00 BRAS Business Meeting (NEW SCHEDULE: Meetings will be the last Wednesday of the month.)

Everyone is welcome to join in..

There was no meeting of the Light Pollution Committee this month.

Globe At Night

The target for the Globe at Night program is Boötes from May 21st through May 30th,

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.



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 orJustin: <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

2023 Astronomical League Convention in Baton Rouge!

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

Our theme will be "Astronomical Gumbo"

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

Next Full committee meeting: **Sunday, May 22, 2022, 7 PM Online**

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



ALCON 2022

July 28 – 30

EMBASSY SUITES HOTEL

1000 Woodward Pl. NE

Albuquerque, New Mexico 87102

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

(Website available by January 14, 2022)



Hosted by:

The Albuquerque Astronomical Society

www.TAAS.org

REGISTRATION FOR THE 2022 CONVENTION IN ALBUQUERQUE BEGAN ON MARCH 15, 2022

- * Registration fees increase on May 25
- * Cutoff date for mail-in registration is June 27
- * Cutoff date for online registration is July 6

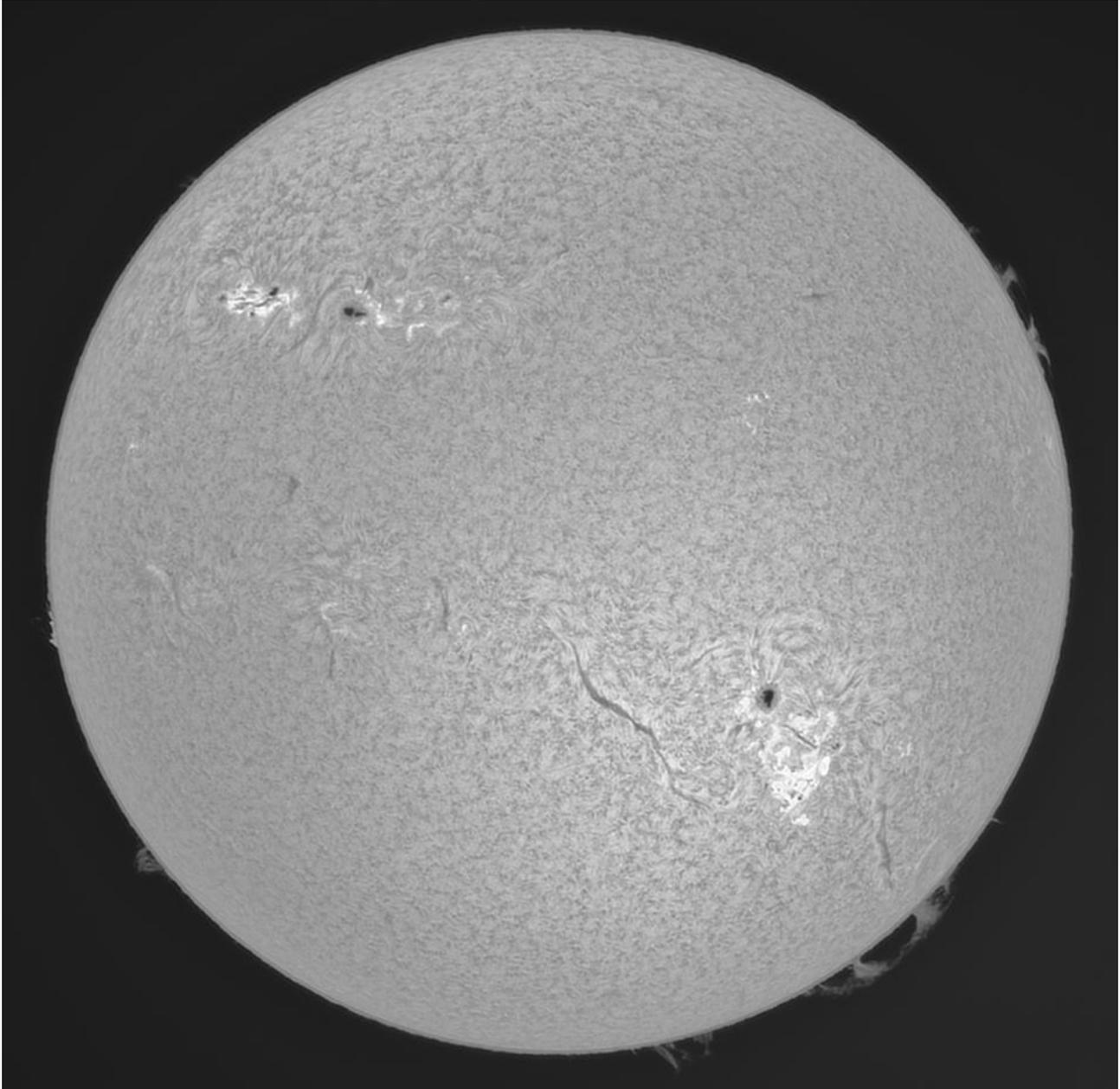
RESERVE YOUR SPACE TODAY.

