

# Night Visions

## Ida

## September 2021

Newsletter of the **Baton Rouge Astronomical Society**

NOAA satellite image of Hurricane Ida in the Gulf of Mexico, approaching the coast of Louisiana on Aug. 29, 2021

**Monthly Meeting September 14<sup>th</sup> at 7:00 PM, in person, masked!**

*(Monthly meetings this September, October and November are on 2<sup>nd</sup> Tuesdays at Highland Road Park Observatory)*

*You can also join this meeting via [meet.jit.si/BRASMeet](https://meet.jit.si/BRASMeet)*

**PRESENTATION:** Steven Tilley will recap the Alcon 2021 Virtual Conference held on August 19 - 21. The keynote speaker was Jocelyn Bell Burnell, the discoverer of pulsars. At this meeting, it was announced that BRAS has been selected to host ALCon 2023. Steven will set out his vision for our 2023 conference.

## What's In This Issue?



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**BRAS YouTube Channel**



*Monday, September 6th*

## President's Message

And that brings us to the last month of the Summer of 2021, already, I can see the evenings starting a little bit earlier and, at least in my imagination, the evenings are a bit cooler than they were just a few weeks ago. Even with a storm taking aim at us, the feel of the impending Autumn is, at the very least, stirring the imagination. With the fall, of course, brings the return of the students, and most importantly for us, it brings the LSU classes back to HRPO for the fall term. This year, this is causing us a bit of inconvenience as they have decided that they need the buildings for their classes on Mondays and Wednesdays, which means we're going to have to make room for them. In an effort to make this easier, **we've decided to move our regular meetings for September, October, and November to the second Tuesday of each month** at the regular 7pm time slot. I

recognize this is a bit of a pain, but it seemed the best way to accommodate LSU while maintaining our meetings at HRPO. The business meeting will simply go digital for the time, utilizing our Jitsi setup, as usual. The meetings for December should be back to usual, but there's no word yet on how we plan to handle the Spring term yet.

In the meantime, there's still much to be done outside of the meetings, with more and more activities being planned for us to take advantage of. Hopefully, by mid September we'll have nailed down some dates to hold training sessions to help our outreach teams learn (or at least practice) some of the Night Sky Network kits that have been gathering dust in Ben's garage for who knows how long at this point (well, Ashley knows how long, I suppose). In addition to that, we've decided to put out feelers to see how many people would be interested in a training session to learn some basic observing skills and maybe practice how to use their (or our) scopes over at HRPO. **If you're interested in a learning session, email me** at **president@brastro.org** and, depending on how much interest there is, we'll set something up. Everybody should also keep an eye on their emails for word of when our next club observing night at HRPO will be—I suspect mid October, but it'll be before winter sets in. We've also got a few outreaches on the books for September and October, so look below to see what's going on next. If you've never been to the mid-city maker's market, that one's a blast. Sadly, it looks like our sidewalk astronomy at Perkins Rowe is still waiting for the right time, so we'll try to find a substitute until they're ready for crowds again. But for those of you who have been vetted by BREC, there are plenty of other activities being put on through HRPO in the next few months too that could always benefit from having a few extra people on hand—and if you haven't submitted the paperwork, why not? Volunteering for BREC is a great way to get to help us out over at HRPO.

Lastly, a lot of people who were watching the annual business meeting of the Astronomical League last week may have noticed that **Baton Rouge has been selected as the location of the 2023 Astronomical League convention**. A very big congratulations to Steven Tilley and his team are in order for successfully pitching the idea to national and we can't wait to see what they and their planning committee cook up for us. This is a massive undertaking and it's going to take a lot of help from a lot of different people to pull this off—so much so, in fact, that we've already started the planning. For now, **monthly planning meetings will be taking place on the Saturday after the monthly meeting** to help us get us to our goal of creating a passable experience for our peers around the country, so if you are willing to help, please get in touch with Steven Tilley.

And that's all for now: take a look through the newsletter to see what's going on in the near future. In particular, **check out the Globe at Night webpage** to see what constellation you should be viewing for the month. Further down the line, **come December, BRAS will be celebrating it's 40<sup>th</sup> year as an entity**. We'll be having two parties, one just for us, and another for the public. I'm already dreaming of the cake. There will be cake.

## **MONTHLY MEETING MINUTES –AUGUST 9th** **in person at HRPO, live-streamed on YouTube, and remotely via Jitsi**

- The speaker was Mr. Bruce Moore, an Opto-Mechanical Engineer, who talked to us about how the mirror, used in the telescope used for the SDSS project, was fabricated.
- Discussed ALCon 2023 – we will most probably receive a yes for hosting the 2023 ALCon. currently awaiting word from LIGO for a date for tours by the ALCon group.
- BRAS 40<sup>th</sup> Anniversary Party is to be held in December (not the Member meeting where we hold elections) in conjunction with the HRPO Preview Party on Friday 17<sup>th</sup> December.
- HRPO – Meteor shower on Wednesday, HRPO will be open; Opposition of Jupiter on Friday August 20<sup>th</sup>; official opening of the 20” telescope is on the 27<sup>th</sup> of August; Mercury elongation is on September 13<sup>th</sup> at Burbank Park; Neptune Opposition is on September 14<sup>th</sup>, Spooky Spectrum is on October 16<sup>th</sup>. In November is the elongation of Venus; the opposition of Uranus; Natural Sky Conference; and a partial eclipse of the Moon on the 18<sup>th</sup>. In December the BRAS 40<sup>th</sup> Anniversary Party will be held in conjunction with the HRPO Preview Party on the 18<sup>th</sup>.
- Outreach – Mid-City Maker’s Market is on Saturday, August 21<sup>st</sup>, 6-9PM, and every month, but it has a special outing in November  
In person outreach. Sidewalk Astronomy at Perkin’s Rowe – awaiting word from them.
- MOON Night on July 30<sup>th</sup> was a success.
- The outreach at Feliciana Retreat for the National Guard camp was a success.
- Need to sell excess equipment in the BRAS closet. One prospective customer for the parallelogram stand.

Minutes submitted by John Nagle



*Monday, September 6th*

### **2021 Officers:**

**President:** Scott Cadwallader  
president@brastro.org

**VP:**  
vicepresident@brastro.org

**Secretary:** Thomas Halligan  
secretary@brastro.org

**Treasurer:** Trey Anding  
treasurer@brastro.org

**BRAS Liaison for BREC:**  
Chris Kersey

**BRAS Liaison for LSU:**  
Greg Guzik

### **Committees/Coordinators:**

AL Awards  
Merrill Hess  
Lightpollution@brastro.org  
John Nagle  
Newsletter@brastro.org  
Michele Fry  
Observing@brastro.org  
John Nagle  
Outreach@brastro.org  
Ben Toman  
Webmaster@brastro.org  
Frederick Barnett

## Business Meeting Minutes –August 25<sup>th</sup>, 2021 remotely via Jitsi thru November (meeting is the last Wednesday of the month)

The following items were discussed:

- Speaker lineup: Steven in September, Amy in October, Melanie in November, the potluck is in December, and January is still open.
- **December is Elections.**
- **Meeting Changes: Business Meetings** will be online only through the end of the year; **General Meetings** will change to the **2<sup>nd</sup> Tuesday of the month** – Sept. 14<sup>th</sup>, Oct. 12<sup>th</sup>, Nov.9<sup>th</sup> – with the **LPC Meeting 1 hour before the General Meeting**. Changes required because LSU will be using HRPO on Monday, Wednesday, and Friday nights for classes due to a high enrollment this year.
- Need to set up training sessions on the NSN outreach kits. Also, a new program to teach/train new/old members on how to use all types of telescopes.
- Equipment sales are stagnant. Need to price the larger telescopes and list them online with pictures and price on astronomy forums.
- **BRAS 40<sup>th</sup> Anniversary Party** – it will be in December in conjunction with the HRPO Preview Party. If you have any ideas for the party, send them to John Nagle.
- **ALCon 2023** planning committee needs more members and needs to have monthly meetings.
- The drop-out hydraulic cylinders are to be replaced.
- Outreach – Perkins Rowe says no, for now, to starting up Sidewalk Astronomy. The Maker’s Market will continue in person, and in October is the Boy Scouts at Lamar-Dixon.
- @brastro.org e-mail addresses. John Nagle will talk to the server owner about this.

