

Night Visions

June 2022

Newsletter of the **Baton Rouge Astronomical Society**

A tribute to BRAS member Forrest Smith, See page 11

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

You may also join this meeting via meet.jit.si/BRASMeet

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

PRESENTATION: TBA

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ALCON 2023

HRPO EVENTS

Member's Corner: A tribute to BRAS Member Forrest Smith, RIP

OBSERVING NOTES – Corvus – The Crow

***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

The projected “major” meteor shower (the mis-named **Tau Herculids**) was a wash here in Baton Rouge (only a few were seen). One report from the Atlanta area had over 75 sighted! Maybe next year we will see a shower.

The By-Laws have been amended to say that 3 constitutes a quorum in committees and meetings other than the Membership meetings.

IAD was good. BRAS sold a few eyepieces and received a large donation.

ALCon 2023 is moving along – the contracts will be signed very soon. A flier has been sent to the 2022 Albuquerque ALCon advertising our 2023 ALCon. We still need volunteers for the committees. If you are interested, contact Steven Tilley.

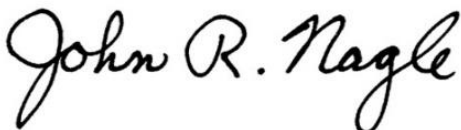
A person in Texas is interested in purchasing “big blue” -the 16” dob in the BRAS closet.

It has been decided that **BRAS will donate a telescope** to one of three parish library systems – Ascension, Livingston, or Iberville. All three systems will be contacted and asked if they would like the donation.

Ben should have the new **badges for BRAS Volunteers** – see him for yours.

We will start the **raffles** again at the membership meetings, beginning at the June meeting. We will also be raffling off the pictures donated by Chris Carlton – the pictures hanging on the wall to the right of the flat screen at HRPO. These pictures are printed on aluminum and have metal frames. In keeping with that, Michele has hidden a “**Tom Swifty**” somewhere in this newsletter. If you find it, email her the riddle and the page you found it on, and if you are at the June member meeting you’ll get a free raffle ticket. Her purpose is to trick you into reading the whole newsletter, so no fair telling anyone else where to find it!

Clear Skies



John Nagle, 2022 President

Upcoming BRAS Meetings:

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

Light Pollution: 6 pm Wednesday, June 29th. (In person only, Open to the public), followed by . . .

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

MOON (Members Only Observing Night) (Quarterly) June 17th from 9 PM until 1 AM.

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



Monthly Meeting Minutes – May 16th, 2022, 7 p.m.

- Welcome by the president, John Nagle.
- John introduced Tom Northrup as the speaker for the evening; the title for his talk was “Apollo 16 @ 50”. He discussed the history of NACA and NASA as well as the history of the launch and mission in April of 1972.
- John announced that a long-time BRAS member, Forrest Smith, had passed away recently; the funeral was held the same day as International Astronomy Day (May 7th). A sympathy card was placed at the front of the room for members to sign.
- There were enough members and proxies present (23) to vote on the amendment of the bylaws that would establish quorum counts at 3 for any club committee; this passed.
- In regards to outreach, Ben told everyone to check the newsletter. There will be no Perkins Rowe events now until it starts back up in the fall.
- John reminded everyone that we’re hosting ALCON 2023 next year. The contract will be signed soon. This event will be held at the Capitol House (Hilton) downtown. John talked to four people at the recent Texas Star Party who said they would be willing to speak at ALCON 2023. Once the contract is signed, we will go after more speakers for next year’s event. He said people were interested because of a possible field trip to LIGO; we may need to set up a separate field trip there for the AL governing board.
- Ben had a progress report on the name tags for outreach. The price has gone up from \$15 to \$17. We are up to 21 badges needed now. They will be blue with white lettering and have the member’s first name on them. They’ll use a magnet system to attach to shirts, so there will be no holes left in clothing. Ben will put in the order the day after the meeting.
- John reminded everyone of the total lunar eclipse on May 15th. He also had a few old pins and pens from the Texas Star Party for anyone interested.
- Michele sent a sympathy card for Forrest’s family, which John put up front for members to sign.
- Someone asked about the raffle; John said we could start that back up next month.
- Craig suggested we have a Keurig coffee machine so that everyone could enjoy coffee however they wanted it; someone may be looking into this.
- Chocolate chip cookies were available to those onsite after the meeting.

Submitted by Roz Readinger, Secretary





Business Meeting Minutes –May 25th, 2022, 7 p.m.

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

Items discussed:

1. BRAS Computer – The Bras Computer is a new desktop, now set up for jit-si. Discussed possible laptop for outreach events. Will discuss at member meeting.
2. Outreach – Volunteer Badges – Ben has new badges, magnetic vehicle signs – Chris K awaiting the vector design for the BRAS Logo.
3. HRPO – IAD had 431 attendees this year. New sign for the front entrance completed, awaiting installation. Update of the status of work orders asked.
4. Library Telescopes – determined that a telescope will be given to the library system in one of three parishes – Ascension, Livingston, or Iberville. Will contact the library systems and inquire if they would like one.
5. The BRAS sale table at IAD sold a few eyepieces for about \$60.00. A large donation of about \$250.00 was given.
6. BRAS Stationary for ALCon business – asked AL if we could use the AL Logo with the BRAS Logo for the letterhead.
7. BRAS Star Party – Don W. is working on it – members of the Shreveport group told Don of a site at Kisatchie that might be used for a star party. They will show it to Don in the fall.
8. Raffles – the raffles at the member meetings will resume starting at the June member meeting. The two pictures taken by Chris Carlton, that are hanging on the right side of the monitor at HRPO, will also be raffled off at the June meeting.
9. MOON Night will be on June 17th from 9 PM until 1 AM.
10. New Member Kit – Discussed how to set up/contents. Membership Benefits to be listed on web page, kit to have a “how to” use BRAS membership procedures for using benefits of membership.
11. ALCon – Flier for the 2023 ALCon in Baton Rouge sent to Albuquerque. AL will sign the contract for the 2023 ALCon in Baton Rouge soon. Google Docs about ALCon need to be updated. Need a budget amount for publicity/promotion of ALCon. More committee members are needed.

