

# Night Visions

May 2021

## *Newsletter of the Baton Rouge Astronomical Society*

*JPL Image of surface of Mars, and JPL Ingenuity Helicopter illustration, in flight*

**Monthly Meeting May 10<sup>th</sup> at 7:00 PM at HRPO, and via Jitsi**  
*(Monthly meetings are on 2<sup>nd</sup> Mondays at Highland Road Park Observatory,  
will also broadcast via. ([meet.jit.si/BRASMeet](https://meet.jit.si/BRASMeet)).*

**PRESENTATION: Dr. Alan Hale**, professional astronomer and co-discoverer of Comet Hale-Bopp,  
among other endeavors.

### **What's In This Issue?**



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*REMOTE DISCUSSION*  
*Solar Viewing*  
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*American Radio Relay League Field Day*

**Observing Notes: Serpens - The Serpent  
& Mythology**

***Like this newsletter? See PAST ISSUES online back to 2009***  
***Visit us on Facebook – Baton Rouge Astronomical Society***

***BRAS YouTube Channel***

## President’s Message

Ahhh, welcome to May, the last pleasant month in Louisiana before the start of the hurricane season and the brutal summer months that follow. April flew by pretty quickly, and with the world slowly thawing from the long winter, why shouldn’t it? To celebrate, we decided we’re going to try to start holding our monthly meetings at Highland Road Park Observatory again, only with the added twist of incorporating an on-line component for those who for whatever reason don’t feel like making it out. To that end, we’ll have both our usual live broadcast on the BRAS YouTube channel and the Brasmeet page on Jitsi—which is where our out of town guests and, at least this month, our guest speaker can join us.

It’s your choice of whether to attend in-person or on-line, but should you attend in-person, we are going to require everyone to wear a mask while inside the building. We’ll also set up the chairs to space households out from one another.

If the weather holds and we can persuade one of the observatory’s trustees to stick around for viewing after, we may drag out a scope to cruise around for a bit: it’s up to Merrill and John. The guest speaker has been secured for us by former BRAS president and all around astronomy hero, Melanie Templet, who was also our awesome guest speaker from last month (if you missed the talk about what she did for New Mexico, check out last month’s talk on the BRAS YouTube), and it should be an awesome speaker. I think we’ve just about got the rest of the programs for the year covered, but if you have any ideas for a program, let us know and we’ll try to put it together. Normally, securing the speaker is the role of the VP, but we’ve been without one since Steven left to focus on his career. If you’re up for the challenge, the VP role is up for grabs.

The other things to look out for in the coming month are opportunities for volunteering at HRPO. Almost on top of us already is International Astronomy Day on the 15<sup>th</sup>—this is one of the biggest events put on by HRPO for the year and they are always looking for people who can help out: but you have to talk to Chris Kersey well ahead of time so he knows how to utilize your skills.

Of course, you can always just attend the event, but why not be part of the program? This year, if we can find the club members who are interested in helping out, we’re going to add our own little twist: we realized we can incorporate our excess equipment sale with the event by offering a table of our wears for the public to peruse and purchase. Mostly, the items will just be entry level eyepieces, but we’ll also display some of the scopes we have for sale, including the 10” Odessey compact. If you feel you can man the table and help represent the club, you can just talk to a BRAS officer and let them know when you have time available.

I think that’s the jist of what’s going on. As always, consider joining up with the Globe At Night program to help curb the spread of light pollution, or, better still, come join the Light Pollution Committee and learn how to become pro-active with saving the night sky. Hopefully, we’ll have a good homecoming to HRPO (sorry, there will be no cake—this time) and we can start getting back into the swing of events with the club. Be sure to check out the rest of the newsletter for detailed information on upcoming events and opportunities.

Scott Cadwallader, President 2021

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**SpaceX history in the making:** SpaceX’s Crew-1 mission, the first operational mission of a Crew Dragon spacecraft, sent four astronauts on a round trip to the International Space Station for NASA. The mission lifted off on Nov. 14, 2020, from NASA’s Kennedy Space Center in Florida on a SpaceX Falcon 9 rocket.

[SpaceX’s Crew-1 astronaut mission to the International Space Station in photos | Space](#)

It returned to Earth with a splashdown in the Gulf of Mexico on May 2, 2021.

[SpaceX Crew Dragon makes 1st nighttime splashdown with US astronauts since Apollo era | Space](#)

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From left, NASA astronauts **Shannon Walker**, **Victor Glover** and **Mike Hopkins**, and Japan Aerospace Exploration Agency (JAXA) astronaut **Soichi Noguchi** are seen inside the **SpaceX Crew Dragon "Resilience"** spacecraft on board the **SpaceX GO Navigator** recovery ship shortly after splashing down in the Gulf of Mexico off the coast of Panama City, Florida, on May 2, 2021. (Image credit: Bill Ingalls/NASA)

## Upcoming BRAS Meetings:

### Monthly Member Meeting:

7:00 Monday, May 10<sup>th</sup>, in person at the Observatory, plus via Jitsi remote access (open to the public).

### Light Pollution Committee Meeting:

6 pm Wednesday, May 26, via Jitsi. (Open to the public), followed by.....

### Monthly Business Meeting:

7 pm Wednesday, May 26, (via Jitsi (Members Only))

**MOON (Members Only Observing Night), TBA.**

## **BRAS Member Meeting Minutes** held remotely via Jitsi

- The meeting was held virtually on April 12<sup>th</sup>, 7 p.m.
- Guest speaker was Melanie Templet, former BRAS president on how she helped build an observatory in Rio Rancho, the Rainbow Park Observatory (rrastro.org)
- HRPO update: awaiting information from maintenance; new program in works in conjunction with the Library.
- Outreach: had a very successful presence at Zoofest, with over 200 people dropping by; sidewalk astronomy will re-start in September
- LPC: is seeking more involvement from club members
- Equipment sale: BRAS is selling some of its inventory—the 16” and 10” reflectors are still available, also much more.
- Misc: International Astronomy Day is coming up, fast
- BRAS 40<sup>th</sup> birthday is coming up: seeking planning committee members, ideas for a raffle

Submitted by Thomas Halligan, Secretary



## **BRAS Business Meeting Minutes –April** held remotely via Jitsi

(This meeting is held the last Wednesday of each month at 7 p.m., early enough to be included in each monthly newsletter.  
See President’s Message)

- The meeting was cancelled for lack of a quorum.