[ALCON 2022 Registration | Astronomical League Convention](#)

[Mail-In Registration Form 2022-02-23](#)
(alcon2022.org)

ASTROPHOTOS BY BRAS MEMBERS

Coy Wagoner 2 Sun Shots



CW_220331_Sun_H-Alpha.jpg

Solar imaging in hydrogen alpha. March 31, 2022. Multiple sunspots, filaments, and solar flares. Taken with a 50mm Lunt hydrogen alpha scope and the ASI224mc camera via Firecapture. Processed in Pipp, Autostakkert, ImPPG, and Photoshop CS5. Location: From my apartment in Baton Rouge.



CW_220403_Sun_H-Alpha.jpg

Solar imaging in hydrogen alpha. April 3, 2022. Sunspots, filaments, and solar flares. Taken with a 50mm Lunt hydrogen alpha scope and the ASI224mc camera via Firecapture. Processed in Pipp, Autostakkert, ImPPG, and Photoshop CS5. Location: Zippity Zoo Fest at the Baton Rouge Zoo.



Scott Louque, M51 photo and “Step-By-Step”essay



SL_220331_M51 Whirlpool Galaxy

Each year as earth goes on its journey around the sun, astrophotographers get the opportunity to photograph the same objects over and over again. On the night of Thursday (March 31), I decided I was going to try and do as long an exposure as I could on the Whirlpool Galaxy to see how much detail I could capture with my little scope and my little setup from my driveway. With March 31 being a work night, I knew it wouldn't be easy to take many frames and still get a good night's sleep for work the next day. I would have to rely on the automation of the software I use to run my setup and that doesn't always work.

So Thursday night, I setup all my equipment right after I got home from work and had everything up and running by the time it got dark. This involved putting the tarps up around my little sky box tent I built out of conduit poles and bring my mount and scope out of my house and setting it up on the little marks I put down on the cement of my driveway. Before I start any slewing to objects or clicking of buttons, I set up my sequence in SGPro which is the software I use for my imaging sessions. I tell it how many light frames I want to take and how many dark frames I want to take. Now to the fun part!

First thing I do when I start an imaging session is Polar Align my mount. Back in 2018 I bought a QHY Polemaster and have developed a routine with it which gets me just about spot on with north. My next step is doing the 2 + 4 alignment procedure for my mount so it knows where it is in relation to the sky. Once all this is completed and aligned, it's time to connect all my equipment to SGP.

With my scope and camera now connected to the software, I can slew to a bright star, in this case Capella, so I can find the focus point where my camera should be for everything else to work. I use the bahtinov mask to help me in achieving focus. Once I get it focused everything is locked down.

Now that I'm in focus, I can open **PHD2** and connect my mount and guide camera in that software. This allows me to guide on a star so I can do as long an exposure as I want sometimes all night if it doesn't hit a snag and park itself. This night I ended up with 20 – 6 min subs but after blinking through each frame in **PixInsight**, I threw away 7 of them because of elongated stars and satellite trails. Friday night was going to be cloudy so I decided I would shoot 15 dark frames since I hadn't taken the camera off the scope. Also, I took 30 flat frames the next morning.

I wanted this to be more than 13 frames though, so I set up Saturday night and did the same routine again. This time though it completed the entire sequence I had set up for it to take which was 32 light frames. I blinked through them again and threw away 6 this time for the same reason as before. Now I had 39 – 6 min frames which I thought was plenty enough. Also, I took 35 flat frames the next morning. Now it's on to processing all those frames.

I did each night's dataset separately for this. First, I did my Thursday night subs. Loaded them all into **WBPP** and calibrated all of them. Next, I did the same for Saturday night's data. Now that both datasets are calibrated, I ran **StarAlignment** to align all my images to a reference frame. Then I used **ImageIntegration** to integrate all the frames into a final image. I could have stopped here but as a bonus I also ran **DrizzleIntegration** on the 39 registered files. This gave me a fully calibrated and integrated image in its Linear state which I then proceeded to process in **PixInsight**.





Messages from HRPO

Highland Road Park Observatory



INTERNATIONAL ASTRONOMY DAY

Saturday 7 May from 3pm to 11pm / No admission fee. For all ages.

It's back—the greatest IAD event in the region returns. The hugely popular Adventure Quest game, delicious food and drink, and a passport to the stars. Visits from the Baton Rouge Amateur Radio Club, the Baton Rouge Zoo, the BREC Art Program, LIGO, the St. George Fire District, the Bluebonnet Swamp Nature Center, the Baton Rouge Gem and Mineral Society and more. Mark your calendar and don't miss it!



FRIDAY NIGHT LECTURE SERIES

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

13 May: “The Universe in X-Ray Vision” For over fifteen years the [Chandra X-Ray Observatory](#) has orbited Earth, giving us a unique view of areas of the Universe where high magnetic fields or extreme gravity dominate. LSU physics professor Rob Hynes tells us what all of the data means, and how it can shed light on the evolution of the Universe!