Submitted by John Nagle for Thomas Halligan,  
Secretary





## BRAS Outreach Report

Hi Everyone,

Well, we had a really nice event this past month at the Makers Market. Chris R. and I had scopes set up to look at the Sun and Venus earlier, then Saturn, Jupiter and the Moon later. It was a beautiful clear night and we had lines of people the whole time. They really like us out there!

We were hoping to get back out to Perkins Rowe for Sidewalk Astronomy, but they have had to cancel many public events due to the continued surge of COVID cases. We WILL get back out there when it is safe and we're allowed.

***Hurricane Ida is heading straight for Baton Rouge as of this writing.  
TAKE CARE. BE SAFE. KEEP IN TOUCH.***

As I write this, we're all starting to hunker down for Hurricane Ida, heading straight for BR. I hope everyone stays safe and dry. As a bit of wild optimism...if we DO lose power, maybe we'll at least get some clear sky so we can take a look at the non light polluted sky! (Hey, you have to have SOMETHING to look forward to!!)

We have no scheduled outreach events for September, but keep an eye on your email. We'll alert y'all if something comes our way.

Clear Skies,

Ben Toman



**Imagine if this was your back yard! If we lose power in Baton Rouge due to Hurricane Ida, we might get a light-pollution free view of the Milky Way! And I did!**



## **BRAS 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..

- Update for signers of the Light Pollution Petition will be basic LP.
- The 7-year LP plan is back in operation
- Need to set up an appointment to see Mr. Hughes at BREC to discuss starting the process to get HRPO designated an “Urban Night Sky Place” by IDA.
- Need to send information to Merrill so he can draft the BRAS stand on LP for inclusion into the LSU-HRPO-BRAS CEA.
- Contacting homeschooling groups to ask for participation in the Globe-at-Night program.
- Need to set up an appointment with the BREC Go Green Committee/Representative to discuss the BREC Environmental Sustainability Policy.
- Need to contact the LSU Landscape Architecture School, the local chapter of the AIA, and various civic association groups about LP.
- Need to contact architects involved in the apartments being built at Bluebonnett and Highland Road.
- Attending the university Lakes Project meetings.
  - **New items**
- Natural Sky Conference is in November
- Need to create a procedure and letter for when new building development begins.
  - John Nagle, LPC Chair

*John R. Nagle*

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## **Globe At Night**

The target for the Globe at Night program is Sagittarius from August 29<sup>th</sup> through September 7<sup>th</sup>, and from September 27<sup>th</sup> through October 6<sup>th</sup>.

If you would like to participate in this citizen science program, you can find instructions at

**<https://www.globeatnight.org>**

P.S. The “Loss of the Night” app can be used for information and for reporting your observations.

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# Upcoming BRAS Meetings:

## Monthly Member Meeting –

7 pm Tuesday, September 14<sup>th</sup> at the Observatory, and via YouTube & Jitsi.  
moved to 2<sup>nd</sup> Tuesdays for September, October and November only

## Light Pollution Committee:

6 pm Wednesday, September 29<sup>th</sup>, via Jitsi. (Open to the public), followed by.

## Monthly Business Meeting (follows the LPC mtg):

7 pm Wednesday, September 29<sup>th</sup>, via Jitsi (Members Only)

## MOON (Members Only Observing Night)

## ALCon 2023 (Astronomical Gumbo) Committee Meeting

1 p.m. Saturday, September 18, 2021, 1:00 PM, Coffee Call, 3132 College Dr  
F, Baton Rouge, LA 70808

## 2023 Astronomical League Convention in Baton Rouge!

**NOTICE:** At ALCON Virtual 2021, held on August 19-21, it was announced that the Baton Rouge Astronomical Society has been selected to host the 2023 Astronomical League Convention (ALCon 2023). This conference includes lectures, panel discussions, workshops, an exhibition, & astronomy field trips. It will take place on a Wednesday through Saturday in late June or July 2023. This event could bring from 250 to 500 people to Baton Rouge. This is an opportunity to bring speakers to Baton Rouge. If you would like to help in the planning, please email me.

Steven Tilley, ALCon Coordinator: [steveareno225@gmail.com](mailto:steveareno225@gmail.com).

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# Flying “Rocks” and “Dirty Snowballs”:

## Asteroid and Comet News

**September 2021**  
**Volume 3, Issue 7.**

**JPL Close Approach Data** from July 08, 2021, to Aug-14-2021, Distance Nominal < 1 Lunar Distance

Object	Close-Approach (CA) Date	CA Distance Nominal (LD )	H (mag)	Diameter
(2021 NU3)	2021-Jul-08	0.47	28.6	5.0 m - 11 m
(2021 OV)	2021-Jul-20	0.51	27.7	7.7 m - 17 m
(2021 OD1)	2021-Jul-31	0.66	28.3	5.7 m - 13 m
(2021 PC)	2021-Aug-02	0.43	26.8	12 m - 26 m
(2021 PY4)	2021-Aug-05	0.73	26.6	13 m - 29 m
(2021 PK4)	2021-Aug-06	0.62	28.1	6.2 m - 14 m
(2021 PA17)	2021-Aug-14	0.17	27.9	7.0 m - 16 m

As of 2021-07-01 there is:

1,241 objects listed on JPL’s Sentry: Earth Impact Monitoring(JPL) (<https://cneos.jpl.nasa.gov/sentry/>)  
 2,821 objects have been removed from Sentry(JPL) (<https://cneos.jpl.nasa.gov/sentry/removed.html> )

For more information read Jon Giorgini’s "Understanding Risk Pages"

(<http://www.hohmanntransfer.com/by/giorgjon.htm> ) (i.e. “A risk-page listing is not a *prediction* of impact”)

165 objects were removed from NASA JPL’s Sentry: Earth Impact Monitoring list from 2021-07-20 to 2021-08-18 see <https://cneos.jpl.nasa.gov/sentry/removed.html>

Useful Links:

Guide to Minor Body Astrometry (<https://www.minorplanetcenter.net/iau/info/Astrometry.html>)

How Are Minor Planets Named? (<https://www.minorplanetcenter.net/iau/info/HowNamed.html>)

New- And Old-Style Minor Planet Designations  
 (<https://www.minorplanetcenter.net/iau/info/OldDesDoc.html>)

The Tracking News  
 (<http://www.hohmanntransfer.com/news.htm>)

Accessible NEAs  
 (<https://cneos.jpl.nasa.gov/nhats/intro.html>)