## **INGENUITY MARS HELICOPTOR**



### **2021 Officers:**

**President:** Scott Cadwallader

**Interim VP:**

**Secretary:** Thomas Halligan

**Treasurer:** Trey Anding

**BRAS Liaison for BREC:**

Chris Kersey

**BRAS Liaison for LSU:**

Greg Guzik

**Committees/Coordinators:**

AL Awards

Merrill Hess

Light Pollution:

John Nagle

Newsletter:

Michele Fry

Observing:

John Nagle

Outreach:

Ben Toman

Webmaster:

Frederick Barnett



## **BRAS Outreach Report**

Hi Everyone,

We are yet another step closer to doing some in-person outreach with the vaccine in full rollout and infection numbers generally being down. We have a few months of breathing room and prep time ahead because we are normally on hiatus during the Summer months anyway.

That being the case, I think we can start to plan to resume our "Training Sessions" for our Night Sky Network toolkits. We have a lot of toolkits to cover, and let's face it, we all need a refresher on anything we had covered before the shutdown since it's been such a long time. Be on the lookout for an invite! (The Sunday afternoon sessions seemed to fit with most people's schedules so we'll initially be looking for similar dates/times.)

In the meantime, live streaming started to get a bit oversaturated during the lockdown across all kinds of genres and hobbies, but even though things are starting to open back up, I think it's important that we continue to cultivate the medium.

**I think it's important that we continue to cultivate the live-streaming medium.**

If you are already doing some streaming or are interested in hosting one, please let me know. It would be easy to set it up so your stream could be connected through one of our platforms such as YouTube or Facebook.



Finally, while we have no NEW pictures of outreach to show, here a couple from past events. (Left) Scott C. gives a presentation at Catholic High about the Mars INSIGHT mission that was (at the time) about to land. (Below) Krista holds down the fort at the Mid-City Maker's Market, an event that we'll be looking to participate in again once they get it up and running.



Clear Skies,

Ben Toman



## **BRAS Light Pollution Committee Report**

This committee meets at 6 p.m. the last Wednesday of each month, open to anyone.

This is followed by the Business Meeting, open to members only.

No meeting this month.

**Imagine this, and help us make it happen .  
Our LPC meetings are the last Wednesday of each  
month, 6 p.m. Everyone is welcome to join.  
We need volunteers.**



### **Globe At Night**

The target for the Globe At Night program is **May 2<sup>nd</sup> through May 11<sup>th</sup>, target is Bootes.**

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 now has a subreddit and a Discord server.

**From Amy Northrup:** Our subreddit has been set up for us to reach out to the public. We'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.

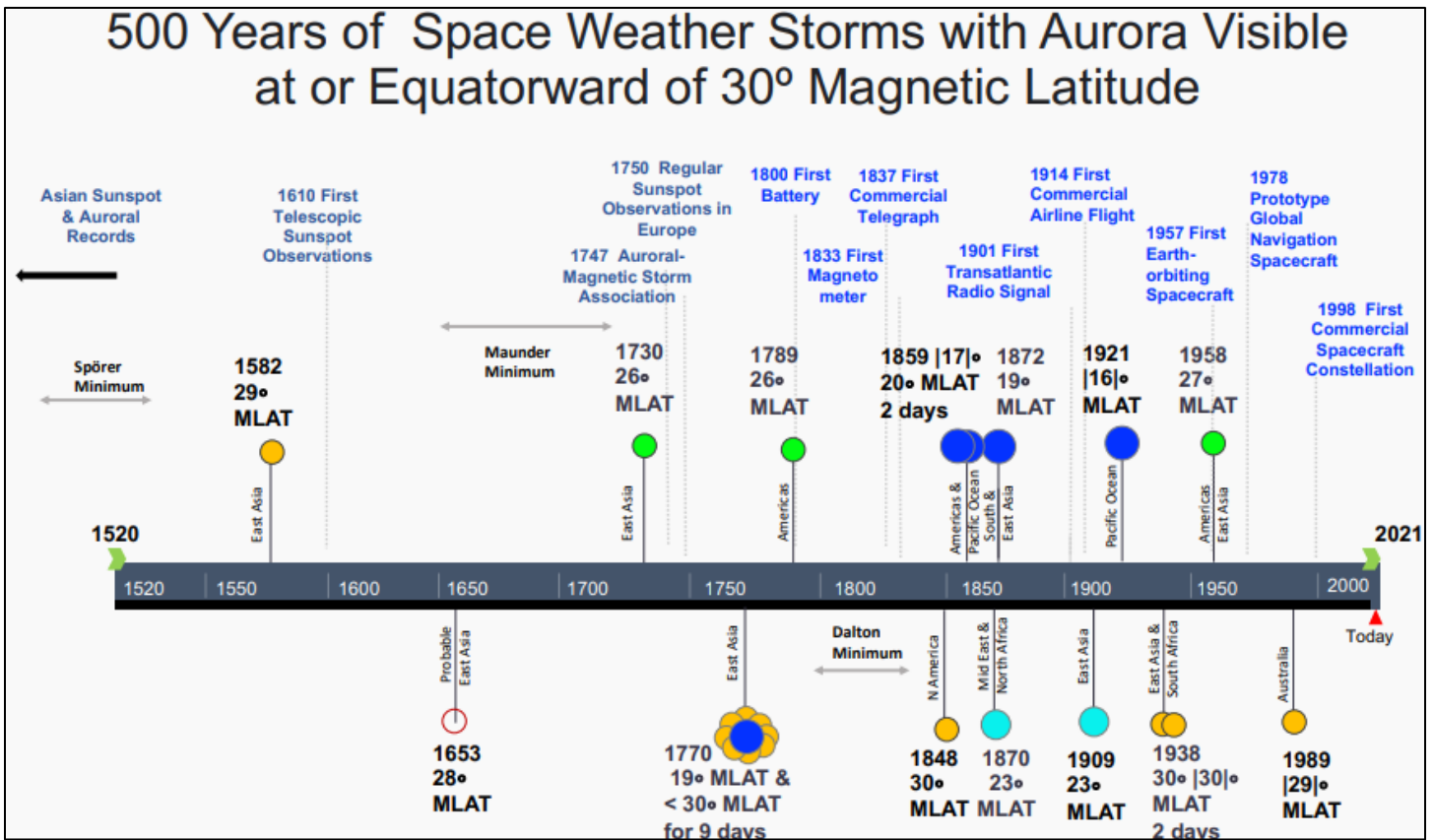
The best part about both of these is that you can access them on your phone with the free apps. Hope to see you there.