New Business

1. By-Law amendment for a definition of what constitutes a “quorum” for committees and business meetings was approved. All committees and business meetings shall have a quorum of three members.

Submitted by Roz Readinger





Outreach Report

Hi Everyone,

Well, we have the long Summer days ahead of us and with them come a couple of outreach opportunities. If they are anything like the last few we've had, they will be great fun!

Also, big announcement...the **volunteer name badges are finished!** I will have them for you at either the next outreach event you attend or the club meeting. Remember, you are on the hook for \$5, but the club is picking up the rest of the cost this time around. I think they look great and can't wait for you to get yours!

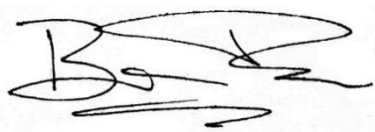


On to the Summer fun. Our biggest event, of course, is heading up to the Feliciana Retreat Center to assist with the **LA National Guard Youth Camps**. For the second week, we have narrowed it down to June 30th. You have the option of tent camping that evening, as well, to take advantage of the dark skies up there. We always have a great time doing this outreach event and can surely use some help if you can make it up there. (You don't have to stay through to the evening.)



We'll be setting up some more **Night Sky Network Toolkit Training sessions**, too, so be on the lookout for that. We have a lot of cool materials from them and it should be fun finding ways to utilize it in our outreach endeavors.

Finally, I am also listing a series of library outreaches (see below) for the **Summer Reading Program with Chris Kersey**. He will be giving short presentations for kids ages 7-11 at each of these locations. Please let your families, friends, neighbors and coworkers know and let's try to get some kids out there!



Clear Skies, Ben Toman

Upcoming Outreach Events

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.

Thursday, June 30th

9am-3pm or so (we usually have rotating squads of kids throughout the day)

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.)

Library Outreaches (Summer Reading with Chris Kersey).
Each event starts at 2pm and will last approximately 1 hour

Share this with your friends.

Wed. 1 June, Pride-Chaneyville Library

Mon. 13 June, Greenwell Springs Library

Thu. 16 June, Bluebonnet Library

Tue. 5 July, Scotlandville Library

Thu. 7 July, Jones Creek Library

Tue. 26 July, Delmont Gardens Library

Thu. 28 July, Goodwood Library



**TERRESTRIAL IMPACT
FROM THE PASSAGE OF THE SOLAR SYSTEM
THROUGH A COLD CLOUD
A FEW MILLION YEARS AGO**

This Article submitted by Craig Brenden, Members are encouraged to submit articles for inclusion to Night Visions.

<https://arxiv.org/pdf/2202.01813v2.pdf>

Abstract: It is expected that as the Sun travels through the interstellar medium (ISM), there will be different filtration of Galactic Cosmic Rays (GCR) that affect Earth. The effect of GCR on Earth's atmosphere and climate is still uncertain. Although the interaction with molecular clouds was previously considered, the terrestrial impact of compact cold clouds was neglected. There is overwhelming geological evidence from ⁶⁰Fe and ²⁴⁴Pu isotopes that Earth was in direct contact with the ISM 2-3 million years ago, and the local ISM is home to several nearby cold clouds. Here we show, with a state-of the art simulation that incorporate all the current knowledge about the heliosphere that if the solar system passed through a cloud such as Local Leo Cold Cloud, then the heliosphere which protects the solar system from interstellar particles, must have shrunk to a scale smaller than the Earth's orbit around the Sun (0.22AU). Using a magnetohydrodynamic simulation that includes charge exchange between neutral atoms and ions, we show that during the heliosphere shrinkage, Earth was exposed to a neutral hydrogen density of up to 3000cm⁻³. This could have had drastic effects on Earth's climate and potentially on human evolution at that time, as suggested by existing data.



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..

1. The update for the signers of the Light Pollution Petition was approved.
2. Update given for the 7-year plan.
3. Contacting various groups about Light Pollution.
4. Discussed response to an e-mail from an employee of the La DEQ about Light Pollution and what is BRAS doing about it.

New Policy: Starting at the July LPC meeting, which will be held at 6 PM on the night of the BRAS Membership Meeting, everyone is urged to be quiet. Conversations should be held outside the building until the meeting is over. Thank You.

Globe At Night

The target for the Globe at Night program is Boötes from June 19th through June 28th

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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 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

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, June 19, 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.


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

- * Registration fees increased 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 \(alcon2022.org\)](#)



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



Messages from HRPO

Highland Road Park Observatory



FRIDAY NIGHT LECTURE SERIES

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

3 June: “The Artemis Mission” No earlier than August is the [Artemis I](#) launch. Amy Northrop describes these upcoming first steps to our return to the Moon.

10 June: “Protecting the Power Grid” There are several different ways entire sections of [our nation’s Grid](#) can be damaged or destroyed. Indeed, it’s happened before...at least on a small scale. What about a large-scale event? Many believe it’s a matter of when, not if. Are we prepared?



EVENING SKY VIEWING

No admission fee. For all ages.

Friday (3 and 10 June) from 8:30pm to 10pm

Saturdays (4 and 11 June) 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.

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!

11 June = “Surveying the Moon” With Artemis and the Gateway just “around the corner”, Cadets can hardly keep up with all the new information! Missions and myths, future travels and viewing from home. They will know the Moon!

18 June = “Make Way for the Microscope” Magnification can be for the quite small as well. Cadets this week will do what no others have done—buzz crystals, moss and plant seeds!



THE DAYLIGHT DETOUR

Friday 17 June from 6pm to 8pm. / No admission fee. For all ages.
No viewing during this event.