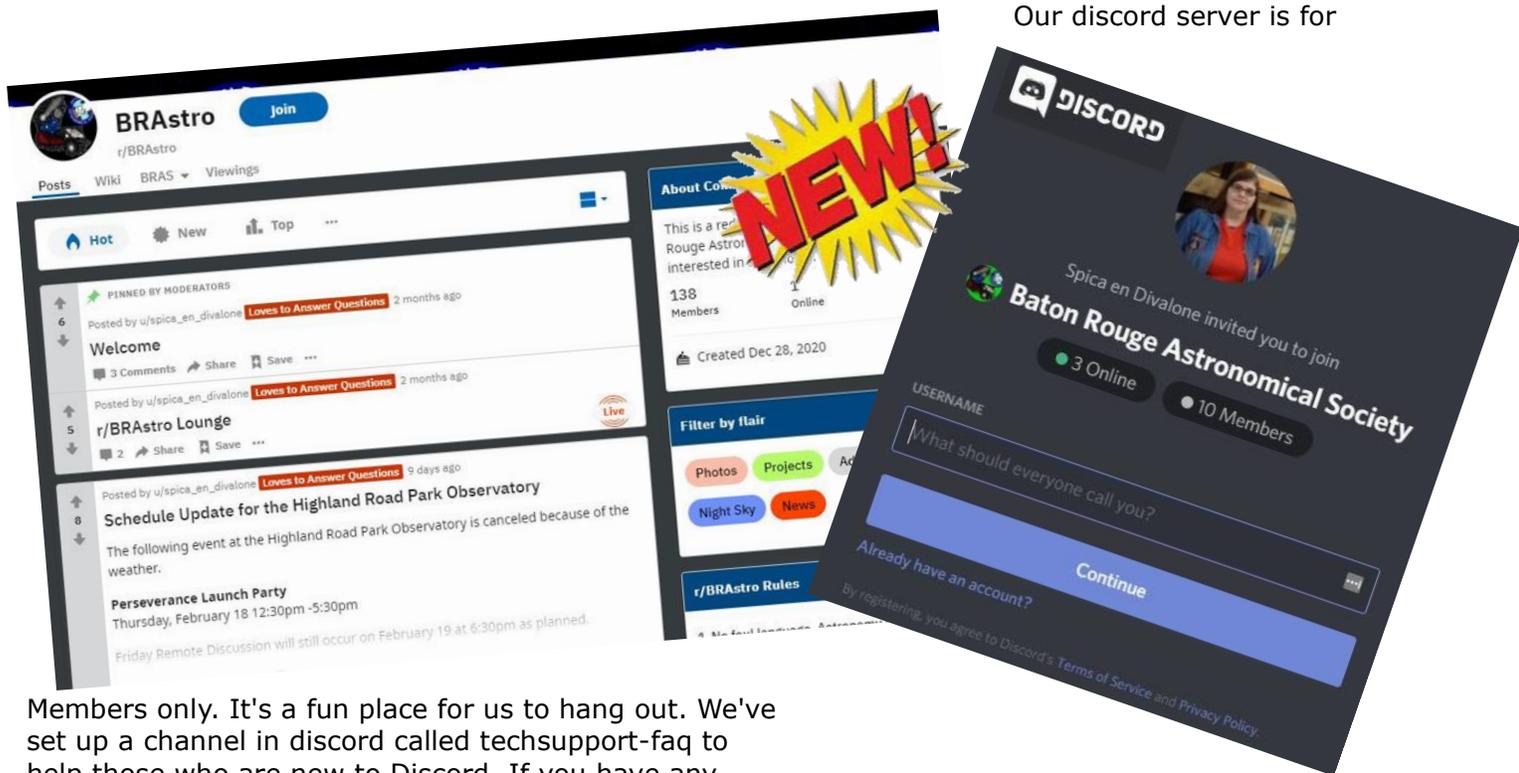
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## **BRAS subreddit and a Discord server.**

**From Amy Northrup:** Our subreddit has been set up for us to reach out to the public. I'd love for you to join us on there.

**<https://www.reddit.com/r/BRAstro/>**

If BRAS members want to identify themselves as club members, PM me to add a Flair next to your username.



Our discord server is for

Members only. It's a fun place for us to hang out. We've set up a channel in discord called techsupport-faq to help those who are new to Discord. If you have any problems you can message me or Justin. **<https://discord.gg/6N8r8DDj>** It also has voice channels so that you can speak to people through Discord. Discord requires the download of a free app.

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.

***To join the discord, please email [safey2007@gmail.com](mailto:safey2007@gmail.com) with the subject **BRAS Discord**.***

*Sincerely,  
Amy & Justin Northrop*



# Messages from HRPO

*Highland Road Park Observatory*



## FRIDAY NIGHT LECTURE SERIES

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

**3 September: “World of Skygazing I: The Objects”** What does it take to get started in the hobby? What can you expect to see and experience? This precursor to HRPO’s Adult Courses gives a stunning overview to a wealth of objects unlocked for a town with a professional-grade observatory.

**10 September: “World of Skygazing II: The Events”** The second half of the hobby’s introduction covers the major celestial events of the next ten years!

**24 September: “Astrophotography for Youth”** Judah Santiago is a veteran of several youth programs at HRPO. He was inspired to image the sky any way he knew how, and now he’s imparting that information to the audience in this special lecture aimed at adolescents.



## SCIENCE ACADEMY

*Saturdays from 10am to 12pm*

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

**4 September = “Lucy”** Next month, humanity’s first robot surveyor to the Trojan asteroids leaves Earth. Cadets will understand why the Trojans reveal the early Solar System, and how Lucy will gather data!

**11 September = “Orbiter in Action (STS-1)”** It all began with a prototype design. The ‘Enterprise’ would be the proving flight of an amazing reusable shuttle. Cadets will learn something about food storage, clothing and staying healthy on board a Space Shuttle.

**18 September = “Venus”** Will we ever visit the first planet to which we sent a robotic spacecraft? Is it possible for microbes to exist in its clouds? Cadets, get ready!



## SOLAR VIEWING

*Saturday 11 September from 12pm to 2pm.*

*For all ages. No admission fee. 200GS Tour at 1pm.*

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

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

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

**12pm to 12:30pm** - *indirect projection onto white viewing surface* // Patrons get a sense of the speed of Earth's rotation as they see the Sun's image slide on or off the projection device. [Learning Technologies Sunspotter]

**12:15pm to 1:15pm** - *safely-filtered optical light sent through standard telescope* // This option allows patrons to spy sunspots both small and large. [Orion 10" Skyquest Dobsonian Reflector]

**12:30pm to 2:00pm** - *hydrogen-alpha light* // Flares and prominences are seen easily in this wavelength. [Coronado Solar Max II 90mm]



## **PLUS NIGHT**

Saturday 18 September from 12pm to 2pm.

For all ages. No admission fee.

During Plus nights sky viewing starts a half-hour earlier and extra features are available to the public...

\*The well-known marshmallow roast commences at the campfire ring behind the building, lasting at least one hour and ending no later than 9:30pm. (The campfire, like the sky viewing, is weather-dependent.)

\*Four to eight of HRPO's collection of over fifty physical science demonstrations will be on hand to perplex and amaze. Which demos will it be?

\*An unaided eye sky tour takes place, showing the public major features of the sky for that month. The tour takes place at 8pm during Standard Time, and at 9pm during Daylight Time.

\*Filters are inserted into the viewing mechanisms, to show patrons "hidden" details of the Moon, Mars and Jupiter (when they are available).

\*Reveal your age, and be shown any "birth stars" in the sky at that time.



## **STEM EXPANSION**

Saturday 25 September from 3:30pm to 7:30pm.

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

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



# OBSERVING NOTES SEPTEMBER

## Scutum – The Shield

**Position: RA 18.7, Dec-10°**

*Note: For six years I have been writing these Observing Notes, featuring the 60 constellations we can see before midnight from Baton Rouge, that contain objects above magnitude 10. Beginning with the February 2019 newsletter, I began to update the constellations with new and expanded material, but the Sky Happenings calendar and associated information are new each month.*

### *Named Stars*

There are no named stars in this constellation.