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

*Sincerely,  
Amy & Justin Northrop*

Read the article:

**[A Timeline of Great Aurora Storms | Spaceweather.com](https://spaceweatherarchive.com)**  
**[\(spaceweatherarchive.com\)](https://spaceweatherarchive.com)**



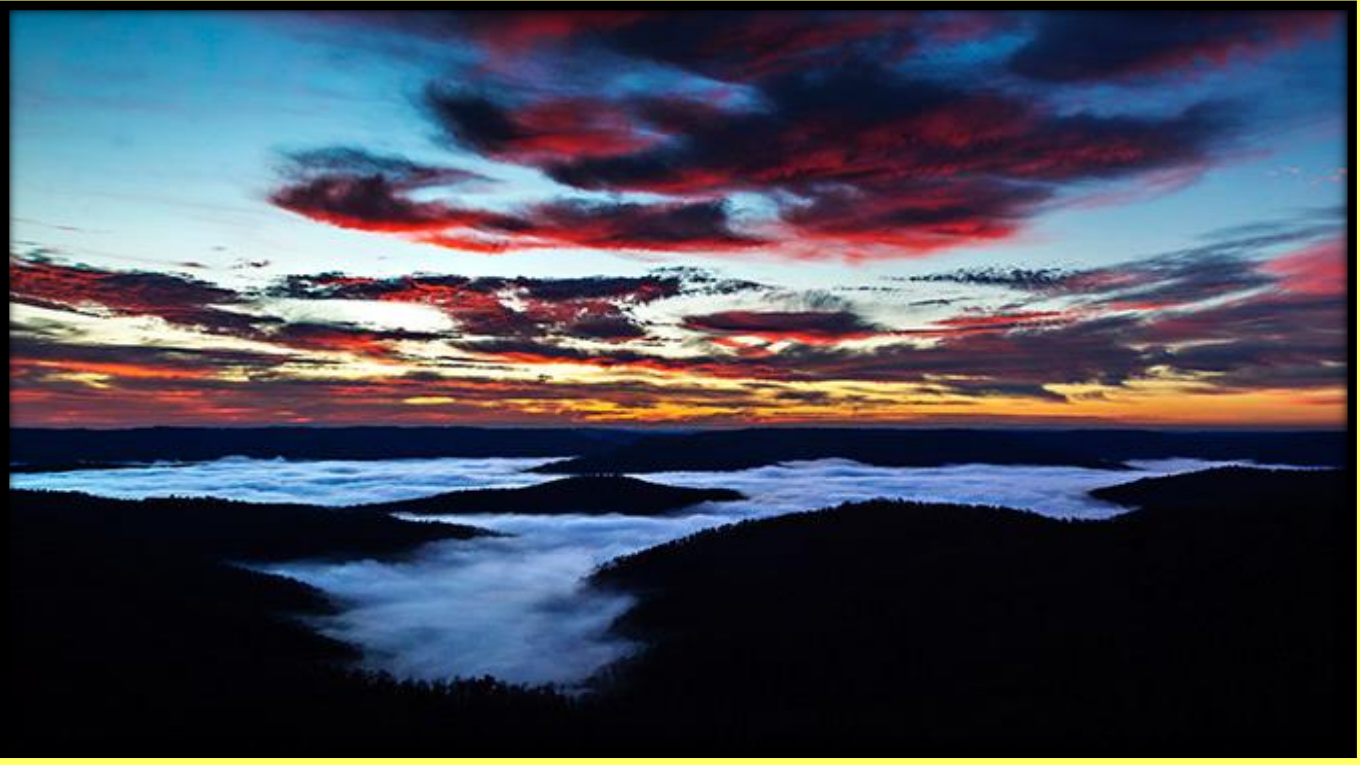
**April 30, 2021: Imagine living in Florida. You'll never see the Northern Lights, right?** Actually, the odds may be better than you think. A new historical study just published in the Journal of Space Climate and Space Weather shows that great aurora storms occur every 40 to 60 years.





**One of the 7 best places to stargaze in America,**  
according to AAA, is almost in our back yard!!!!

## **Buffalo National River, Arkansas**



“America's first national river is the closest International Dark Sky Park not just for Arkansans, but also many people in Missouri, Kansas, Louisiana, and Mississippi. Winding for 135 miles through the Ozarks, the river offers pristine skies for almost its entire length, with plenty of campgrounds and limestone bluffs to stargaze from. Tyler Bend, just off Highway 65, is a popular viewing spot, while the small town of Jasper to the west should be avoided since it introduces some light pollution.

Six others are listed in this article:

[7 of the best places to stargaze in the U.S. \(aaa.com\)](#)

[Buffalo National River \(U.S. National Park Service\) \(nps.gov\)](#)

### **America's First National River**

Established in 1972, Buffalo National River flows freely for 135 miles and is one of the few remaining undammed rivers in the lower 48 states. Once you arrive, prepare to journey from running rapids to quiet pools while surrounded by massive bluffs as you cruise through the Ozark Mountains down to the White River.



# **Messages from HRPO**

*Highland Road Park Observatory*



## **REMOTE DISCUSSIONS**

*All are for ages fourteen and older.*

*Fridays at 6:30pm.*

### **7 May = “Current Astronomy”**

The “Current Astronomy” presentation is a placeholder used when the planned speaker cannot make it for any reason. This presentation covers the latest news of the past ninety days.

### **21 May = “KMS Bismarck: Enemy of an Empire”**

“Continuing the story after the destruction of the *Hood*, James DeOliveira describes the hunt for the battleship responsible.” [Postponed from 7 May.]

### **28 May = “WWII: The Intel War”**

### **4 June = “WWII: Midway”**

These two presentations from Amy Northrop and James DeOliveira will investigate the science behind Allied intelligence operations in World War II, and how that led to an important defeat in the Pacific of the freedom-choking Axis.

### **11 June = “Skygazing: The Portal to STEM”**

The deceptively simple act of going outside and looking up will do more than inspire art and deepen spirituality. The practical yet awesome and exciting viewing of celestial and atmospheric objects and phenomena transform the mathematical and theoretical abstract of science into a real connection to human existence. There are a myriad of home-based activities for pleasure, extra credit and extracurricular reasons; many of them cost little. Home-schooling parents, professional teachers, older students and scouting groups can benefit! [Postponed from 21 May.]