Whether it's taking advantage of a [prorated BRAS membership](#); getting the status of all current NASA, LSU and HRPO plans; obtaining the latest information on asteroid Apophis; learning HRPO history; or finding out the celestial events for the next twelve months, this "alternate route" (planned due to [Daylight Time](#)) is your stop!



STEM EXPANSION: "Reactive Reagents"

Saturday 18 June 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].

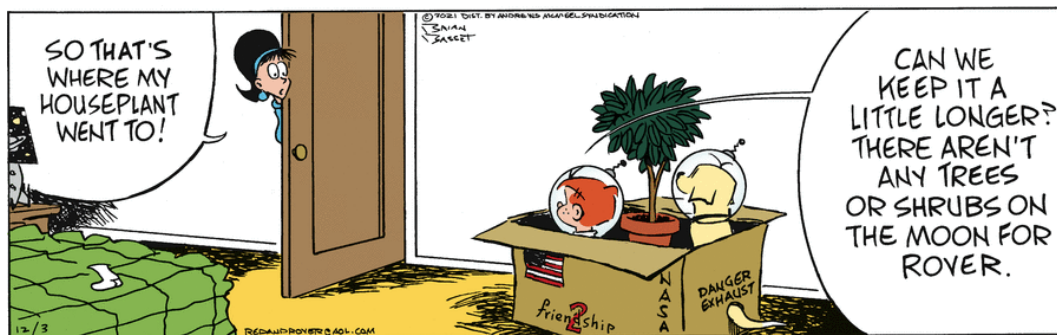
This program offers advanced topics, topic extensions and all-new games and activities to an older crowd. Certificates will be earned, and a section of archived experiments, some not seen in over fifteen years (and some *never* performed on site) take place. There are also giveaways and door prizes.



AMERICAN RADIO RELAY LEAGUE FIELD DAY

Saturday 25 June from 2pm to 10pm / No admission fee. For all ages.
(Solar viewing from 2:30pm to 4:30pm.)

One section of the electromagnetic spectrum gets all the love, as tens of thousands of "hams" ascend to the radio waves with "phone" (voice) and CW (Morse) in this exciting contact contest that stretches from coast to coast! Get on the GOTA station and make your own contact! Ham radio is awesome for parents and kids alike.



Members' Corner – Honoring Forrest Smith

On April 26th, we lost a dear friend and long-time active BRAS member, Forrest Smith. Here is our tribute to him, penned by Ben Toman.

Forrest has been a member ever since I've been around the club. He and his wife, Diane, would make the trek over from their home in the LaPlace area for our monthly meetings and other club events. They were frequent attendees to our annual Rockefeller Wildlife Refuge stargaze & birdwatch weekend, and Christmas Parties. Forrest was always enthusiastic about whatever program was happening at our meetings, whether it was a special guest astrophysicist speaking about recent discoveries in the cosmos, or just one of our own members showing us how to clean a telescope mirror.

After he retired, the only things that kept him away from our events were his frequent trips to visit family and maybe a hurricane or two. His love for astronomy and our club never waned, though. I always enjoyed when my phone would start ringing and I'd see it was Forrest calling. He never seemed to call about the same thing twice, either. Sometimes it would be to ask about some astronomical event coming up, and sometimes it would be to discuss some issue he was having trying to tackle yet another Astronomical League observing challenge. Whatever the reason for his call, I was always left smiling after having talked with him for a while.



Several of us were able to attend his memorial service (on International Astronomy Day as fate would have it) and it was no surprise to me at how much of his community came out to show their support. We heard stories of his kindness, humor and just overall big heartedness and were much the better for it.

A quote on the program for the service says "Friend of All", and I cannot think of a better description of Forrest.

We will miss our friend and fellow night sky enthusiast. Clear Skies, My Friend.

Members are encouraged to leave their own personal comments and memories on Forrest's Obituary page.

[Forrest Smith Obituary \(2022\) - LaPlace, LA - The Times-Picayune \(nola.com\)](https://www.nola.com/story/news/local/forrest-smith-obituary-2022-04-26/7048247002)



OBSERVING NOTES **JUNE**

Corvus – The Crow Position: RA 12, Dec. -20°

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 in April 2022. Starting in May, Named Stars, Deep Sky and Other Stars are repeated here, for convenience. Monthly updates are made to Sky Happenings, and all that appears below that title.

Named Stars

Al Chiba (Alpha Crv), from the Arabic “Al Minnär al Ghuräb”, “The Raven’s Beak”, also called Achita, Alkhiba, Minkar al Ghyrab, Rostrum Corvi, and from the Chinese “Yew Hea”, “The Right-Hand Linch Pin”, mag. 4.02, 12 08 24.75 -24 43 43.6, is a white dwarf or sub-dwarf star and possibly a spectroscopic binary or pulsating variable star with a period of 3 days. Also known as **HD 105452**, **HIP 59199**, and **1 Corvii**.

Kraz (Beta Crv), also from the Chinese (Tso Hea,” “The Left-Hand Linch Pin,” mag. 2.65, 12 34 23.23 -23 23 47.8, is a yellow giant star and a weak barium star. Also known as **HD 109379**, **HIP 61359**, and **9 Corvii**.

Gienah (Gamma Crv), from the Arabic “Al Janäh al Ghuräb al Aiman”, “The Right Wing of the Raven”, also “Djenah al Ghyrab al Eymen”, mag. 2.58, 12 15 48.47 -17 32 31.12, is a blue-white giant binary star (with mercury and manganese in it’s spectrum), and an orange or red dwarf star companion at 10th magnitude with a separation of 1.1” (50 au) at PA 106° and an orbital period of 158 years. Also known as **HD 106625**, **HIP 59803**, **h-840**, and **4 Corvii**.