### *Deep Sky:*

**M11** (NGC 6705), “The Wild Duck Cluster”, mag. 5.8, 18 51 05 -06 16 12, 14’x14’ in size, is an open cluster that has about 2000 stars; detached, strong concentration of stars; moderate range in brightness; very bright and large. The cluster’s shape resembles a flight of wild ducks. The brightest star is at magnitude 8.0, near the center of the cluster – it may be in the foreground. The cluster is estimated to be about 200 million years old. Located 2° west and slightly south of **Eta Scuti**. Also known as the “Scutum Salt and Pepper Cluster”, **OCL 76, OCL 76.0, Mel 213, Ben 116, Cr 391, Lund 865, and C1848-063.**

**M26** (NGC 6694), mag. 8.0, 18 45 18 -09 22 59, 15’x15’ in size, is an open cluster of about 120 stars; detached, strong concentration of stars; small range in brightness; large; brightest star in the cluster (**HD 173384**) is magnitude 10.3. Located 1° east-southeast of **Delta Scuti**, or 3° south of **M11** then 1.5° west. **NGC 6712** is 2° east and 1° north. Also known as **Cr 389, Lund 858, Mel 212, OCL 67, OCL 67.0, Raab 136, and C1842-094.**

**IC 1287**, mag. 5.7, 18 32 39 -10 46 42, 20’x10’ in size, is a reflection nebulae that is centered on the star **Σ 2325**. **NGC 6649** is 35’ to the northeast. Also known as **LBN 76, and Ced 163.**

**NGC 6664**, mag. 7.8, 18 36 30.8 -08 12 15, 15’x12’ in size, is an open cluster of about 60 stars; detached, no concentration of stars; moderate range in brightness; brightest star is magnitude 10.5. Contains the star **EV Scuti** (magnitude 9.9, a cepheid variable star). Located 20’ northeast of **Alpha Scuti**. Also known as **H8-12, OCL 68, OCL 68.0, Cr 385, Lund 850, Mel 209, and C1834-082.**

**NGC 6712**, mag. 8.2, 18 53 04.3 -08 42 22, 9.8’x9.8’ in size, is a globular cluster; low concentration of stars; pretty bright, very large, very well resolved, but irregularly shaped. Sometimes called the “Weird Cloud” (low-mass X-ray binary star **4U1850-087** is in it). Located 2° west and 1° south of **M26**. Also known as **H1-47, GCL 103, Mel 215, Ben 117, OCL 72, OCL 72.0, Best 87, and C1850-087.**

**Cr 387 (Tr 34)**, mag. 8.6, 18 39 48.0 -08 29 00, 7’ in size, is an open cluster of about 87 stars. Also known as **Lund 852, OCL 69, and C1837-085.**

**Apriamasivili 1** (called **Basel 1** incorrectly), mag. 8.9, 18 48 08.7 -05 51 30, 5.5’x5.5’ in size, is an open cluster of about 94 stars, brightest is magnitude 12.58. Located near the center of a trapezoid of 6<sup>th</sup> and 7<sup>th</sup> magnitude stars. Also known as **OCL 77, OCL 77.0, Lund 861, and C1845-059.**

**NGC 6649**, mag. 8.9, 18 33 28.18 -10 24 08, 9’x9’ in size, is an open cluster of about 477 stars, the brightest star (**ADS 11441**) is magnitude 11.56. The star **Σ 3235** is 0.6° to the southwest. Also known as

**OCL 66, Cr 384, Lund 847, Mel 206, Raab 133, and C1846-052.**

**NGC 6625**, mag. 9.0, 18 23 12.48 -12 00 47, 39' in size, is an open cluster of about 30 stars. The center star is **HD 169033** (magnitude 5.7). Also known as **OCL 58, Lund 829, and C1820-120.**

**Cr 388 (Tr 35)** mag. 9.2, 18 42 54.0 -04 08 00, 9' in size, is an open cluster of about 65 stars; mildly concentrated. Located 1.2° west-northwest of **Beta Scuti**. Also known as **Lund 857, OCL 83, and C1840-041.**

**NGC 6704**, mag. 9.2, 18 50 45.8 -05 12 18, 6'x6' in size, is an open cluster of about 71 stars, brightest star is magnitude 12.2. Located 1.1° north of **M11**. Also known as **Cr 390, OCL 82, OCL 82.0, Lund 864, and C1846-052.**

**NGC 6683**, mag. 9.4, 18 50 45.8 -05 12 18, 6'x6' in size, is an open cluster of about 20 stars, brightest star is magnitude 11.71. Located in the **Scutum Cloud**, and 10° to the west is the **Great Rift**. Also known as **OCL 74, OCL 74.0, Lund 856, and C1839-063.**

**Objects beyond magnitude 10 that are of interest:**

**RSGC 1**, 18 37 58 -06 53 00, 2.67'x2.67' in size, is an open cluster that cannot be seen in visible light. It was discovered in 2006 using data from several Infra-red surveys. It is a young (10 to 14 million years old), massive star cluster with 12 red supergiant stars, one yellow hyper-giant star, and one intermediate star. The cluster is one of the most massive clusters in our galaxy.

**RSGC 2 (Stevenson 2)**, 18 36 39.6 -06 04 26, 4.5' in size, is an open cluster of about 40 stars, only visible in Infra-red, with it's brightest star at magnitude 19.7. It is a heavily reddened cluster, containing 26 red supergiant stars.

**RSGC 3**, 18 45 20 -03 24 43, 3.88' in size, is a massive open cluster only observable in Infra-red. It contains 8 to 14 red supergiant stars.

**RSGC 4 (Alcante 8)**, 18 34 00 -07 14 00, is a massive open cluster. It is not observable in visible light. It contains 8 to 13 red supergiant stars.

**Mercer 3**, 18 18 30 -16 58 36, 39" in size, is a heavily obscured globular cluster embedded in the disk of the **Milky Way**. It is an old globular cluster with an age of about 12 billion years. Its mass is estimated to be 2 to 3 hundred **Sol** masses.

**Sh2-55**, 18 32 12 -11 46 00, 19' in size, a bright nebulae with an irregular shape; a very faint and diffuse nebulosity set in a rich star field. The western edge has two bright stars separated by about 0.5'. Also known as **LBN 74.**

**Scutum Star Cloud** – 18 47 00 -07 00 00, 300'x300' in size, is one of the brighter sections of the **Milky Way Galaxy** and is one of several parts of the **Milky Way** where no dust blocks our view. The **Wild Duck Cluster (M11)** is located on the northern edge of the **Scutum Star Cloud**. *E. Barnard* called this the "**Gem of the Milky Way**".