20 May: “The Crash of the Hindenburg” Eighty-five years ago floating hotels adorned the skies over North America and Europe. This classy and leisurely mode of transportation effectively ended with a horrifying, [flaming wreckage in New Jersey](#). What happened to change the trajectory of commercial air flight?

27 May: “American Space Exploration” The current push to [return to the Moon](#) was built on a foundation of individualism and teamwork, tradition and curiosity. BREC Program Aide James DeOliveira introduces the audience to seldom-seen pictures and facts.



EVENING SKY VIEWING

No admission fee. For all ages.

Friday (13, 20 and 27 May) from 8:30pm to 10pm

Saturdays (14, 21 and 28 May) from 7:30pm to 10pm

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



SCIENCE ACADEMY

Saturdays from 10am to 12pm

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

14 May = “Storms!” This final session of the weather module has Cadets confronting the terrible and frightening power of wind and rain that conspire to shake our comfort. Storms thunder through towns and desolate areas alike...!

21 May = “Soaring on the Space Shuttle III” Cadets have heard the tales of the launch system that brought satellites and experiments into orbit. This is the third in a long series of sessions bringing that glorious time alive, with never-before-seen activities!

4 June = “Surveying the Sun” Solar Cycle 25 is ramping up, as is evidenced by dozens of new Active Regions...Cadets will hear about solar study history and sketch the current optical view!



TOTAL LUNAR ECLIPSE

Sunday 15 May from 7:30pm to 1:30am

Free and for all ages.

A total eclipse of the Moon will begin after sunset Sunday, crossing into early Monday morning. While in the constellation Libra, the Moon will become darker and darker and eventually receive light from all of Earth’s simultaneous sunrises and sunsets. The Moon will be immersed in the Earth’s shadow for over an hour, from 10:29pm to 11:53pm. An eclipse of the Moon can take place only at Full Moon, and only if the Moon passes through at least part of the Earth’s shadow. The exact color of the Moon during a total eclipse can vary depending on the amount of dust and clouds in the Earth’s atmosphere. The color can range from very bright copper/red or orange, to brick-red or deep red or rust-colored, to grayish or brownish, to virtually black. Although the eclipse will be visible from all of the local area (clouds and other obstructions notwithstanding), the general public is invited to view the event from HRPO grounds. *Please become familiar with HRPO’s rules for visitors before arriving.*



STEM EXPANSION: “Aerospace Engineering”

Saturday 28 May 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.



OBSERVING NOTES

MAY

Libra – the Scales

Position: RA 15, Dec. -15°

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 month. Starting this month, Named Stars, Deep Sky and Other Stars will be repeated here, for convenience. Monthly updates will be made to Sky Happenings, and all that appears below that title.

Named Stars

Zubenelgenubi (Alpha² Lib), from the Arabic “al-Zuban al-Janübiyy”, “The Southern Claw”, also called “Kiffa Australis”, from the Arabic “al-Kiffah al-Janübiyy”, “the southern pan of the Scales”, mag. 2.75, 14 50 52.78 -16 02 29.8, is a blue-white spectroscopic binary star separated from Alpha¹ Librae by about 5400 au. Also known as **HD 130841**, **HIP 72622**, **Gould 26 Librae**, and **9 Librae**. Alpha¹ Librae, mag. 5.15, 14 50 41.26 -15 59 49.5, is also a spectroscopic binary star with a separation of 0.383” (10 au), and an orbital period of 5,870 days. Also known as **HD 130819**,

HIP 72603, **Gould 25 Librae**, and **8 Librae**. Also considered part of the Alpha Librae system is **KU Librae**, mag. 7.23, 14 40 31.11 -16 12 33.4, with a separation of 2.6°. Also known as **HD 128987**, and **HIP 71743**.

Zubeneschamari (Beta Lib), from the Arabic “al-Zuban al-Samälyya”, “The Northern Claw”, and “Lanx Borealis”, “the northern pan of the Scales”, mag. 2.61, 15 17 00.47 -09 22 58.3, is a blue-white dwarf star that shows a small periodical variation in luminosity (0.03 magnitude), which indicates the presence of a companion star. Also known as **HD 135742**, **HIP 74785**, **Gould 65 Librae**, and **27 Librae**.

Zubelhakrabi (Gamma Lib), from the Arabic “al-Zuban al-Aqrab”, “The Shears of the Scorpion”, or “the Scorpion’s Claw”, mag. 3.91, 15 35 35.31 -14 47 22.4, is an orange giant star. Also known as **HD 138905**, **HIP 76333**, **Gould 92 Librae**, and **38 Librae**.

Zuben Elakribi (Delta Lib), from the Arabic “az-Zubänä al-Aqrab”, “The Claws of the Scorpion”, also called Naluhzu, mag. 4.91, 15 00 58.39 -08 31 08.2, is a blue-white main sequence star and an eclipsing variable star with a period of 2 days and 8 hours, and a magnitude variation of 4.9 to 5.9. Also known as **HD 132742**, **HIP 73473**, **Gould 38 Librae**, and **19 Librae**.