## **INTERNATIONAL ASTRONOMY DAY**

**Saturday 15 May from 3pm to 11pm / No admission fee.**

### **INTERNATIONAL ASTRONOMY DAY**

**Saturday 15 May from 3pm to 11pm / No admission fee.**

It's back—the greatest IAD event in the region returns. The hugely popular Adventure Quest game, solar viewing, a pass of the ISS, searches for Omega Centauri and Barnard's Star, delicious food and drink, and a passport to the stars. Mark your calendar and don't miss it!



## **AMERICAN RADIO RELAY LEAGUE FIELD DAY**

**Saturday 26 June from 2pm to 10pm / No admission fee.**

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!

WWW.ANDERSTOONS.COM



"Either there's a spider on the lens, or we need to call somebody."



# OBSERVING NOTES APRIL

by John Nagle

## Serpens – The Serpent

**Position: RA 15 to 19, Dec. 25° to -16°**

*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.*

***Serpens is unique among the modern constellations*** in that it is split into two disconnected regions of the sky: **Serpens Caput** (the head), and **Serpens Cauda** (the tail). The constellation is also one of the only ones that are dependent on another constellation for context; specifically, it is being held by the **Serpent Bearer Ophiuchus**.

Positions: **Serpens Caput** – RA 15h 10.4m to 16h 00m, is a bright nebula of irregular shape; divided by 22.5m, Dec. 25°.66 to +03°.72. **Serpens Cauda** – RA 17h 16.9m to 18h 58.3m, Dec. 06°.42 to -16°.14.

### ***Named Stars***

**Unuk al Hay** (Alpha Ser), or **Unukalhai**, from the Arabic “Unk al Hayyah”, “The Neck of the Snake”, also called **Unukalhay**, **Unuk Elhai**, **Alioth**, **Alyahi**, **Alyat**, and also **Cor Serpentis**, “The Heart of the Serpent”, mag. 2.63, 15 44 16.00 +06 25 31.9, is a red giant star with a faint, magnitude 11.6, companion at a separation of 58 arc seconds, located in **Serpens Caput**. Also known as **HD 140573**, **HIP 77070**, **Gould 21 Caput**, **h1277**, and **24 Serpentis**.

**Chow** (Beta A Ser), or **Chou**, from the Chinese for the title of one of their imperial dynasties, mag. 3.65, 15 46 11.21 +15 25 18.9, a main sequence white dwarf star, has three companions, **Beta B Serpentis**, magnitude 9.01, west of the primary at a separation of 31”; **Beta C Serpentis**, at magnitude 10.7, 3.3’ south-southwest of the primary at a separation of 9500 a.u.; and **Beta D Serpentis**, also known as **Roe 75**, magnitude 8.2, 27.4’ west-southwest of the primary, is a close pair. Located in **Serpens Caput**. The star **R Serpentis** is 1° to the east-southeast. Also known as **HD 141003**, **HIP 776233**, **Σ 1970**, and **28 Serpentis**.

**Ainalhai** (Gamma Ser), also called **Zheng and Ching**, mag. 5.20, 15 56 26.99 +15 39 53.0, is a yellow-white main sequence dwarf star in **Serpens Caput**. Also known as **HD 142860**, **HIP 78072**, and **41 Serpentis**.

**Tsin** (Delta Ser), also called **Qin**, mag. 3.80, 15 34 48.19 +10 32 19.9, is a double binary (quadruple) star in **Serpens Caput**. The primary is a yellow-white sub-giant star and its binary companion, also a sub-giant star, is at a separation of 4”, having an orbital period of 3200 years. The second binary pair, at 15 34 48.10 +10 32 21.0, at 14<sup>th</sup> and 15<sup>th</sup> magnitudes, has a separation of 4.4”. Also known as **HD 138917**, **HIP 76276**, **Σ 1954**, and **13 Serpentis**.

**Ba** (Epsilon Ser), also called **Pa**, is the name of a certain territory in China, mag. 3.71, 15 50 48.89 +04 28 39.3, in **Serpens Caput**. Also known as **HD 141795**, **HIP 77622**, **Gould 29 Caput**, and **37 Serpentis**.

**Donghai** (Eta Ser), also called **Tung Hae**, mag. 3.23, 18 21 18.92 -02 53 49.6, is an orange giant star in **Serpens Cauda**, with a 12<sup>th</sup> magnitude companion. Also known as **HD 168723**, **HIP 89962**, **Gould 34 Cauda**, and **58 Serpentis**.

**Alya** (Theta<sup>1</sup> Ser), “The Fatty Tail of the Sheep”, also called **Alga**, and **Dzunebal Haiyer**, “The Serpent’s Tail”, **Sen** from the Chinese for a name of one of their districts, and **Cauda Serpentis**, mag. 4.62, 18 56 13.16 +04 12 12.7, is a double star – both are main sequence dwarf stars – with a separation of 22 arc minutes, in **Serpens Cauda**. There is a third star at magnitude 6.71, and a separation of 7 arc minutes. Also known as **HD 175638**, **HIP 92946**, **Σ 2417**, **SAO 124068**, **HR 7141**, **Gould 71 Cauda**, and **63 Serpentis**.

**Gudja**(Kappa Ser), mag. 4.09, 15 48 44.41 +18 08 30.4, is a red giant star in **Serpens Caput**. Also known as **HD 141477**, **HIP 77450**, and **35 Serpentis**.

**Tiährü** (Mu Ser), mag. 3.54, 15 49 37.27 -03 25 48.5, is a white main sequence dwarf star in **Serpens Caput**. Also known as **HD 141513**, **HIP 77516**, **Gould 27 Caput**, and **32 Serpentis**.

**Nanhai** (Xi Ser), also called **Nan Hae**, from the Chinese for the Southern Sea, mag. 3.54, 17 37 35.23 -15 23 54.3, is a triple star in **Serpens Cauda**. The primary is a yellow-white giant star; the secondary is a spectroscopic binary star with a period of 2.29 days; and the third star is a 13<sup>th</sup> magnitude star with a separation of 25 arc seconds from the main pair of stars. Also known as **HD 159876**, **HIP 86263**, **Gould 8 Cauda**, and **55 Serpentis**.

**Cha Sze** (Upsilon Ser), from the Chinese for a carriage shop, mag. 5.71, 15 47 17.35 +14 06 55.0, in **Serpens Caput**. Also known as **HD 141187**, **HIP 77336**, and **31 Serpentis**.

**Alasia** (HD 168746), mag. 7.95, 18 21 49.78 -11 55 21.7, has one planet in orbit in **Serpens Cauda**. Also known as **HIP 90004**.