**Objects in Scutum are as follows: 12 NGC; 3 IC; 9 Cr; 27 CGCG; 47 PNG; 19 Min; 42 PK; 29 Sa; 34 OCL; 4 K; 21 Lund; 5 Sh2; 6 Ru; 5 Mel; 9 Perek; 2 Ben; 13 ARO; 7 Do; 5 IRAS; 41 Barnard; 14 LDN; 2 LBN; 3 Abell; 2 Herschel; 2 He2; 2 Raab; 1 Ced; 2 Radio galaxies; 1 GCL; 1 Teutsch; 1 Ap; 1 AL; 1 Alconte; 1 Bas; 1 Bica; 1 Dias; 1 FSR; 1 GN; 1 ISS; 2 Karchenko; 1 KRO; 1 Leiter; 1 Lor; 1 MA; 3 MaC; 2 Mercer; 1 Patchick; 4 RSGC; 1 Simesis; 1 Stevenson; 2 Teu; 3 Th1; 2 Tr; 1 VV; 1 Vy; 2 We; and 1 Star Cloud for a total of 409 objects.**

**Other Stars:**

**Delta Sct**, A mag. 4.7, B mag. 12.2, C mag. 10.0, 18 42 16.42 -09 03 09.2, is a spectroscopic binary star and a triple star (the proto-type **Delta Scuti** variable star – sometimes known as dwarf cepheid stars). The primary is a yellow-white giant star with two line-of-sight companions. Separation of AB = 15.2" with an orbital period of 43 years, and AC = 53" with an orbital period of 12 years. Also known as **HD 172748, HIP 91726, SAO 142515, ADS 11581, Gould 19, Rst 4594, and C = HV 36.**

**Zeta Sct**, mag. 4.66, 18 23 39.55 -08 56 04.2, is a yellow giant astrometric binary star – a star orbiting around an empty space without a visible or detectable companion. The star has an orbital period of 6.5 years. Also known as **HD 169156**, **HIP 90135**, **SAO 142267**, and **Gould 3**.

**HD 173219**, mag. 7.88, 18 44 33.34 -07 06 38.2, a Be star. Also known as **HIP 91946**, and **V447 Scuti**.

**Stars of interest beyond magnitude 10:**

**AS 314**, mag. 10.01, 18 39 26.11 -13 50 47.2, is a candidate luminous blue variable star. Also known as **HIP 91477**, and **V452 Scuti**.

**UY Sct**, mag. 10.56, 18 27 36.53 -12 27 58.9, is one of the largest known stars.

**LS 5039**, mag. 11.23, 18 26 15.06 -14 50 54.3, is a high-mass X-ray binary star, a micro-quasar, and a gamma-ray emitting star. Also known as **V479 Scuti**.

**COROT-17**, mag. 15.46, 18 34 47 -06 36 44, has one transiting planet.

**4U 1850-087**, mag. 21.00, 18 53 04.89 -08 42 19.7, is a low-mass X-ray binary star.

**1E 1841-045**, 18 41 19.34 -04 56 11.16, is a magnetar in a supernova remnant.

**Pulsars in Scutum:**

**B1829-10**, 18 32 40.9 -10 21 34

**B1822-09**, 18 25 30.55 -09 35 22.1

**B1823-13**, 18 26 13.18 -13 34 46.8

**B1828-10**, 18 30 47.57 -10 59 27.9, has a planetary companion

**J1833-1034**, 18 33 33.57 -10 34 07.5

**Asterisms found in Scutum:**

**The Shield** – faint, resembles a simple shield complete with handle; composed of the stars **Alpha**, **Beta**, **Gamma**, and **Delta Scuti**. Some see a dipper as well standing on its handle – for this asterism include **Delta** and **Eta Scuti** (there is a curving line of stars between these two stars).

**The Button Hook**, the “**J String**”, 18 43 00 -06 50 00, 75’x75’ in size, is a curving chain of pretty bright stars that loop around the **Scutum Star Cloud**.

**The Fishhook**, 18 43 00 -07 04 40, 120’x60’ in size, is located 1° west of **M11**.

**The Swoosh**, 19 00 -05 00, 4° in size, is a curved chain of naked eye stars that point at **M11** in **Scutum**. Includes the stars **Gamma** and **Eta Scuti**, and **12 Aurigae**.

**Essertoo String**, 18 45 -10 36, 6’ in size, is an “S” shape string of stars of 10<sup>th</sup> to 17<sup>th</sup> magnitudes, with the brightest star at magnitude 9.5 on the northeast end. Also known as **Lorenzin 5**.

**Stars found in Scutum are as follows: 8  $\Sigma$ ; 23 V; 4  $\beta$ ; 30 Lettered; 7 Greek; 2 ALS; 1 RAFGL; 13 ADS; 8 HD; 8 BD; 2 GSC; 1 A; 1 h; 1 Ho; 2 J; 2 Rst; 1 HV; 1 HVI; 1 CRL; 1 LS; and 1 4U, for a total of 118.**

## ***Sky Happenings: September 2021***

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

**Sept 1<sup>st</sup>** - The **Moon** is 1.3° north of **M35** at 5 AM CDT.

**Sept 4<sup>th</sup>** - Dawn: The thinnest sliver of a **Moon** is about 4° from **M44 (The Beehive Cluster)** in **Cancer**.

**Sept. 5<sup>th</sup>** - **Venus** passes 1.7° north of **Spica** at 1 AM CDT.

**Sept 6<sup>th</sup>** - **New Moon** occurs at 7:52 PM CDT (Lunation 1221).

**Sept 8<sup>th</sup>** - The **Moon** passes 7° north of **Mercury** at 4 PM CDT.

**Sept 9<sup>th</sup>** - The **Moon** passes 4° north of **Venus** at 9 PM CDT.

**Sept 10<sup>th</sup>** - Asteroid **Pallas** is at opposition at 9 PM CDT.

**Sept 11<sup>th</sup>** - The **Moon** is at perigee (228,951 miles or 368,461 km from **Earth**) at 5:03 AM CDT.

**Sept 13<sup>th</sup>** - **First Quarter Moon** occurs at 3:39 PM CDT,

- Mercury** is at greatest eastern elongation ( $27^\circ$ ) at 11 PM CDT.
- Sept 14<sup>th</sup>** - **Neptune** is at opposition at 4 AM CDT.
- Sept 15<sup>th</sup>** - Evening: In the south-southeast the **Moon**, **Saturn**, and **Jupiter** form a graceful line.
- Sept 16<sup>th</sup>** - The **Moon** passes  $4^\circ$  south of **Saturn** at 10 PM CDT.
- Sept 17<sup>th</sup>** - Evening: The gibbous **Moon** is  $5.5^\circ$  to the lower right of **Jupiter**.
- Sept 18<sup>th</sup>** - The **Moon** passes  $4^\circ$  south of **Jupiter** at 2 AM CDT.
- Sept 20<sup>th</sup>** - The **Moon** passes  $4^\circ$  south of **Neptune** at 4 AM CDT,  
**Full Moon** occurs at 6:55 PM CDT.
- Sept 22<sup>nd</sup>** - The autumnal equinox occurs at 2:21 PM CDT.
- 
- Sept 23<sup>rd</sup>** - **Mercury** passes  $1.7^\circ$  south of **Spica** at 7 AM CDT.
- Sept 24<sup>th</sup>** - The **Moon** passes  $1.3^\circ$  south of **Uranus** at 11 AM CDT.
- Sept 26<sup>th</sup>** - The **Moon** is at apogee (251,432 miles or 404,640 km from **Earth**) at 4:44 PM CDT,  
**Mercury** is stationary at 11 PM CDT.
- Sept 28<sup>th</sup>** - The **Moon** is  $1.6^\circ$  north of **M35** at 1 PM CDT,  
**Last Quarter Moon** occurs at 8:57 PM CDT.
- Sept 30<sup>th</sup>** - **Mercury** passes  $1.7^\circ$  south of **Spica** at 10 AM CDT,  
Minor planet **Makemake** is in conjunction with the **Sun**.

## ***Planets:***

**Mercury** – **Mercury** is not particularly well placed for **Northern Hemisphere** observers due to the shallow angle the ecliptic makes to the western horizon at dusk at this time of year. Look for the planet 30 minutes after local sunset. On the 1<sup>st</sup>, it stands  $3.5^\circ$  high in the western sky. By the 7<sup>th</sup>, the planet stands slightly south of due west, with a one-day old **Moon** closer to due west – but the **Moon** will set within 50 minutes of the **Sun**. On the 8<sup>th</sup>, a fatter **Moon** will stand  $5^\circ$  nearly due north of the planet 30 minutes after sunset. On the 9<sup>th</sup>, the planet is only  $3.5^\circ$  high. On the 13<sup>th</sup>, the planet reaches greatest eastern elongation from the **Sun** ( $27^\circ$ ), and will shine at magnitude 0.2, but will fade to magnitude 0.7 by the end of the month. On the 21<sup>st</sup>, the planet and **Spica** are  $1.5^\circ$  apart. The planet dips lower each day for the rest of the month, making it harder to find.