Zuben Hakrabi (Eta Lib), this name belongs to Gamma Scorpio, mag. 2.14, 15 44 04.42 -15 40 21.6. Also known as **HD 140417**, **HIP 77060**, and **44 Librae**.

Zuben Hakrabim (Nu Lib), mag. 5.19, 15 06 39.62 -16 15 24.3. Also known as **HD 133774**, **HIP 73945**, **Gould 48 Librae**, and **21 Librae**.

Brachium (Sigma Lib), from the Latin for “Arm”, and from “Cornu”, “the Horn”, mag. 3.25, 15 04 04.26 -25 16 54.7, is a red giant star formerly known as **Gamma Scorpü** until 1851 when it was changed. Also known as **HD 133216**, **HIP 73714**, **Gould 45 Librae**, and **20 Librae**.

Methuselah (**HD 140283**), mag. 7.21, 15 43 03.10 -10 56 00.6, is a metal-poor sub-giant star that is known to be the oldest star in the universe, believed to have been created shortly after the “Big Bang”. The star’s age is estimated to be 14.46 billion years old. Also known as **HIP 76976**.

Deep Sky:

There are no Messier objects in Libra.

NGC 5897, mag. 8.4, 15 17 24.5 -21 00 37, 11” in size, is a globular cluster. Also known as **Mel 132**,

H6-08 = H6-19, C1514-208, ESO 582-SC002, and Ben 68.

Asterisms:

Se Han, a district in China, composed of Eta, Epsilon, Zeta, Theta, and Xi Librae.

Jih (Sun), composed of Kappa and Lambda Librae.

Libra contains the following objects: 56 NGC; 2 UGC; 2 UGCA; 13 IC, 52 ESO; 107 MCG; 2 Arp; 2 PKS; 17 Herschel; 7 VV; 6 Quasar, 2 Radio Galaxies; 2 Alessi; 1 Mel; 1 Merrill; 4 LDN; 1 O'Neal; 1 Frr; 1 Fath; 1 Ben; 3 PK; 2 He2; 5 LBN; 1 Siv; 3 Holm; 4 AGC; 11 SGC; 15 IRAS; 18 GSC; 27 PGC; 5 NPM1G; 27 MASX; 2 CGCG; 1 Swift; 5 USGC; 1 KIG; 1 SDSS; and 2 LGG for a total of 404 objects.

Other Stars:

48 Librae, mag. 4.95, 15 58 11.38 -14 16 45.5, is a blue super-giant star and a rapid rotator (400 km/sec). Also known as **HD 142983**, **HIP 78207**, **Gould 119 Librae**, and **FX Librae**.

4 Librae, mag. 5.70, 14 43 13.57 -24 59 51.8. Also known as **HD 129433**, **HIP 71974**, and **53 Hydrae**.

HD 128429, mag. 6.20, 14 36 59.20 -12 18 19.1, is a blue giant star. Also known as **HD 128429**, **HIP 71469**, and **Gould 10 Librae**.

23 Librae, mag. 6.45, 15 13 28.93 -25 18 33.0, is a yellow giant star with two planets in orbit. Also known as **HD 134987**, **HIP 74500**, and **Gould 56 Librae**.

HD 133112, mag. 6.60, 15 02 44.9 -03 01 53, has one planet in orbit. Also known as **HIP 73608**, and **WASP-189**.

Gliese 570, mag. 6.69, 15 29 34.78 -17 26 27.4, is a triple star system. The primary is an orange dwarf star at magnitude 6.79 and an X-ray source. The other two stars are a pair of red dwarf stars with both emitting X-rays. In January 2001, a brown dwarf star was discovered orbiting the system. Also known as **HD 137949**, **HIP 75848**, **Gould 80 Librae**, **GZ Librae**, and **33 Librae**.

HD 141569, mag. 7.12, 15 49 57.75 -03 55 16.3, has a proto-planetary disk around it. Also known as **HIP 77542**.

HD 141937, mag. 7.25, 15 52 17.55 -18 26 09.8, is a yellow dwarf star with one planet in orbit. Also known as **HIP 77740**.

HD 133803, mag. 8.12, 15 07 15.0 -29 30 16.0, has two planets in orbit. Also known as **HIP 73990**.

HD 133131A, mag. 8.4, 15 03 35.8 -2750 28, has two planets in orbit. Also known as **HIP 73674**.

HD 133131B, mag. 8.42, 15 03 35.8 -27 50 28, has one planet in orbit. Also known as **HIP 73764**.

Stars of interest beyond magnitude 10:

Gliese 581, mag. 10.55, 15 19 26.82 -07 43 20.2, is a red dwarf star with three planets in orbit with two more unconfirmed planets. The **C** planet is too hot, the **D** planet is unconfirmed, the **E** planet is the least massive, and another unconfirmed planet is in the habitable zone. Also known as **HIP 74995**, and **HO Librae**.