**Kaveh** (HD 175541), mag. 8.03, 18 55 40.88 +04 15 55.2, has one planet in orbit in **Serpens Cauda**. Also known as **HIP 92895**.

**Stepanian’s Star** (LX Serpentis), mag. 13.2, 15 35 44 +19 01 30, in **Serpens Caput**, is a flare star.

## ***Deep Sky:***

**M5** (NGC 5904), mag. 5.7, 15 18 33.8 +02 04 58, 23’ in size, is a galaxy with a medium concentration of stars; very bright, very large, and extremely rich; slightly oval in shape in the NE-SW direction. It has over 97 short period variable stars, and contains over 100,000 stars. Located just 20’ northwest of the star **5 Serpentis** in **Serpens Caput**. Also known as **Mel 133**, **CGCG 1516+022**, and **EQ 1516+022**.

**M16** (NGC 6611), “The Eagle Nebula”, “The Star Queen Nebula”, mag. 6.0, 18 18 45 -13 47 54, 120’x25’ in size, is a large, bright nebula containing a 7’ in size open cluster; brightest star is magnitude 8.1; cluster of small stars, mingled with a feeble glow. The **Eagle Nebula** contains “The Pillars of Creation”, a large region of active star formation. The **Pillars** are more likely already destroyed by the supernova explosion believed to have occurred 8,000 to 9,000 years ago, but the image of the aftermath will not reach **Earth** for another 1,000 years or so. **M16** is a part of the emission nebula **IC 4703** in **Serpens Cauda**, just 3° north of the “Swan Nebula” (**M17**) in **Sagittarius**, or 1° north and 2.5° west of **Gamma Scuti**. **Harvard 19** is 40’ to the northwest. Also known as **Cr375**, **Lund 825**, **Mel 198**, **OCL 54**, **Mrk 40**, **CGCG 1816-138**, **Sh2-049**, **LBN 67**, **Gum 83**, and **GN 14703**.

**IC 4756**, “The Tweedledee Cluster”, “The Graff Cluster”, mag. 4.76, 18 38 54 +05 26 20, 70’ in size, 466 stars, brightest star is magnitude 8.0. The cluster is located about 4° west-northwest of **Alya** (Theta Serpentis) in **Serpens Cauda**. Also known as **Graff 1**, **Cr 386**, **Lund 851**, **Mel 120**, **OCL 94**, **Raab 135**, **CGCG 1832+051**, and **CGCG 1836+054**.

**NGC 6605**, mag. 6.0, 1816 06 -14 58 36, 29’ in size, brightest star is magnitude 10.0, 15 stars. The **RNGC** says the cluster is non-existent. Also known as **Lund 820**, **OCL 47**, **IRAS 18143-1500**, and **CGCG 1814-149**.

**NGC 6604**, mag. 6.5, 18 18 06 -12 13 00, 4’ in size, 105 stars, brightest star is magnitude 7.48; is a cluster that is detached, strong concentration of stars; large range in brightness; involved in nebulosity. Located about 2° north of **M16** in **Serpens Cauda**. Also known as **Cr 373**, **Lund 823**, **OCL 56**, **Mrk 39**, **CTB 50**, **NRL 17**, and **CGCG 1814-149**.

**NGC 6539**, mag. 8.9, 18 04 49.8 -07 35 09, 7.9' in size, is a cluster with a low concentration of stars; very small, very faint. Located less than 1° northeast of **Tau Ophiuchi** in **Serpens Cauda**. Also known as **Mel 190**, **EQ 1802-075**, and **CGCG 1802-075**.

**NGC 6535**, mag. 9.3, 18 03 50.7 -00 17 49, 3.6' in size, is a cluster with a low concentration of stars; very faint, very small. Located about 3.5° north of **Zeta Serpens** in **Serpens Cauda**. Also known as **Mel 189**, **EQ 1801-003**, and **CGCG 1801-003**.

**Sh2-68**, mag. 10.0, 18 24 54 +00 51 00, 400" in size, brightest star is magnitude 16.0. Also known as **P K 030+06.1**, **YM 15**, **LBN 93**, and **PNG 30.6+06.2**.

**OBJECTS BEYOND MAGNITUDE 10 THAT ARE OF INTEREST:**

**Serpens Dwarf Galaxy**, mag. 11.8, 15 16 05.3 -00 06 41, 3.3' in size, 14 stars. It is located 0.5° south of the star **4 Serpentis**, or about 2° south of **M5**, in **Serpens Caput**. Also known as **UGC 9792**, **MCG+0-39-016**, **CGCG 21-061**, **CGCG 1513+000**, and **EQ 1513+000**.

**NGC 6118**, "The Blinking Galaxy", mag. 11.9, 16 21 48 -02 17 00, 4.6'x1.9' in size. Located in **Serpens Caput**. Also known as **H2-402**.

**Seyfert's Sextet** is composed of six galaxies, **NGC 6027**, **A**, **B**, **C**, **D**, and **E**. Also known as **HCG 79**.

<b>NGC 6027</b> , mag. 14.3, 15 59 11.9 +20 45 55, 0.5'x0.2' in size,	The southernmost is <b>A</b> ,
<b>NGC 6027A</b> , mag. 13.9, 15 59 11.2 +20 45 13, 0.7'x0.5' in size,	The North-northeast is <b>E</b> ,
<b>NGC 6027B</b> , mag. 14.5, 15 59 10.9 +20 45 43, 0.3'x0.2' in size,	The northwest is <b>B</b> .
<b>NGC 6027C</b> , mag. 15.7, 15 59 14.4 +20 45 52, 0.7'x0.2' in size,	
<b>NGC 6027D</b> , mag. 15.5, 15 59 13.0 +20 45 32, 0.2'x0.2' in size,	Located in <b>Serpens Caput</b> .
<b>NGC 6027E</b> , mag. 13.4, 15 59 12.6 +20 45 46, 0.7'x0.4' in size.	

**Abell 47**, "The Condom Nebula", mag. 19.5, 18 35 22.6 +00 13 50, 0.3' in size. Also known as **PNG 09.6+10.5**.

**IC 4703**, "The Eagle Nebula", "The Star Queen Nebula", with **NGC 6611**, 18 18 36 -13 58, 35'x28' in size, is an emission nebula that is large and contains a 7' in size open cluster; brightest star is magnitude 8.1. Contains "The Pillars of Creation". Also known as **M16** and **NGC 6611** (both part of **IC 4703**).