**Venus** – **Venus** shines at magnitude -4.1, standing  $11^\circ$  high in the southwest 30 minutes after sunset. On the 5<sup>th</sup>, the planet passes  $1.7^\circ$  north of **Spica**. On the 9<sup>th</sup>, the **Moon** and the planet are close (within  $4^\circ$ ). The planet coasts across the backdrop of southern **Virgo**, and by the end of the month it will set nearly two hours after the **Sun**, although it hugs the horizon all month. The planet's apparent diameter increases from  $15''$  to  $19''$ , with a change in illumination from 73% to 63% during the month.

**Mars** – **Mars** is too close to the **Sun** to observe it. The planet will be in conjunction with the **Sun** in October and will return to the morning sky in December.

**Jupiter** – **Jupiter**, in retrograde, goes deeper into western **Capricornus**, passing  $1.5^\circ$  north of **Deneb Algedi** (**Delta Capricorni**) on September 12<sup>th</sup>, with the planet due south at  $35^\circ$  altitude at local midnight. On the 18<sup>th</sup>, the waxing gibbous **Moon** passes  $4^\circ$  to the south of the planet at 2 AM CDT.

**Saturn** – **Saturn** has an  $18''$  wide planetary disk, with the rings tilted  $19^\circ$  from our line of sight. **Titan**, at magnitude 8.5, will be north of the planet on the 3<sup>rd</sup> and 19<sup>th</sup>, and south of the planet on the 11<sup>th</sup> and 27<sup>th</sup>. On the 12<sup>th</sup>, a field star is near **Titan** (southwest of the planet), and the field star is southeast of the planet.

**Enceladus**, at magnitude 12, is a few arcseconds from the bright edge of the rings. A trio of 10<sup>th</sup> magnitude moons – **Tethys**, **Dione**, and **Rhea** – orbit a bit further out from the rings. **Iapetus** is in inferior conjunction with the planet on the 30<sup>th</sup> of August. On September 1<sup>st</sup>, it lies  $1.5'$  southwest of the planet, glowing at near 11<sup>th</sup> magnitude. It will peak around magnitude 10 at its western elongation on the 20<sup>th</sup>, when it will be  $9'$  due west of the planet.

**Uranus** – **Uranus** rises around 10 PM local time on September 1<sup>st</sup>, and two hours earlier by the 30<sup>th</sup>. At mid-month, the planet is  $20^\circ$  high in the eastern sky by 11 PM local time. The 5.7 magnitude planet can be

seen with binoculars in the dim part of southern **Aries**. A telescope will show a pale bluish disk spanning 4". To find the planet, find the triangle of stars formed by **Omicron**, **Sigma**, and **Pi Arietis** – a trio of 5<sup>th</sup> magnitude stars that stands 6° due north of **Mu Ceti**. The planet starts the month in the lower middle of the triangle, equidistant from **Omicron** and **Sigma Arietis**. It will then wander toward **Omicron Arietis** as the month progresses. By the 30<sup>th</sup>, the planet will stand within 25' of **Omicron Arietis**. The planet is approaching its November 5<sup>th</sup> opposition.

**Neptune** – **Neptune** reaches opposition (4.0 light hours from **Earth**) on September 14<sup>th</sup> and will remain visible all night. The planet has a span of 2", and at magnitude 7.7 – visible in binoculars. High magnification in a telescope will reveal a bluish-green disk. On the 19<sup>th</sup>, the planet is 6° north of the almost full moon. On the night of the 23<sup>rd</sup>/24<sup>th</sup>, the planet will glide 1.6° south of the magnitude 6.3 star

**HD 221148**. You can track the planet in eastern **Aquarius** with binoculars. The planet is located nearly 5° east of **Phi Aquarii** (4<sup>th</sup> magnitude), and then the gap reduces to less than 4° as the month progresses. The planet will be 1.5' from the westernmost star in a triangle of 6<sup>th</sup> magnitude stars that are about 6.5° south of the **Circlet of Pisces** on the 23<sup>rd</sup>. The planet's largest moon, **Triton**, orbits retrograde around the plane (the only large moon to do so) – suggesting that the moon may be a captured dwarf planet from the **Kuiper** belt.

**Moon** – The **Moon** is 1.3° north of **M35** at 5 AM CDT on the 1<sup>st</sup>. The **Moon** passes 1.3° south of **Uranus** at 11 AM CDT on the 24<sup>th</sup>. On the 28<sup>th</sup>, the **Moon** is 1.6° north of **M35** at 1 PM CDT.

Greatest North declination on the 2<sup>nd</sup> (+25.9°) and the 29<sup>th</sup> (+26.0°)

South declination on the 15<sup>th</sup> (-26°)

Libration in longitude: East limb most exposed on the 20<sup>th</sup> (+5.2°)

West limb most exposed on the 5<sup>th</sup> (-5.3°)

Libration in latitude: North limb most exposed on the 19<sup>th</sup> (+6.6°)

South limb most exposed on the 6<sup>th</sup> (-6.5°)

**Sun** – The autumnal equinox occurs at 2:21 PM CDT on September 22<sup>nd</sup>.

**Asteroids / Minor Planets** Asteroid **1 Ceres** – **Ceres** positions, according to the *RASC Observer's Handbook, 2021 USA Edition*, are as follows: On September 3<sup>rd</sup> – 04 29.59 +15 22, at magnitude 8.7 in **Taurus**; on the 13<sup>th</sup> – 04 36.53 +15 38.4, at magnitude 8.6 in **Taurus**; on the 17<sup>th</sup> – **Ceres** will be 4' south of **Sigma Tauri**; and on the 23<sup>rd</sup> – 04 41.53 +15 51.1, at magnitude 8.4 in **Taurus**.

Asteroid **2 Pallas** – **Pallas**'s positions, according to the *RASC Observer's Handbook, 2021 USA Edition*, are as follows: On September 3<sup>rd</sup> – 23 15.41 +01 31.5, at magnitude 8.7 in **Pisces**; on the 13<sup>th</sup> – 23 07.91 -00 41.6, at magnitude 8.5 in **Pisces**; and on the 23<sup>rd</sup> – 23 00.55 -02 58.3, at magnitude 8.7 in **Pisces**. **Pallas**'s positions, *by my estimates*, are as follows: On the 1<sup>st</sup> – 1.6° due south of **Gamma Piscium**; on the 5<sup>th</sup> – 3.1° west and a little south of **Kappa Piscium**, or 2° south and a little west of **Gamma Piscium**, or 1.6° southeast of **5 Piscium**; on the 10<sup>th</sup> – 2.3° south and a little east of **5 Piscium**, with **Pallas** in opposition at magnitude 8.5; on the 15<sup>th</sup> – 3.2° south and a little west of **5 Piscium**; on the 20<sup>th</sup> – 3.4° south and a little east of **2 Piscium**; on the 25<sup>th</sup> – 4.2° due south of **5 Piscium** (in **Aquarius**); and on the 29<sup>th</sup> – 5.2° south and a little west of **5 Piscium** (in **Aquarius**).