HE 1523-0901, mag. 11.50, 15 26 01.07 -09 11 38.9, is one of the oldest stars known.

K2-315, mag. 17.67, 15 12 05.06 -20 06 29.39, has one transiting planet.

2MASS-1507-1627, 15 07 47.69 -16 27 38.6, is a brown dwarf star.

WISE 1541-2250, 15 41 51.66 -22 50 25.0, is a brown dwarf star.

The following stars are in Libra: 20 Greek; 11 Σ; 50 Numbered; 60 Lettered; 10 h; 4 Sh; 2 S; 1 HN; 4 Hu; 20 β; 1 Hn; 1 Lal; 1 B; 1 CorO; 2 LI; 1 HVI; and Methuselah for a total of 180.

Sky Happenings: May 2022

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

May 1st - Dawn: **Venus** and **Jupiter** will rise in the east before sunrise, and are separated by only 0.5°, **Mercury** is 2° east of the **Pleiades** at sunset.

May 2nd - **Mercury** is 1.8° north of the **Moon** at 9 AM CDT,

Dusk: **Aldebaran**, the waxing crescent **Moon**, **Mercury**, and the **Pleiades** are in a graceful arc above the west-northwest horizon.

- May 4th** - The **Moon** passes 0.008° south of the dwarf planet **Ceres** at 9 AM CDT.
- May 5th** - **Uranus** is in conjunction with the **Sun** at 2 AM CDT, The **Moon** is at apogee (251,833 miles or 405,285 km from **Earth**) at 7:46 AM CDT.
- May 6th** - The **Eta Aquariid Meteor Shower** peaks about 3 AM CDT. The waxing crescent **Moon** sets before the radiant rises.
- May 7th** - Dusk: The almost-first-quarter **Moon** is about 3° north of the Beehive Cluster (**M44**) in **Cancer**.
- May 8th** - **First Quarter Moon** occurs at 7:21 PM CDT.
- May 9th** - Dusk: The **Moon**, one day past first-quarter, is in **Leo** with roughly 4.5° separation from **Regulus**.
- May 10th** - **Mercury** is stationary at 6 PM CDT.
- May 13th** - Evening: The waxing gibbous **Moon** is in **Virgo**, 4° to the upper left of **Spica**.
- May 15th** - **Full Moon** occurs at 11:14 PM CDT. **Total Lunar Eclipse** is visible for **North America**.
- May 16th** - Evening: The **Moon**, just past full, will rise in tandem with **Antares**, with about 2° separation.
- May 17th** - The **Moon** is at perigee (223,879 miles or 360,298 km from **Earth**) at 10:27 AM CDT, **Mars** passes 0.6° south of **Neptune** at 6 PM CDT.
- May 18th** - **Mars** is less than 1° below **Neptune** in the east-southeast sky before sunrise.
- May 21st** - **Mercury** is in inferior conjunction at 2 PM CDT.
- May 22nd** - The **Moon** passes 4° south of **Saturn** at 12:00 AM CDT (midnight), **Last Quarter Moon** occurs at 1:43 AM CDT.
- May 24th** - The **Moon** passes 4° south of **Neptune** at 5 AM CDT, The **Moon** passes 3° south of **Mars** at 2 PM CDT, The **Moon** passes 3° south of **Jupiter** at 7 PM CDT.
- May 26th** - The **Moon** passes 0.2° south of **Venus** at 10 PM CDT.
- May 28th** - The **Moon** passes 0.3° south of **Uranus** at 9 AM CDT, **Mars** passes 0.6° south of **Jupiter** at 7 PM CDT.
- May 29th** - Dawn: **Jupiter** and **Mars** are separated by only 0.5° on the east-southeast horizon.
- May 30th** - **New Moon** occurs at 6:30 AM CDT (Lunation 1230).

Planets:

Mercury- **Mercury**, on May 1st, shines at magnitude 0.5, hanging 11° high in the western sky 45 minutes after sunset, with the **Pleiades (M45)** nearby. A 1.2-day old **Moon** is 7° below the planet and **M45**. The comet **C/2021 03 (PANSTARRS)** is 3.5° to the right of the **Pleiades**. On the 2nd, the **Hyades**, **Aldebaran**, the **Moon**, **Mercury**, and **M45** will span the western horizon. By May 7th, the planet's magnitude will drop to 1.4 and the planet will reach inferior conjunction with the **Sun** on May 21st. The planet will re-appear next month in the morning sky.

Venus – **Venus** (at magnitude -4.1), on May 1st, is 33' from **Jupiter** (at magnitude -2.1), with both rising just after 4 AM local time. **Venus** will have a 17" wide disk at 68% illumination, and **Jupiter** will span 35". By the 27th, **Venus** will span 14" and will be 76% lit. At the end of the month, **Venus** will rise just before 4 AM local time, standing 10° high as twilight begins.