**vdB 123**, 18 30 30 +01 11, 3'x2' in size, is a bright nebulosity involving a magnitude 9.1 star. The brightest part is west-northwest of the star. Located about 5° to the north-northeast of **Eta Serpens**, or about 1.5 northeast of the star **59 Serpentis** in **Serpens Cauda**.

**MWC 922**, "The Red Square Nebula", 18 21 15 -13 01 27, in **Serpens Cauda**, is in the shape of a square.

**Serpens Cloud**, is a massive star forming molecular cloud located in the southern part of **Serpens Cauda**, just west of **vdB 123** at 18 29 +01 16, and contains many proto stars.

List of objects found in Serpens: 84 NGC; 50 IC; 112 UGC; 81 MGC; 105 CGCG; 5 HCG; 5 Arp; 4 Barnard; 4 Cr; 1 Cz; 2 Abell PN; 7 Sh2; 31 PNG; 31 PK; 4 He2; 10 Radio Galaxies; 4 Quasars; 7 Sa2; 5 Sa3; 2 K2; 7 K3; 3 Mrk; 11 Abell; 5 Mel; 8 ARO; 7 Lund; 7 OCL; 1 RCW; 2 Ma; 2 Ru; 2 Pal; 20 Herschel; 123 LDN; 6 LBN; 13 VV; 7 IRAS; 1 Alessi; 1 2Mass; 9 Min; 1 Harvard; 2 MaC; 3 MKW; 1 AWM; 1 CTB; 1 PM1; 1 PDS; 1 vdB; 1 NRL; 2 YM; 1 CTS; 1 Semeis; 1 Shane; 1 Scj; 1 Kro; 1 PC; 1 Hu; 1 Al; 1 Kod; 1 Th; 1 MCW; 1 Archinal; 1 Graff; 1 HuBi; 1 Iss; 1 Tr; 1 Gum; 1 Raab; 1 h; 3 PGC; 2 SDSS; 1 Leda; 1 KTG; 1 WBL; 1 NPM1G; 1 VIII Zw; 1 Holm; 1 KPG; 5 Galaxy Trios; 6 Flat galaxies; 1 Variable Galaxy; and 3 Small Galaxy Groups, for a total of 850 objects.

**Other Stars:**

**Tau Serpentis** is a group of eight stars in northern **Serpens Caput**.

**Tau<sup>1</sup> Serpentis**, mag. 5.16, 15 25 47.41 +15 25 41.0, is a red giant star. Also known as **HD 137471**, **HIP 75530**, and **9 Serpentis**; **Tau<sup>2</sup> Serpentis**, mag. 6.22, 15 32 09.68 +16 03 22.1, is a blue-white main sequence star. Also known as **HD 138527**, **HIP 76069**, and **12 Serpentis**; **Tau<sup>9</sup> Serpentis**,

mag. 6.10, 15 35 33.28 +17 39 20.1, is a yellow giant star and a barium star. Also known as **HD 139074**, **HIP 76337**, and **15 Serpentis**; **Tau<sup>4</sup> Serpentis**, mag. 6.51, 15 36 28.14 +15 06 05.0, is a pulsating bright red star. Also known as **HD 139216**, **HIP 76423**, and **17 Serpentis**; **Tau<sup>5</sup> Serpentis**, mag. 5.93, 15 36 29.20 +16 07 08.8, is a yellow-white main sequence dwarf star. Also known as **HD 139225**, **HIP 76424**, and **18 Serpentis**; **Tau<sup>6</sup> Serpentis**, mag. 6.00, 15 40 59.09 +16 01 28.7, is a yellow giant star. Also known as **HD 140027**, **HIP 76810**, and **19 Serpentis**; **Tau<sup>7</sup> Serpentis**, mag. 5.80, 15 41 54.76 +18 27 50.0, is a white star. Also known as **HD 140232**, **HIP 76878**, and **22 Serpentis**; and **Tau<sup>8</sup> Serpentis**, mag. 6.15, 15 44 42.15 +17 15 51.2, is a white main sequence dwarf star. Also known as **HD 140729**, **HIP 77111**, and **26 Serpentis**.

**Omega Serpentis**, mag. 5.21, 15 50 17.53 +02 11 47.8, is an orange giant star with a planet in orbit, having an orbital period of 277 days, and a separation of 1.1 a.u. in **Serpens Caput**. Also known as **HD 141680**, **HIP 77578**, **Gould 28 Caput**, and **34 Serpentis**.

**AC 11 (Alvan Clark)**, mag. 6.8, 18 24 54 -01 35, is a close double star, both are yellow, with a separation of 0.8" in **Serpens Cauda**. Also known as **ADS 11324**.

**HD 168443**, mag. 6.92, 18 20 03.93 -09 35 44.6, is a yellow main sequence star with one confirmed planet in an orbital period of 58.116 days, and a brown dwarf star in an orbital period of 1739.5 days. The star is located in **Serpens Cauda**. Also known as **HIP 89844**.

**HD 136118**, mag. 6.94, 15 18 55.47 -01 35 32.6, is a yellow-white dwarf star with a brown dwarf star companion for merely a candidate planet, orbiting in a period of 1209 days. Located in the southwest corner of **Serpens Caput**. Also known as **HIP 74948**, and **Gould 8 Caput**.

**HD 142245**, mag. 7.63, 15 52 56 +15 25 51, has one planet in orbit. also known as **HIP 77783**.

**Gliese 710**, mag. 9.66, 18 19 50.84 -01 56 19.0, is an orange main sequence dwarf star and a suspected variable star in **Serpens Cauda**. Within the next 1.4 million years, the star will approach **Earth's** sun within a small distance, possibly under 1 light year. When it does approach, it will be as bright as **Antares**. The star's proximity will have the potential to send a shower of comets into the solar system. Also known as **HIP 89825**.

#### Stars of interest beyond magnitude 10:

**AO Serpentis**, mag. 11.04, 15 58 18.4 +17 16 10.0, is an eclipsing binary star. Located in **Serpens Caput** about 1.5° north and a little east of **Gamma Serpentis**.

**HAT-P-46**, mag. 11.94, and **HAT-P-45**, mag. 12.75, both stars have two transiting planets. Located in **Serpens Cauda** about 1° east and a little south of **NGC 6535**.