Asteroid **6 Hebe** – **Hebe**'s positions, according to the *RASC Observer's Handbook, 2021 USA Edition*, are as follows: On September 3<sup>rd</sup> – 19 11.29 -18 28.4, at magnitude 9.1 in **Sagittarius**; on the 13<sup>th</sup> – 19 14.03 -19 48.9, at magnitude 9.3 in **Sagittarius**; and on the 23<sup>rd</sup> – 19 20.10 -20 55.1, at magnitude 9.4 in **Sagittarius**.

Asteroid **40 Harmonia** – **Harmonia**'s positions, according to the *RASC Observer's Handbook, 2021 USA Edition*, are as follows; On September 13<sup>th</sup> – 00 59.7 -01 55.6, at magnitude 9.8 in **Cetus**; and on the 23<sup>rd</sup> – 00 51.87 -02 58.3, at magnitude 9.5 in **Cetus**.

Asteroid **43 Ariadne** – **Ariadne**'s position on September 3<sup>rd</sup>, according to the *RASC Observer's Handbook, 2021 USA Edition*, is 21 32.69 -07 41.6, at magnitude 9.9 in **Aquarius**.

Asteroid **89 Julia** – **Julia**'s positions, according to the *RASC Observers Handbook, 2021 USA Edition*, are as follows: On September 3<sup>rd</sup> – 21 51.22 +00 16.6, at magnitude 9.0 in **Aquarius**; on the 13<sup>th</sup> – 21 41.64 +00 46.5, at magnitude 9.2 in **Aquarius**; and on the 23<sup>rd</sup> – 21 34.86 +01 08.3, at magnitude 9.5 in **Aquarius**. **Julia**'s positions, *by my estimates*, are as follows: On September 1<sup>st</sup> - 3.4° west and a touch north of **Alpha**

**Aquarii**; on the 5<sup>th</sup> – 2.8° southeast of **25 Aquarii**, or 2.8° east-northeast of **24 Aquarii**; on the 10<sup>th</sup> – 1.2° northeast of **24 Aquarii**, or 1.9° southeast of **25 Aquarii**; on the 15<sup>th</sup> – 1.4° due south of **25 Aquarii**, or 1° south and a touch east of **24 Aquarii**; on the 20<sup>th</sup> – 1.5° southwest of **25 Aquarii**, or 1.5° southeast of **24 Aquarii**, or 2° north and a touch east of **M2**; on the 25<sup>th</sup> – 2° due north of **M2**, or just over 2° northwest of **24 Aquarii**; and on the 30<sup>th</sup> – 1.4° north and a touch west of **M2**, or 2.2° southwest of **25 Aquarii**.

Asteroid **349 Dembowska** – **Dembowska**'s position on September 3<sup>rd</sup> according to the *RASC Observer's Handbook, 2021 USA Edition*, is 21 26.62 -27 17.7, at magnitude 9.9 in **Capricornus**.

**Comets** – Comet **41P/Faye**, a morning object, will reach perihelion on September 8<sup>th</sup>, at 1.62 au. **Faye**'s positions, according to *ALPO*, are as follows: On September 9<sup>th</sup> – 05 09 36 +18 28, at magnitude 10.5 in **Taurus**; on the 19<sup>th</sup> – 05 34.12 +17 37, at magnitude 10.4 in **Taurus**; and on the 29<sup>th</sup> – 05 56 30 +16 30, at magnitude 10.3 in **Orion**.

Comet **6P/d'Arrest** – An evening object, **Arrest**'s positions, according to *ALPO*, are as follows: On September 9<sup>th</sup> – 17 31 00 -18 15, at magnitude 11.7 in **Ophiuchus**; on the 19<sup>th</sup> – 18 01 36 -22 56, at magnitude 11.2 in **Sagittarius**; and on the 29<sup>th</sup> – 18 36 18 -26 46, at magnitude 10.7 in **Sagittarius**.

Comet **8P/Tuttle** – reached perihelion on August 27<sup>th</sup> at 1.03 au, and on September 12<sup>th</sup> will be closest to **Earth** at 1.81 au. **Tuttle** is the parent of the **Ursid** meteor shower. **Tuttle**'s positions, according to *ALPO*, are as follows: On September 9<sup>th</sup> – 09 21 30 -04 18, at magnitude 8.7 in **Hydra**; on the 19<sup>th</sup> – 09 54 42 -12 25, at magnitude 8.5 in **Hydra**; and on the 19<sup>th</sup> – 10 29 00 -20 11, at magnitude 8.6 in **Hydra**.

Comet **15P/Finlay** – A morning object, **Finlay**'s positions, according to *ALPO*, are as follows: On September 9<sup>th</sup> – 07 15 36 +26 57, at magnitude 11.5 in **Gemini**; on the 19<sup>th</sup> – 07 41 423 +26 42, at magnitude 12.2 in **Gemini**; and on the 29<sup>th</sup> – 08 04 245 +26 27, at magnitude 13.0 in **Cancer**.

Comet **67P/Churyumov-Gerasimenko** – A morning object, and a contact binary comet, was visited by the Rosetta orbiter and the **Philae** lander. **67P**'s positions, according to *ALPO*, are as follows: On September 9<sup>th</sup> – 03 3054 +15 25, at magnitude 11.6 in **Taurus**; on the 19<sup>th</sup> – 04 08 54 +18 16, at magnitude 11.1 in **Taurus**; and on the 29<sup>th</sup> – 04 51 00 +27 57, at magnitude 10.5 in **Taurus**. **67P**'s positions, *by my estimates*, are as follows; On September 1<sup>st</sup> - 5° north and a little east of **Lambda Ceti**; on the 5<sup>th</sup> - 6° north and a little east of **Omicron Tauri**; on the 10<sup>th</sup> - 3° north-northeast of **5 Tauri**; on the 15<sup>th</sup> - 5° north and a touch west of **Lambda Tauri**; on the 20<sup>th</sup> - 4° north-northwest of **Gamma Tauri**, or 5° east and a touch south of **Omega Tauri**; on the 25<sup>th</sup> – 5° north and a touch west of **Aldebaran**, or 4° south-southwest of **Tau Tauri**; and on the 30<sup>th</sup> – 1.7° west and a touch south of **Iota Tauri**, or 4.5° east and a touch south of **Tau Tauri**.

Comet **C/2021 A1 (Leonard)** – In solar conjunction on September 5<sup>th</sup>. **Leonard**'s positions, according to *ALPO*, are as follows: On September 9<sup>th</sup> – 11 00 12 +40 21, at magnitude 15.3 in **Ursa Major**; on the 19<sup>th</sup> – 11 08 12 +39 05, at magnitude 14.9 in **Ursa Major**; and on the 29<sup>th</sup> – 11 16 42 +37 56, at magnitude 14.4 in **Ursa Major**.

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

There are 4 **Minor (Class II)** meteor showers active in September. The **Aurigids**, active from August 26<sup>th</sup> through September 4<sup>th</sup>, peaking on September 1<sup>st</sup> with a maximum zenith hourly rate (mzhr) of 6; the **September Epsilon Perseids**, active from September 2<sup>nd</sup> through the 23<sup>rd</sup>, peaks on September 9<sup>th</sup> with a mzhr of 5; the **Epsilon Geminids**, active from September 27<sup>th</sup> through November 8<sup>th</sup>, peaks on October 18<sup>th</sup> with a mzhr of 2; and the **Southern Taurids**, active from September 22<sup>nd</sup> through December 2<sup>nd</sup>, peaks on November 5<sup>th</sup> with a mzhr of 5.

There are no **Variable (Class III)** meteor showers active this month.