Mars – **Mars** rises shortly before 4 AM local time on May 1st, and nearly an hour earlier in late May. The planet will brighten from magnitude 0.9 to 0.7 during the month as it tracks from eastern **Aquarius** into **Pisces**. On May 8th, the planet will stand within 0.5° of the 4th magnitude star **Phi Aquarii**. On the 17th and 18th, the planet will be in conjunction (0.6° south) with **Neptune**. On the 25th, the waning crescent **Moon** will be in the vicinity of **Mars** and **Jupiter**, which will stand 2.4° apart with the **Moon** 5.5° east of **Jupiter**. On the 28th, **Mars** will be 0.6° south of **Jupiter**. The two planets will rise together shortly before 3 AM local time on the 29th. By 5 AM, they are still the same distance apart, standing 25° high in the eastern sky. The two planets will remain within 1.5° of each other through the 31st.

Jupiter – **Jupiter** opens May with a separation from **Venus** only 33', rising together just after 4 AM local

time. In the following days, the planets will separate, with Jupiter extending its angular distance from the Sun. A notable transit of **Callisto's** shadow will occur early in the morning on May 27th. The shadow will move across the planet's southern polar region for a period of nearly 2.5 hours, beginning at 4:31 AM CDT. On the 29th, **Mars** and **Jupiter** are in conjunction, rising together a little before 3 AM local daylight time. The separation between the two planets will be just 35'.

Saturn – **Saturn** rises around 3 AM local time on May 1st, located in eastern **Capricornus**. By the end of the month, it rises around 1 AM. The planet starts the month at magnitude 0.6, standing 1.7° north of **Deneb Algedi (Delta Capricorni)**. Best viewing of the planet is in the hour before dawn, when it stands more than 20° high in the southeast. Through a telescope, the planet displays a 17" wide disk and its rings span more than twice that distance. During May and June, the rings tilt 12° to our line of sight – the minimum angle for all of 2022. On the 6th, the main belt asteroid **Vesta** will stand between **Saturn** and **Deneb Algedi** and will remain within 1° of **Saturn** for 3 days on either side of the 6th.

Uranus – **Uranus** is in conjunction with the **Sun** on May 5th and will not be visible for most of the month. The planet will reappear at a 20° elongation by the 28th of May.

Neptune – **Neptune** is in conjunction with Mars on May 17th – taking place during daylight hours. On the 18^{th's} morning, the 8th magnitude, bluish glow of **Neptune** will be 33" northwest of **Mars**, in **Pisces**.

Moon – There will be a total eclipse of the **Moon** on the night of May 15th/16th. The partial phase begins at 9:28 PM CDT on the 15th. Totality will run from 10:29 PM CDT on the 15th to 11:54 PM, with the greatest eclipse occurring at 11:12 PM CDT. The exit partial phase will last until 12:56 AM CDT on the 16th, with the penumbral portion of the eclipse ending at 1:52 AM CDT on the 16th. An extra bonus – the 6th magnitude double star S672 in central Libra (6.3 and 8.9 magnitudes with 11.2" separation) will be occulted around 10:54 PM CDT, with the eclipse ending around 11:57 PM CDT.

Favorable Librations: **Marinus Crater** on May 3rd; **Neumayer Crater** on May 4th; **Schluter Crater** on May 16th; and **Main Crater** on the 18th.

Greatest North Declination on the 6th (+26.9°)

South 19th (-27°)

Libration in Longitude: East Limb Most Exposed on the 24th (+6.7°)

West 12th (-7.0°)

Latitude: North Limb Most Exposed on the 22nd (+6.8°)

South 9th (-6.8°)

Asteroids / Minor Planets Asteroid **10 Hygiea** – **Hygiea's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: May 1st – 14 15.55 -19 17.7, at magnitude 9.2 in **Virgo**; on the 11th – 14 08.02 -18 30.4, at magnitude 9.4 in **Virgo**; on the 21st – 14 01.70 -17 43.3, at magnitude 9.6 in **Virgo**; and on the 31st – 13 57.21 -17 01.70, at magnitude 9.8 in **Virgo**. **Hygiea's** positions (in **Virgo**), by my estimates, are as follows: On May 1st – about 1.3° south and a little east of **NGC 5510**; on the 5th – about 1° south-southwest of **NGC 5510**; on the 10th – about 0.6° east and a touch south of the star **S659**; on the 15th – about 0.3° west and a touch south of the star **S659**; on the 20th – about 0.8° southwest of **IC 972**; on the 25th – about 1.3° west and a touch south of **IC 972**; and on the 30th – about 1.8° west and a touch north of **IC 972**.

Asteroid **4 Vesta** – **Vesta's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On May 1st – 21 39.22 -15 33.4, at magnitude 7.6 in **Capricornus**; on the 11th – 21 53.79 -14 50.0, at magnitude 7.5 in **Capricornus**; on the 21st – 22 06.92 -14 14.2, at magnitude 7.4 in **Aquarius**; and on the 31st – 22 18.40 -13 48.6, at magnitude 7.2 in **Aquarius**.