Algorab (Delta Crv), from the Arabic “Al-Ghuraab,” “The Crow,” also called Algora and Algores, mag. 2.94, 12 29 51.98 -16 30 54.3, is a wide double star consisting of a blue-white and orange dwarf star. The secondary is at magnitude 8.51, separation of 24” (650 au) at PA 213° with an orbital period of 9,400 years. Circumstellar dust surrounds both stars. **Eta Corvii** (magnitude 4.3) is 16.5’ to the east-northeast (itself a double star with its secondary at magnitude 19.2, separation of 13’ at PA 256°). Also known as **HD 108767**, **HIP 60965**, **ADS 8572**, **h-1435**, and **7 Corvii**.

Minkar (Epsilon Crv), from “almanxar,” “the nostril of the crow,” mag. 3.02, 12 10 07.53 -22 37 11.3, is a red giant star that is enriched with lithium. It is a “coronal graveyard” – it emits little or no magnetic activity in X-ray or UV observations. Also known as **HD 105707**, **HIP 59316**, and **2 Corvii**.

Chang Sha (Zeta Crv), from the Chinese for “a long sand-bank,” mag. 5.20, 12 20 33.71 -22 12 57, Is a double star consisting of a blue-white star and a secondary (HR 4691) being a yellow-orange giant star at a 7” separation. The primary is an emission-line star and both stars are main sequence. Also known as **HD 107348**, **HIP 60189**, and **5 Corvii**.

Tombaugh’s Star (TV Crv), mag. 12.2, 12 20 24.15 -18 27 02.0, is a binary star consisting of a brown dwarf star and a white nova star that orbit each other every 90 minutes.

Deep Sky:

Antennae Galaxies (NGC 4038 and 4039), mag. 10.3 each. NGC 4038, the northern most of the two. 12 01 53 -18 52 05, 3.4’x1.7’ in size, and NGC 4039, 12 01 53.48 -18 53 06, 3.2’x2.1’ in size. Both galaxies are interacting with each other. Both have multiple ultra-luminous X-ray sources. Located 3.6° west-southwest of **Gamma Corvii**, or 2.2° south-southeast of **Eta Corvii**, or 6’ south-southeast of the 8.7 magnitude star **HD 104456**, or 0.25° north of the star **31 Crateris**. Also known (NGC 4038) as

H4-28, ESO 572-47, and C60; (NGC 4039) as ESO 572-48, and C 61. Both are known as the **Arp 244, and VV 245.** Sometimes called the “**Ring Tail Galaxy**” – see **NGC 4027.**

Deep Sky Objects Beyond Magnitude 10

NGC 4361, “The Lawn Sprinkler”, mag. 10.3, 12 24 30.8 -18 47 02, 2.1’x2.1’ in size. It is a planetary nebulae with the central star (**HD 107969**) at magnitude 13.2. Located 2.4° east-southeast of **Gamma Corvii.** The 17th magnitude spiral galaxy **LEDA 864871** is 5.8’ to the north-northwest. The star **Ross 695** (magnitude 11.2) is 33’ to the north, only 1.3’ north of **HD 108042** (9th magnitude). Also known as **H1-65, ESO 573-19, PK 294+43.1, ARO 26, and PNG 294.1+13.6.**

NGC 4027, “The Ring Tail Galaxy”, mag. 11.1, 11 59 30 -19 55 54, 3.2’x2.4’ in size, has an extended spiral arm. Located 0.5° northwest of the star 31 Crateris, with **NGC 4027A** (magnitude 14.5, 0.9’x0.6’ in size) 4.1 to the south. **PGC 856913** (0.3’x0.2’ in size) is 3.3’ to the southeast, **PGC 856737** (0.3’x0.3’ in size) is 2.1’ to the east of **NGC 4027A.** Also known as **H2-296, Arp 22, and ESO 572-37.**

OBJECTS in the Deep Sky: 34 NGC; 12 IC; 80 MCG; 41 ESO; 20 Herschel; 2 Caldwell; 2 Arp; 1 A; 1 AS; 2 Str; 1 VV; 1 PK; 1 PNG; 1 ARO; 1 PGC; 1 radio galaxy; and 1 Canali for a total of 202 objects.

Other Stars:

VV Corvi, mag. 5.17, 12 41 16.02 -13 00 50.1, is a quadruple star and a close spectroscopic binary star – both yellow-white main sequence stars in a 1.46-day orbit. Also known as **HD 110317, and HIP 61910.**

31 Crateris (TY Crv), mag. 5.28, 12 00 51.17 -19 39 32.4, was originally placed in **Crater** by Flamsteed. It is a spectroscopic binary – a hot blue-white star (possibly a blue straggler) and a companion with an orbital period of 2.9361 days. This star was once mistaken for a moon of **Mercury** by the **Mariner 10** mission. Also known as **HD 104337, and HIP 58587.**

HD 111031, mag. 6.88, 12 46 30.85 -11 48 44.8, has one unconfirmed planet in orbit. Also known As **HIP 62345.**

HD 103774, mag. 7.12, 11 56 56.0 -12 06 28, is a yellow-white main sequence star with a **Neptune** sized planet in a 5.9-day orbit. Also known as **HIP 58263.**

HD 104067, mag. 7.93, 11 59 10.01 -20 21 13.6, is an orange dwarf star with a planet orbiting at 0.26 au separation and a 55.8-day orbital period. Also known as **HIP 58451.**

Stars Beyond Magnitude 10

Ross 695, mag. 11.27, 12 24 52.5 -18 14 32.26, is a red dwarf star. Also known as **Gliese 465, and HIP 60559.**

WASP 83, mag. 12.9, 12 40 37.0 -19 17 03, has a **Saturn**-sized planet transiting every 5 days.

VHS J1256-1257, mag. 17.8, 12 56 02.13 -12 57 21.9, is a binary system of two brown dwarf stars with a third planetary mass brown dwarf star orbiting them at a separation of 102 ± 9 au.

DENIS-P J1228-1547, 12 28 15.23 -15 47 34.2, is a binary system with two brown dwarf stars.