There are 11 **Weak (Class IV)** meteor showers active this month – all have a mzhr of <2. The **Eta Eridanids**, active from July 22<sup>nd</sup> through September 2<sup>nd</sup>, peaked on August 6<sup>th</sup>; the **August Xi Draconids**, active from July 28<sup>th</sup> through September 2<sup>nd</sup>, peaked on August 15<sup>th</sup>; the **August Beta Piscids**, active from August 2<sup>nd</sup> through September 2<sup>nd</sup>, peaked on August 21<sup>st</sup>; the **August Draconids**, active from August 15<sup>th</sup> through September 5<sup>th</sup>, peaked on August 26<sup>th</sup>; the **August Gamma Cepheids**, active from August 17<sup>th</sup> through September 6<sup>th</sup>, peaked on August 29<sup>th</sup>; the **Daytime Zeta Cancrids**, active from August 13<sup>th</sup> through September 10, peaks on

September 2<sup>nd</sup>; the **Nu Eridanids**, active from August 31<sup>st</sup> through September 21<sup>st</sup>, peaks on September 10<sup>th</sup>; the **September Lyncids**, active from August 30<sup>th</sup> through September 20<sup>th</sup>, peaks on September 10<sup>th</sup>; the **Chi Cygnids**, active from September 8<sup>th</sup> through September 17<sup>th</sup>, peaks on September 13<sup>th</sup>; the **Daytime Sextanids**, active from September 22<sup>nd</sup> through October 13<sup>th</sup>, peaks on October 3<sup>rd</sup>; and the **Tau Cancrids**, active from September 23<sup>rd</sup> through November 12<sup>th</sup>, peaks on October 22<sup>nd</sup>.

## *When to View the Planets:*

### Evening Sky

**Mercury** (west)  
**Venus** (west)  
**Jupiter** (southeast)  
**Saturn** (southeast)  
**Neptune** (east)

### Midnight

**Jupiter** (south)  
**Saturn** (southwest)  
**Uranus** (east)  
**Neptune** (south)

### Morning Sky

**Uranus** (southwest)  
**Neptune** (west)



## Scutum – The Shield

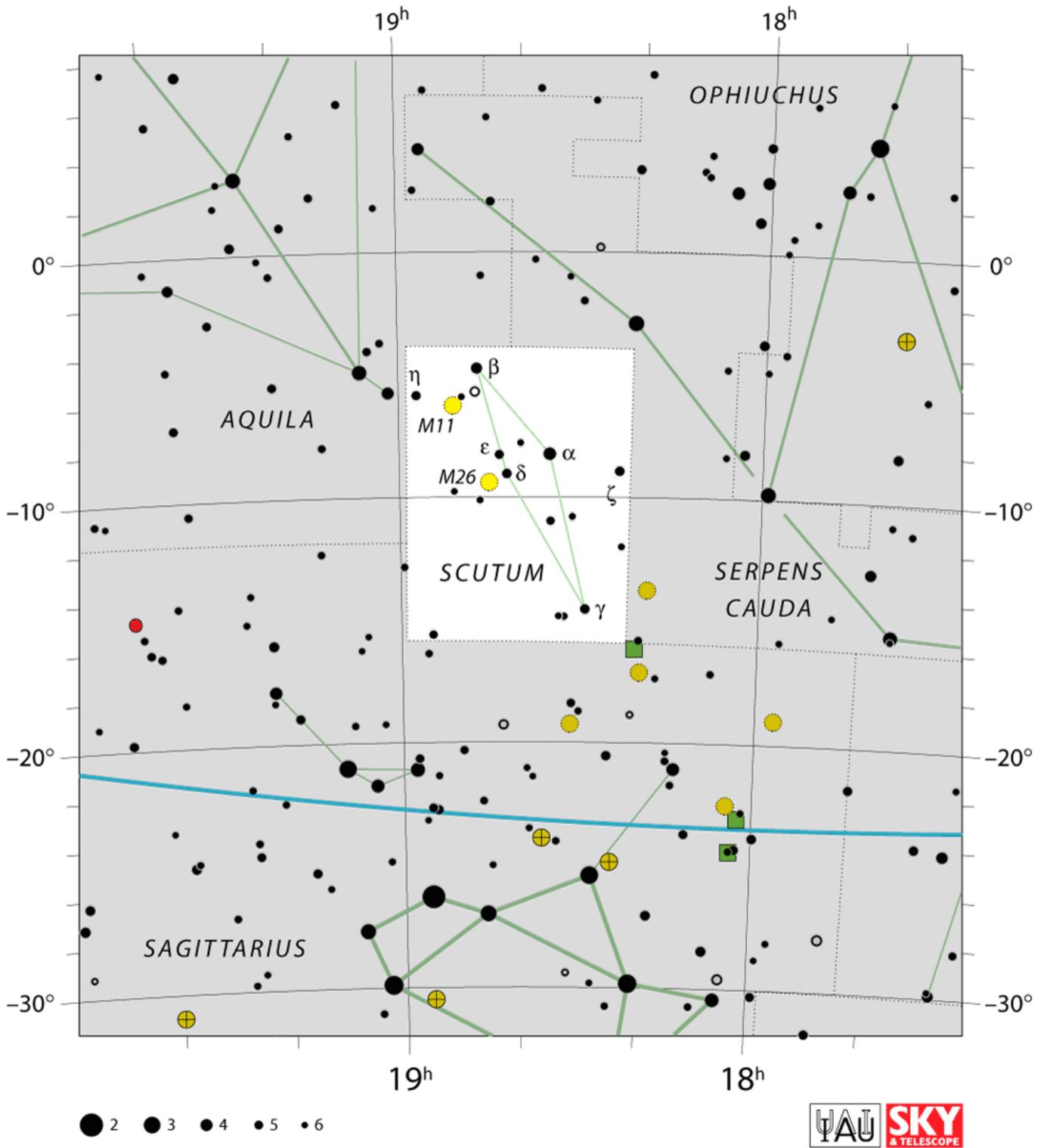
The fifth-smallest constellation in the sky, introduced by the Polish astronomer Johannes Hevelius in 1684 under the title “**Scutum Sobiescianum**” or “**Sobiesci’s Shield**”, named in honor of King John III Sobiesci of Poland. It is the only constellation introduced for political reasons that is still in use.

**Scutum** lies in a bright area of the **Milky Way** and is distinctive despite its small size. The brightest stars of **Scutum** are only of 4<sup>th</sup> magnitude, and none were named, but the constellation contains a celebrated cluster called “**The Wild Duck Cluster**” (**M11, NGC 6694**), because its fan shape resembles a flight of ducks.

Jan Sobiesci (1629-1696) was the eldest son of the castellan of Cracow, Jakob Sobiesci. He was a brilliant military leader and by 1665 had become the field commander of the Polish army. The main threat to Poland at this time (indeed, to all central Europe) came from the Turks. While Sobiesci attempted to repulse the Turks, the Polish king’s envoys ceded all the Ukraine to Turkey. Meanwhile, Sobiesci won victory after victory. In November of 1673, the Polish king died. Sobiesci left the front lines and presented himself as a candidate for the throne back in Warsaw (the kingship was an elected position). In May of 1674, he became King John (or Jan) III.

Sobiesci returned to his former job as army commander, and after nearly ten years of struggle, he was able to sign the **Treaty of Warsaw** with Leopold I. Following this treaty, Sobiesci further safeguarded Europe from the Turks. Personally leading the Polish calvary, on September 12<sup>th</sup>, 1683, he broke the Turkish siege of Vienna, and liberated Hungary in the bargain.

Seven years later (in 1690) Hevelius commemorated these events with the inclusion of “**Scutum Sobiescianum**” in the heavens.



**The End**