Asteroid **29 Amphitrite** – **Amphitrite's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On May 21st – 17 10.73 -32 08.0, at magnitude 9.8 in **Scorpio**; and on the 31st – 17 00.75 -32 11.6, at magnitude 9.6 in **Scorpio**.

Asteroid **41 Daphne** – **Daphne's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On May 21st – 17 26.99 +04 49.4, at magnitude 9.9 in **Ophiuchus**; and on the 31st – 17 20.15 +05 57.8, at magnitude 9.6 in **Ophiuchus**.

Pluto – **Pluto**, on May 15th will be at 20 03 06 -22 28, or about 25' northwest of the star **HR 7658** in **Sagittarius**.

Comets – Comet **19P/Borrelly** – **Borrelly**, an evening comet, will be at the following positions according to **ALPO**: On May 1st – 06 17 30 +42 43 36, at magnitude 12.2 in **Auriga**; on the 11th – 06 55 24 +43 04 09, at magnitude 12.6 in **Auriga**; on the 21st – 07 31 42 +42 46 18, at magnitude 13.0 in **Lynx**; and on the 31st – 08 06 06 +41 54 36, at magnitude 13.4 in **Lynx**.

Comet **22P/Kopff** – **Kopff**, a morning comet, will be at the following positions according to **ALPO**: On May 1st – 22 57 12 -07 26 54, at magnitude 11.1 in **Aquarius**; on the 11th – 23 21 36 -05 22 12, at magnitude 11.2 in **Aquarius**; on the 21st – 23 44 24 -03 24 06, at magnitude 11.4 in **Aquarius**; and on the 31st – 00 05 42 -01 35 12, at magnitude 11.5 in **Pisces**.

Comet **C/2017 K2 (PANSTARRS)** – **K2**, a morning comet, will be at the following positions according to **ALPO**: On May 1st – 18 51 06 +11 43 00, at magnitude 8.7 in **Aquila**; on the 11th – 18 45 06 +11 24 42, at magnitude 8.5 in **Ophiuchus**; on the 21st – 18 36 00 +10 45 48, at magnitude 8.2 in **Ophiuchus**; and on the 31st – 18 23 30 +09 38 18, at magnitude 8.0 in **Ophiuchus**.

Comet **C/2019 L3 (ATLAS)** – **L3**, a dusk comet, will be at the following positions according to **ALPO**: On May 1st – 07 03 30 +12 49 12, at magnitude 9.9 in **Gemini**; on the 11th – 07 12 18 +11 35 48, at magnitude 10.0 in **Canis Minor**; on the 21st – 07 21 42 +10 21 48, at magnitude 10.1 in **Canis Minor**; and on the 31st – 07 31 36 +09 06 12, at magnitude 10.2 in **Canis Minor**.

Comet **C/2019 T4 (ATLAS)** – **T4**, an evening comet, will be at the following positions according to **ALPO**: On May 1st – 11 44 06 -14 32 12, at magnitude 11.8 in **Crater**; on the 11th – 11 44 06 -12 30 06, at magnitude 11.8 in **Crater**; on the 21st – 11 45 30 -10 33 42, at magnitude 11.9 in **Crater**; and on the 31st – 11 48 12 -08 51 12, at magnitude 11.9 in **Crater**.

Comet **C/2021 03 (PANSTARRS)** – **03**, an evening comet, will be at the following positions according to **ALPO**: On May 1st – 03 33 12 +23 46 42, at magnitude 7.8 in **Taurus**; on the 11th – 04 08 54 +53 20 00, at magnitude 9.1 in **Camelopardalis**; on the 21st – 05 41 12 +75 25 36, at magnitude 10.4 in **Camelopardalis**; and on the 31st – 10 56 24 +80 53 00, at magnitude 11.6 in **Camelopardalis**.

Meteor Showers – There is only one **Major (Class I) Meteor Shower** active in May – the **Eta Aquarids**, active from April 15th through May 27th, peaks on May 5th with a maximum zenith hourly rate (mzhr) of 60.

There is only one **Minor (Class II) Meteor Shower** active in May – the **Eta Lyrids**, active from May 6th through May 15th, peaks on May 10th with a mzhr of 3.

There is only one **Variable (Class III) Meteor Shower** active in May – the **Tau Herculids**, active from May 19th through June 14th, peaks on May 31st with a variable mzhr.

There are three **Weak (Class IV) Meteor Showers** active in May – the **Alpha Virginids**, active April 6th through May 1st, peaked on April 18th; the **h-Virginids**, active from April 24th through May 4th, peaks on May 1st with a mzhr of <2; and the **Daytime Arietids**, active from May 29th through June 17th, peaking on June 4th.