NOTE: In Action Comics #14 (January 2013), which was published in November of 2012, Neil deGrasse Tyson appears in the story, in which he determines that Superman’s home planet, Krypton, orbited the red dwarf star LHS 2520 (Gliese GJ 3707), mag. 12.12, 12 10 05.597 -15 04 15.66 (a main sequence star) in the constellation Corvus, 27.1 light-years from earth. Tyson assisted DC Comics in selecting a real-life star that would be an appropriate “parent star” to Krypton, and picked the star in Corvus, because the mascot of Superman’s high school is the Smallville Crows.

ASTERISMS:

Spica’s Spanker, or “The Sail,” consists of the stars **Delta, Gamma, Epsilon, and Beta Corvii.** They form a quadrilateral asterism with **Gamma and Delta Corvii** serving as pointers toward **Spica.**

Canali 1 (Stargate) is composed of a six-star system (optical) at 12 35 59 -12 03 09. None of these stars are part of the same system, they are all at varying distances from **Earth.**

A – mag. 7.92, **HD 109556, HIP 61466**

- B – mag. 8.34, **HIP 61465, BD-11 33311**
- C – mag. 11.46, **BD-11 3330c, STF (Σ) 1659**
- D – mag. 9.91, **BD-11 3330d, TYC 5531-1190-1**
- E – mag. 6.69, **HD 109545, HIP 61449**
- F – mag. 6.61, **HD 109584, HIP 61486**, a dwarf star

Al ‘Arsh al Simākāl al ‘Azal, “The Throne of the Unarmed One” (referring to **Spica**), consists of **Beta, Gamma, Delta, and Eta Corvii**.

Al ‘Ajz al Asad, “The Rump of the Ancient Lion,” consists of **Theta, Kappa, Phi, and g Corvii**.

Hasta, “The Hand,” consisting of **Alpha, Beta, Gamma, Delta, and Epsilon Corvii**.

Tchin, from the Chinese for “The cross-piece of a chariot,” anciently known as **Kusam**, consisting of **Beta, Gamma, Delta, and Epsilon Corvii**.

Stars in this constellation: 7 Greek; 25 Lettered; 31 Numbered; 13β; 4 Σ; 3 S; 2 Sh; 1 LV; 1 Hu; 1 H; 3 A; 1 HI; 1 Jc; 4 h; 1 HVI; 1 HR; 1 Ross; 1 VHS; 1 WASP; and 1 Hwe for a total of 112.

Sky Happenings: June, 2022

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

- June 1st** - Morning: In the east **Jupiter** and **Mars** rise in tandem 2° apart, The **Moon** passes 0.1° north of the dwarf planet **Ceres** at 4 PM CDT. **Ceres** will be occulted, The **Moon** is at apogee (252,396 miles or 406,192 km from **Earth**) at 8:13 PM CDT.
- June 2nd** - **Mercury** is stationary at 7 PM CDT, Dusk: The thin, waxing crescent **Moon**, **Castor**, and **Pollux** will form a triangle above the west northwest horizon after sunset.
- June 4th** - Dawn: All five of the naked eye planets will be arrayed in a line from very low in the east to higher in the south along the horizon. They will appear in the same sequence as they are in their orbits around the **Sun** – left to right – **Mercury, Venus, Mars, Jupiter, and Saturn** – in an arc spanning 91° from **Mercury** to **Saturn**. **Mercury** and **Venus** are 18° apart, **Venus** and **Mars** are separated by 30°, **Mars** is 4° from **Jupiter**, and **Saturn** is 39° west of **Jupiter**. This arrangement of planets will not happen again until 2041.
- June 5th** - **Saturn** is stationary at 9 AM CDT, Evening: In the west the lunar crescent, in **Leo**, is 4.5° from **Regulus**, and will occult **Eta Leonis** for the southwestern **United States** – starting at around **Austin, Texas**.
- June 7th** - **First Quarter Moon** occurs at 9:48 AM CDT.
- June 9th** - Evening: The waxing gibbous **Moon** is high in the south-southwest, in **Virgo**, with about 6° separating it from **Spica**.
- June 11th** - **Venus** passes 1.6° south of **Uranus** at 8 AM CDT.
- June 14th** - **Full Moon** occurs at 6:52 AM CDT, The **Moon** is at perigee (222,098 miles or 357,432 km from **Earth**) at 6:23 PM CDT – expect large tides.
- June 16th** - **Mercury** is at greatest western elongation (23°) at 10 AM CDT.
- June 18th** - Dawn: The waning gibbous **Moon** is some 6° below **Saturn** in the south. Look to the east-northeast to see **Mercury, Venus, and the Pleiades** arranged in a triangle, The **Moon** passes 4° south of **Saturn** at 7 AM CDT.
- June 19th** - The **Moon** passes 0.7° south of asteroid **Vesta** at 3 AM CDT.
- June 20th** - The **Moon** passes 4° south of **Neptune** at 12 noon CDT, **Last Quarter Moon** occurs at 10:11 PM CDT.
- June 21st** - **Summer Solstice** occurs at 4:14 AM CDT. This is the longest day of the year in the **Northern Hemisphere**, **Mars** is at perihelion (128 million miles from the **Sun**) at 8 AM CDT, The **Moon** passes 3° south of **Jupiter** at 9 AM CDT.
- June 22nd** - The **Moon** passes 0.9° south of **Mars** at 1 PM CDT.

- June 23rd** - **Mercury** passes 3° north of **Aldebaran** at 9 AM CDT.
- June 24th** - Dawn: Five planets reach across the sky from low in the east-northeast to higher in the south – same line-up as on June 4th. The waning crescent **Moon** will hang below **Mars** and **Venus**. The **Moon** passes 0.05° south of **Uranus** at 5 PM CDT.
- June 26th** - The **Moon** passes 3° north of **Venus** at 3 AM CDT,
Dawn: The **Moon**, illuminated by earthlight, is 2.5° from **Venus**, with **Mercury** to the lower left of the pair.
- June 27th** - The **Moon** passes 4° north of **Mercury** at 3 AM CDT.
- June 28th** - **Neptune** is stationary at 6 PM CDT,
New Moon occurs at 9:52 PM CDT.
- June 29th** - The **Moon** is at apogee (252,657 miles or 406,580 km from **Earth**) at 1:08 AM CDT.