**COROT 11**, mag. 12.94, **COROT 28**, mag. 13.49, **COROT 9**, mag. 13.7, **COROT 33**, mag. 14.7,

**COROT 27**, mag. 15.54, and **COROT 23**, mag. 15.63 - all have one transiting planet. All are located in **Serpens Cauda**, about 1.5° south of the middle of a line between **NGC 6633** and **NGC 6572**.

**PSR B1534+11**, is a system consisting of two neutron stars orbiting each other. One of the neutron stars is pulsating with a period of 37.9 milliseconds.

**GX 17+2** is a low mass X-ray binary star consisting of a neutron star and a low-mass star.

**Serpens X1** is a low-mass X-ray binary star undergoing occasional X-ray bursts. One burst lasted nearly 4 hours, possibly explained by the burning of carbon in "a heavy element ocean".

**Asterisms: Shuh, Alpha and Lambda Serpentis, a title of a certain territory in China;**

**Tung Hae, Zeta and Eta Serpens, "The Heavenly Eastern Sea"; "The Snake's Head", consists of Iota, Kappa, Gamma, Phi, Upsilon, Rho, and the 8 Tau Serpens. The serpents are held in Ophiuchus's hands – Delta and Epsilon Ophiuchi, and Upsilon and Tau Ophiuchi.**

**Stars in Serpens consist of the following: 31  $\Sigma$ ; 6  $\Omega$ ; 1  $O\Sigma\Sigma$ ; 14 A; 6  $\beta$ ; 1 Y; 77 Gould; 6 h; 1 Sh; 1 Hld; 1 Schj; 2 Hu; 2 Ho; 1 Lv; 1 Hn; 1 J; 1 AC; 1 GX; 1 MWC; 1 V; 1  $\infty$ , for a total of 335.**

## ***Sky Happenings :May, 2021***

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

- May 3<sup>rd</sup>** - Dawn: In the south-southeast, before sunrise, the almost last-quarter **Moon** and **Saturn** are about 6° apart, with **Jupiter** to their left,  
The **Moon** passes 4° south of **Saturn** at 12 noon CDT,  
**Last Quarter Moon** occurs at 2:50 PM CDT,  
**Mercury** is 2° south of the **Pleiades (M45)** at 5 PM CDT.
- May 4<sup>th</sup>** - Dawn: The **Moon, Jupiter, and Saturn** form a wide triangle above the southeast horizon,  
The **Moon** passes 5° south of **Jupiter** at 4 PM CDT.
- May 5<sup>th</sup>/6<sup>th</sup>** The **Eta Aquarids** peak, with the waning crescent **Moon** rising a little before 4 AM local time,  
The **Moon** passes 4° south of **Neptune** at 1 PM CDT.
- May 10<sup>th</sup>** - **Mercury** passes 8° north of **Aldebaran** at 10 PM CDT.
- May 11<sup>th</sup>** - **New Moon** occurs at 2 PM CDT,  
The **Moon** is at apogee (252,545 miles or 406,512 km from **Earth**) at 4:53 PM CDT.
- May 12<sup>th</sup>** - The **Moon** passes 0.7° south of **Venus** at 5 PM CDT on the western horizon. The **Moon** is a very thin crescent, only 1% illuminated, being only 24 hours past new.
- May 13<sup>th</sup>** - The **Moon** passes 2° south of **Mercury** at 1 PM CDT,  
Dusk: In the west-northwest a waxing crescent **Moon** is now only 3° from **Mercury**.
- May 15<sup>th</sup>** - Dusk: High in the west, the **Moon** and **Mars**, in **Gemini**, are about 2° apart.
- May 16<sup>th</sup>** - The **Moon** passes 1.5° north of **Mars** at 12 AM (midnight) CDT,  
Dusk: The waxing crescent **Moon**, in **Gemini**, is some 3° from **Pollux**.
- May 17<sup>th</sup>** - **Mercury** is at greatest eastern elongation (22°) at 1 AM CDT,  
Dusk: The **Moon**, in **Cancer**, is about 2° from **M44 (The Beehive Cluster)**,  
**Venus** passes 6° north of **Aldebaran** at 6 PM CDT.
- May 19<sup>th</sup>** - **First Quarter Moon** occurs at 2:13 PM CDT,  
Dusk: High in the southwest, the first-quarter **Moon**, in **Leo**, is less than 5° from **Regulus**.
- May 23<sup>rd</sup>** - **Saturn** is stationary at 3 PM CDT,  
Double shadow transit on **Jupiter** starts at 10:15 AM CDT,  
Dusk: The **Moon**, in **Virgo**, is some 7° from **Spica**.
- May 25<sup>th</sup>** - The **Moon** is at perigee (222,023 miles or 357,311 km from **Earth**) at 8:50 PM CDT.
- May 26<sup>th</sup>** - **Full Moon**, the largest of 2021, occurs at 6:14 AM CDT. A total lunar eclipse will be visible for the western half of **North America**. Observers in the Midwest will see about half of the lunar disk in the umbral shadow before the **Moon** sets at sunrise.
- May 27<sup>th</sup>** - Dusk: After sunset, in the west, **Mars** and **Pollux** will emerge from the gloaming as twilight deepens. Watch as the planet and star sink toward the horizon.
- May 28<sup>th</sup>** - Double shadow transit on **Jupiter** starts at 3:28 PM CDT.
- May 29<sup>th</sup>** - **Mercury** passes 0.4° south of **Venus** at 1 AM CDT,  
**Mercury** is stationary at 9 PM CDT.
- May 30<sup>th</sup>** - The **Moon** passes 4° south of **Saturn** at 8 PM CDT.

## ***Planets:***

**Mercury** – **Mercury**, in **Taurus**, will put on its best evening show of the year. Appearing soon after sunset on May 1<sup>st</sup>, less than 5° below the **Pleiades (M45)**, will shine at magnitude -1.2, with **Venus**, just over 5° below **Mercury**, standing only 2° high at magnitude -3.9 30 minutes after sunset. On the 2<sup>nd</sup>, **Mercury** is 3° south of the **Pleiades**, with a disk 77% illuminated and spanning 6". On the 3<sup>rd</sup>, the planet is a little more than 2° from **Alcyone**, the 2.8 magnitude star at the center of the **Pleiades**. On the 4<sup>th</sup>, the planet is almost as close to **Alcyone**. The planet reaches its greatest eastern elongation on the 17<sup>th</sup>, when it will stand 22° from the **Sun**, showing an 8" diameter disk that will be 35% illuminated. On the 23<sup>rd</sup>, the planet will be between



the **Horns of the Bull (Elnath and Alheka)** in **Taurus**. On the 28<sup>th</sup>, **Mercury** and **Venus** are only 24' apart, setting an hour after the **Sun**. **Mercury**, at magnitude 1.9, spans 11", and is 12% lit. **Mercury**, at the end of the month, sinks back toward the **Sun** for an inferior conjunction in June.