Mythology:

Libra – The Scales

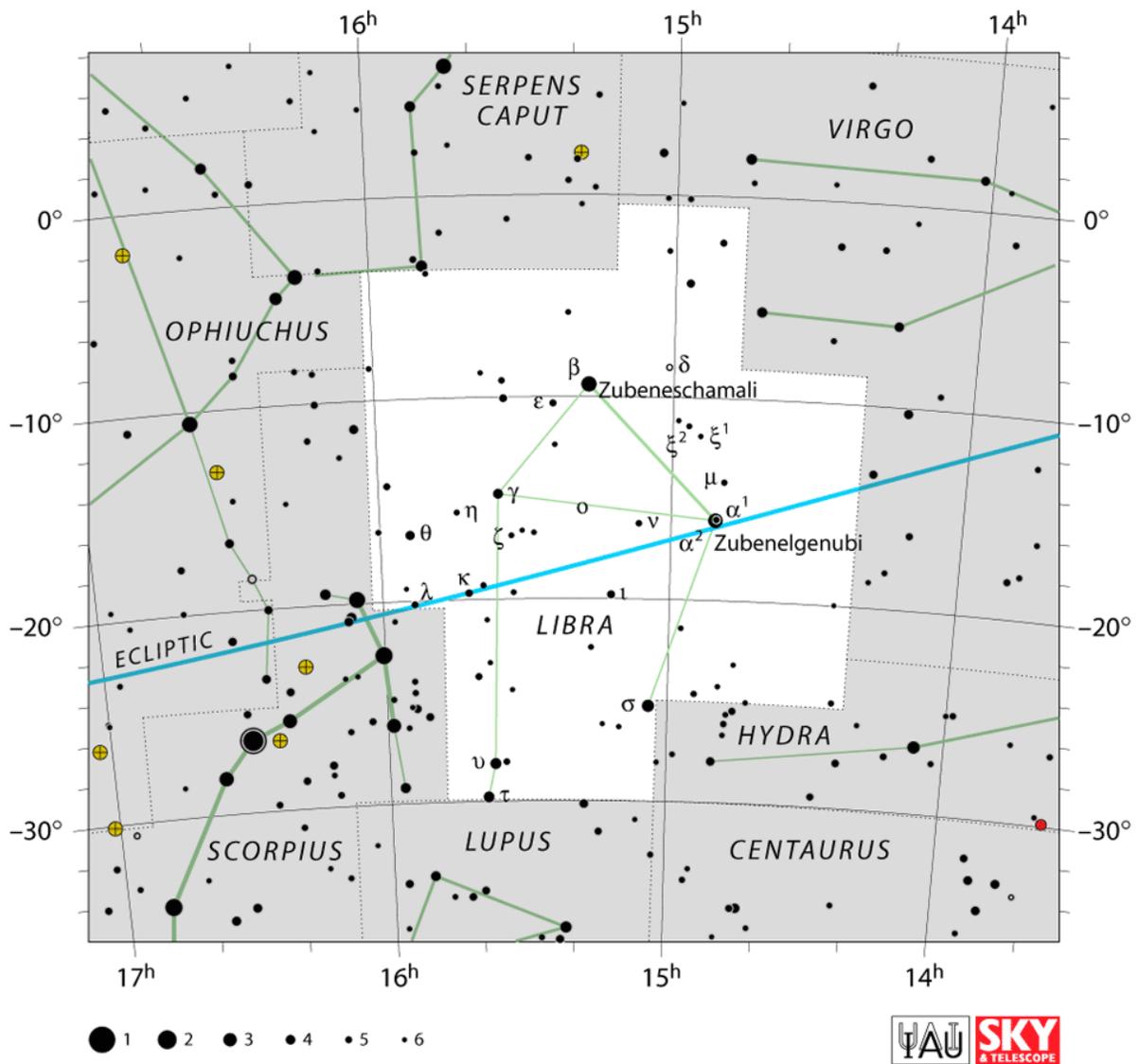
In ancient Greek times, the one area of the sky we know as Libra was occupied by the claws of the Scorpion, Scorpius. The Greeks called this area **Chelae (Χήλαι)**, literally meaning ‘claws’, an identification that lives on in the names of the individual stars of Libra. As things have worked out, Libra is now a slightly larger constellation than Scorpius, but is less conspicuous.

The identification of this area a ‘balance’ became established in the first century BC among the Romans, although exactly when it was introduced and by whom has been lost in the mists of history. Ptolemy, in the

Almagest, written around 150 AD, continues to refer to this constellation as ‘the Claws’, preferring to follow Greek tradition even though it was superseded.

To the Romans, Libra was a favored constellation. The Moon was said to have been in Libra when Rome was founded. The Romans visualized the constellation as a balance because the Sun lay there at the autumn equinox when day and night are equal. But the idea of a balance in this area did not originate with the Romans. The Babylonians knew this area **ZIB.BA.AN.NA**, the balance of heaven, around 1000 BC. Hence, it seems that the Romans revived a constellation that existed even before Greek times.

Libra is the one constellation of the zodiac to represent an inanimate object; the other 11 zodiacal constellations represent animals or mythological characters. Once the identification of Libra with a pair of scales became established, it was natural to divorce it entirely from Scorpius and to associate it instead with the other flanking zodiacal figure, Virgo, who was identified with Nike or Astraea, the goddess of justice. Libra thus became the scales of justice held aloft by the goddess.



The End