Planets:

Mercury – **Mercury**, on June 4th, is the anchor (only 6.5° high above the eastern horizon) for a 91° arc of the five naked eye planets (in the order of planetary orbits) extending and rising to the southeast horizon. This line will repeat on the morning of the 27th at about 5 AM CDT. On the 13th, the planet (at magnitude 0.8) will stand 8° due south of the **Pleiades (M45)**, with **Venus** 11.5° to the west. On the 16th, the planet will reach greatest western elongation (23°) from the **Sun** and will form an equilateral triangle with **Venus** and **M45**. On the 22nd, **Mercury** (now at magnitude 0.1) is at the tip of the **Hyades**, 3° north of **Aldebaran**, with **Venus** 6° due south of the **Pleiades**. On the 35th and 26th, a waning **Moon** will join the **Hyades**, **Pleiades**, **Venus**, and **Mercury** above the eastern horizon an hour before sunrise.

Venus – **Venus** starts the month in **Aries**, rising before 4 AM local time all month. The planet enters **Taurus** in mid-June. The planet, on June 1st, is a 78% lit disk spanning 14", and by the 30th it is 86% lit and 12" wide. The planet's magnitude will stay constant at -3.9 all month. On the 26th, the planet and the **Moon** will have their closest observable encounter for 2022 at dawn – just 2.5° will separate the planet from the razor-thin lunar crescent.

Mars – **Mars**, after its May 29th conjunction with **Jupiter**, will have a separation of slightly less than 2° from **Jupiter** on June 1st (**Mars** at magnitude +0.7, **Jupiter** at magnitude -2.3). On the 3rd of June, **Mars** will cross into the northwest corner of **Cetus** until June 9th. The planet will continue eastward toward **Omicron Piscium**, ending the month 1.5° from the 4th magnitude star. The planet will brighten from magnitude 0.6 to 0.4 during the month, with a disk spanning 7" at 86% illumination.

Jupiter – **Jupiter** and **Mars** rise together only 1.8° apart in the eastern sky on June 1st, soon after 2 :30 AM local time. By the end of the month, **Jupiter** will rise shortly before 1 AM local time, and will stand some 40° high an hour before dawn. The planet's diameter will grow from 37" to 41" during the month. It will travel from **Pisces** into the northwest corner of **Cetus** for the last 6 days of the month. On the 5th, **Callisto** is partially hidden behind the planet's northern limb. You can observe this between 3 AM and 4 AM CDT.

Saturn – **Saturn** is the first naked eye planet to rise (in the southeast), soon after 1 AM local time, early in the month and shortly after midnight by mid-June. The planet is located at the eastern edge of **Capricornus** and will end the month 1.6° north of **Deneb Algedi (Delta Capricornii)** at magnitude 0.5. The planet will reach a stationary point on June 5th and will then begin a retrograde motion as it approaches opposition in two months. The planet is best viewed when it stands more than 30° high in the south. It's disk spans 17" in early June and 18" (a barely perceptible gain) by the end of the month. The rings are tilted 12° to our line of sight.

Uranus – **Uranus** will double its elongation from the **Sun** from 25° to 50° during June. **Venus** will pass 1.6° to the south of **Uranus** on June 11th.

Neptune – **Neptune**, in western **Pisces**, shines at magnitude 7.8. The planet rises after 2 AM local time in early June, and soon after mid-night in late June. Early in the month, the planet is roughly mid-way between the star **Phi Aquarii** and **Jupiter**. **Neptune** is stationary on the 28th and will then start retrograde motion.

Pluto – **Pluto's** positions, *by my estimates*, are as follows: On June 1st – 1.2' northeast of the star **SAO 188829** (magnitude 6.01, 20 01 23.9 -22 44 14, also known as **HD 189561**, **HR 7643**, and **CD 2315935**); on the 5th – 1' northeast of the star; on the 9th – 0.6' northeast of the star; on the 13th – 0.5' north-northeast of the star; on the 17th – 0.2' north and a touch west of the star; on the 21st – 0.5' northwest

of the star; on the 25th – 0.8' west and a little north of the star; and on the 29th – 1.2' west and a touch north of the star.

Sun – **Summer Solstice** (the longest day of the year) begins at 4:14 AM CDT.

Moon – The **Moon** will be 5° northwest of the **Beehive Cluster (M44)** on June 3rd. On the 5th, the waxing crescent **Moon** is less than 5° north of **Regulus**. On the 12th, the **Moon** will pass the 2nd magnitude star

Dschubba (Delta Scorpii) – the northeastern **United States** will see the **Moon** occult the star (52 minutes long) near the southern limb. The **Full Moon**, on the 14th, will be visible all night in **Sagittarius**.

Favorable Librations: **Galvani Crater** on the 14th; **Sylvester Crater** on the 15th; and **Peterman Crater** on the 16th.

Greatest North Declination on the 2nd (+27.0°) and on the 29th (+26.9°)

Greatest Southern Declination on the 15th (-26.7°)

Libration in Longitude: East Limb most exposed on the 21st (+7.7°)

West Limb most exposed on the 9th (-7.5°)

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

South Limb most exposed on the 6th (-6.8°)

Asteroids / Minor Planets Asteroid **3 Juno** – **Juno's** position, according to the *RASC Observer's Handbook, 2022 USA Edition*, on June 30th is 23 09.84 +01 45.4 at magnitude 9.7 in **Pisces**.

Asteroid **4 Vesta** – **Vesta's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On June 10th – 22 27.97 -13 36.1, at magnitude 7.1 in **Aquarius**; on the 20th – 22 35.38 -13 39.3, at magnitude 6.9 in **Aquarius**; and on the 30th – 22 40.30 -14 00.5, at magnitude 6.8 in **Aquarius**.

Asteroid **10 Hygiea** – **Hygiea's** positions, *by my estimates*; are as follows: On June 1st – about 3.3° east-southeast of the star **83 Virginis**; on the 5th – about 3° east-southeast of **83 Virginis**; on the 10th – about 2.6° east and a touch south of **83 Virginis**; on the 15th – about 2.6° east and a touch south of

83 Virginis; on the 20th – about 2.8° due east of **83 Virginis**; on the 25th – about 3° due east and a touch north of **83 Virginis**; and on the 30th – 3.4° due east and a touch north of **83 Virginis**.

Asteroid **14 Irene** – **Irene's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On June 20th – 19 19.91 -25 51.2, at magnitude 9.9 in **Sagittarius**; and on the 30th – 19 10.42 -26 46.9, at magnitude 9.7 in **Sagittarius**.

Asteroid **29 Amphitrite** – **Amphitrite's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On June 10th – 16 49.99 -32 02.5, at magnitude 9.6 in **Scorpius**; on the 10th – 16 39.73 -31 13.3, at magnitude 9.7 in **Scorpius**; and on the 30th – 16 31.07 -31 13.3, at magnitude 9.9 in **Scorpius**.

Asteroid **41 Daphne** – **Daphne's** positions, according to the *RASC Observer's Handbook, 2022 USA Edition*, are as follows: On June 10th – 17 13.26 +06 30.2, at magnitude 9.8 in **Ophiuchus**; and on the 20th – 17 06.09 +06 24.3, at magnitude 9.9 in **Ophiuchus**.

Comets – Comet **19P/Borrelly** – **Borrelly**, an evening comet, will be at the following positions according to *ALPO*: On June 10th – 08 38 16 +40 36 54, at magnitude 13.7 in **Lynx**; on the 20th – 09 08 00 +38 59 48, at magnitude 14.1 in **Lynx**; and on the 30th – 09 35 30 +37 08 54, at magnitude 14.4 in **Leo Minor**.

Comet **22P/Kopff** – **Kopff**, a morning comet, will be at the following positions according to *ALPO*: On June 10th – 00 25 18 +00 02 00, at magnitude 11.7 in **Pisces**; on the 20th – 00 43 12 +01 25 48, at magnitude 11.9 in **Cetus**; and on the 30th – 00 59 06 +02 34 42, at magnitude 12.1 in **Cetus**.

Comet **C/2017 K2 PANSTARRS** – **K2**, a morning comet, will be at the following positions according to *ALPO*: On June 10th – 18 07 36 +07 53 54, at magnitude 7.7 in **Ophiuchus**; on the 20th – 17 48 54 +05 26 42, at magnitude 7.5 in **Ophiuchus**; and on the 30th – 17 23 18 +002 16 18, at magnitude 7.3 in **Ophiuchus**. **K2's** positions in **Ophiuchus**, *by my estimates*, are as follows: On June 1st – about 1.8° northwest of **NGC 6633**; on the 5th – about 2.4° northwest of **NGC 6633**; on the 10th – about 3° west and a little north of **NGC 6633**; on the 15th – about 2.3° north-northwest of **Gamma Ophiuchi** or 1.5° east and a touch north of **IC 4665**; on the 20th – about 0.2° due south of **IC 4665** or 0.4° northeast of **Beta Ophiuchi**; on the 25th – about 1.2° northeast of **Beta**

Ophiuchi or 1.5° east-southeast of **Sigma Ophiuchi**; and on the 30^{th} – about 1.2° due south of **Sigma Ophiuchi**.

Comet **C/2019 L3 ATLAS – L3**, a dusk comet, will be at the following positions according to **ALPO**: On June 10^{th} – 07 41 42 +07 48 12, at magnitude 10.3 in **Canis Minor**; on the 20^{th} – 07 52 06 +06 27 12, at magnitude 10.4 in **Canis Minor**; and on the 30^{th} – 08 02 36 +05 02 42, at magnitude 10.5 in **Canis Minor**.

Comet **C/2019 T4 ATLAS – T4**, an evening comet, will be at the following positions according to **ALPO**: On June 10^{th} – 11 52 06 -07 23 48, at magnitude 12.0 in **Crater**; on the 20^{th} – 11 57 12 -06 11 06, at magnitude 12.1 in **Virgo**; and on the 30^{th} – 12 03 24 -05 12 30, at magnitude 12.2 in **Virgo**.

Comet **C/2021 03 PANSTARRS – 03**, an evening comet, will be at the following positions according to **ALPO**: On June 10^{th} – 13 24 48 +73 29 24, at magnitude 12.6 in **Ursa Minor**; on the 20^{th} – 14 08 24 +66 16 06, at magnitude 13.4 in **Ursa Minor**; and on the 30^{th} – 14 31 18 +60 09 48, at magnitude 14.1 in **Draco**.

Meteor Showers – There are no **Major (Class I)** meteor showers active in June. There are no **Minor (Class II)** meteor showers active in June. There is one **Variable (Class III)** meteor shower active in June – the **June Boötids**, active from June 25^{th} through June 29^{th} , peaks on June 27^{th} . There are seven **Weak (Class IV)** meteor showers active in June (all weak showers have a maximum zenith hourly rate of <2): the **Daytime Arietids**, active from May 29^{th} through June 17^{th} , peaks on June 4^{th} ; the **June Iota Pegasids**, active from June 25^{th} through June 27^{th} , peaks on June 25^{th} ; the **Phi Piscids**, active from June 13^{th} through July 5^{th} , peaks on June 25^{th} ; the **Microscopiids**, active from June 25^{th} through July 16^{th} , peaks on July 6^{th} ; the **July Chi Arietids**, active from June 26^{th} through July 22^{nd} , peaks on July 7^{th} ; the **c-Andromedids**, active from June 21^{st} through July 28^{th} , peaks on July 12^{th} ; and the **Northern June Aquilids**, active from June 26^{th} through July 22^{nd} , peaks on July 15^{th} .

Mythology:

Corvus – the Crow

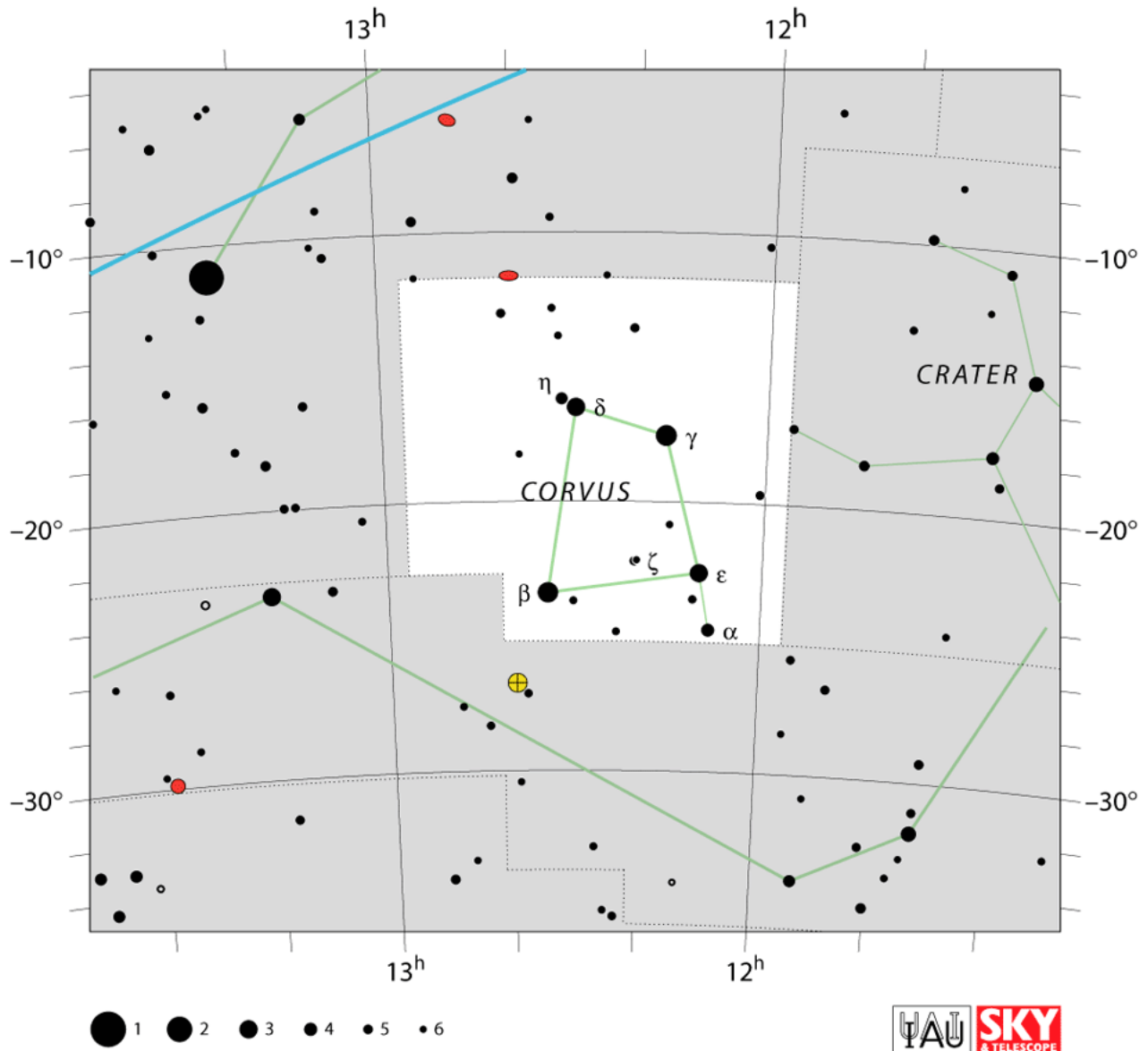
Corvus – the Crow and Crater – the Cup constellations are linked in a moral tale that goes back to at least Eratosthenes. As told by Ovid in his *Fausti*, Apollo was about to make a sacrifice to Zeus and sent the crow to fetch water from a running stream. The crow flew off with a bowl in its claws until it came to a fig tree laden with unripe fruit. Ignoring his orders, the crow waited several days for the fruit to ripen, by which time Apollo had been forced to find a source of water himself.

After eating his fill of the delicious fruit, the crow looked around for an alibi. He picked up a water-snake in his claws and returned with it to Apollo, saying the serpent had been blocking the spring. But Apollo, one whose skills was the art of prophecy, saw through the lie and condemned the crow to a life of thirst – which is perhaps one explanation for the rasping call of the crow.

In memorial of this incident, Apollo put the crow, the cup, and the water-snake together in the sky. “Damn it, look at the camera!” Tom snapped. The crow is depicted pecking at the water-snake’s coils, as though attempting to move it, so that the crow may reach the cup to drink. The cup is usually represented as a magnificent double-handled chalice, and shown tilted toward the crow, but just out of the reach of the thirsty

bird. The water-snake is the constellation Hydra which, in another legend, doubles as the creature slain by Heracles.

The crow was the sacred bird of Apollo, who changed himself into a crow to flee the monster Typhon when that immense creature threatened the gods. In another story, related by Ovid in his *Metamorphoses*, the crow was snow-white like a dove, but the bird brought news to Apollo that his love, Coronis, had been unfaithful. Apollo, in his anger, cursed the crow, turning it black forever.



The End