**Venus** – **Venus** starts the month in **Taurus**, visible soon after sunset. On May 2<sup>nd</sup>, the planet is 6° below **Mercury**. On the 12<sup>th</sup>, **Venus** is 43' from the **Moon**. On the 20<sup>th</sup>, the planet is 7° below **Mercury**, and on the 23<sup>rd</sup>, they are only 5° apart. On the 28<sup>th</sup>, **Venus** and **Mercury** are only 24' apart.

**Mars** – **Mars** crosses **Gemini** during May, and begins the month 2.3° due north of **Mu Geminorum**. The planet is at magnitude 1.6, and spans about 5". On May 8<sup>th</sup> to the 10<sup>th</sup>, the planet is within 1° of **Mebsuta (Epsilon Geminorum)**. The planet ends the month 5° south of **Pollux**.

**Jupiter** – **Jupiter**, in **Aquarius** where it will remain for most of 2021, rises about 3:15 AM local time, at magnitude -2.2. The planet will brighten to magnitude -2.4 by late May. In the last week of the month, the planet will be 30° high at the onset of morning twilight. The planet will span 41" by the 31<sup>st</sup>. There are two double shadow transits of **Jupiter** this month. The first, on the 23<sup>rd</sup>, starts with **Io's** shadow ingress at about 10:02 AM CDT, followed by **Callisto's** shadow ingress at 12:15 PM CDT. **Io** starts transit at 12:23 PM CDT, with its shadow egress at 1:19 PM CDT. **Io** egresses at 2:40 PM CDT, with **Callisto's** shadow egress at 3:03 PM CDT. The second event on the 28<sup>th</sup> starts with **Ganymede's** shadow ingress at 3:39 PM CDT, followed by **Io's** shadow ingress at 4:28 PM CDT. **Ganymede's** shadow egress is at 5:16 PM CDT, with **Io** egress at 5:48 PM CDT. **Io's** shadow egress is at 6:45 PM CDT, with **Ganymede** egress at 7:08 PM CDT. **Io** will egress at 8:05 PM CDT, with **Ganymede** egress at 10:44 PM CDT. There are four mutual satellite events during May. On the 1<sup>st</sup>, **Europa** will eclipse **Io** from 2:34 AM CDT to 2:41 AM CDT. On the 11<sup>th</sup>, **Europa** eclipses **Ganymede** from 4:06 AM CDT to 4:15 AM CDT. On the 20<sup>th</sup>, **Io** eclipses **Europa** from 2:56 AM CDT to 3:01 AM CDT. On the 27<sup>th</sup>, **Io** eclipses **Europa** from 5:12 AM CDT to 5:17 AM CDT.

**Saturn** – **Saturn** is just a bit fainter than 1<sup>st</sup> magnitude, and rises around 2:30 AM local time on May 1<sup>st</sup>. The planet is in Capricornus 1° from **Theta Capricorni**. In the last full week of May, the planet reaches its stationary point 0.6° from **Theta Capricorni**, and then begins retrograde motion. On the 31<sup>st</sup>, the planet is at magnitude 0.4, rising shortly before 1 AM local time. At the onset of twilight, the planet will be 30° high. The planet's disk spans 17" at the equator, and is 1.5" smaller pole to pole. The rings span roughly 40" in width and 11" in height. The planet's moon **Titan**, at magnitude 8.4, will lie 2.8' due east of the planet on the 3<sup>rd</sup>, and south of the planet on the 7<sup>th</sup> and 23<sup>rd</sup>, and north of the planet on the 15<sup>th</sup> and 31<sup>st</sup>. **Iapetus** is at superior conjunction with the planet on the 6<sup>th</sup>, glowing at 11<sup>th</sup> magnitude. On the 25<sup>th</sup>, **Iapetus**, at 12<sup>th</sup> magnitude, reaches greatest eastern elongation – 8.3' east of the planet. Tenth magnitude moons **Tethys**, **Dione**, and **Rhea** orbit near the planet. The moon **Enceladus**, at magnitude 12, lies near the edge of the rings.

**Uranus** – **Uranus** reappears low on the eastern horizon as dawn breaks, 11° below **Hama (Alpha Arietis)**, late in the month, at magnitude 5.9.

**Neptune** – **Neptune** is in northeastern **Aquarius**, rising at about 4:15 AM local time. It is best seen in late May. On the 31<sup>st</sup>, the planet stands 5.6° east of **Phi Aquarii**, and due south of the circlet of stars in **Pisces**, shining at magnitude 7.8.

**Moon** – There is a total lunar eclipse on May 26<sup>th</sup>. Totality is visible from the western half of North

America, low in the southwest. The East Coast will see only the early penumbral phase, while observers in the Midwest will see about half of the lunar disk in the umbral shadow before the Moon sets at sunrise.

The Moon is at the head of Scorpius, roughly midway from M80 and Beta Scorpii (Graffias).

Favorable librations: Phocylides Crater on the 25<sup>th</sup>; Short Crater on the 26<sup>th</sup>; and Mare Undarum on the 27<sup>th</sup>.

Greatest North declination is on the 16<sup>th</sup> (+25.6°)

Greatest South declination is on the 1<sup>st</sup> (-25.5°) and on the 29<sup>th</sup> (-25.6°)

Libration in longitude: East limb most exposed on the 4<sup>th</sup> (+7.2°)

West limb most exposed on the 20<sup>th</sup> (-7.8°)

Libration in latitude: North limb most exposed on the 6<sup>th</sup> (+6.8°)

South limb most exposed on the 21<sup>st</sup> (-6.8°)

**Asteroids** – Asteroid **4 Vesta** – **Vesta's** positions, according to the *RASC Observer's Handbook, 2021 USA Edition*, are as follows: On May 6<sup>th</sup> – 10 50.71 +17 27 48, at magnitude 7.1; on the 16<sup>th</sup> – 10 55.71 +16 26 12,

at magnitude 7.2; and on the 26<sup>th</sup> – 11 02.99 +15 11 18, at magnitude 7.4. **Vesta's** positions, *by my estimates*, are as follows: On May 1<sup>st</sup> – about 1.2° southeast of **51 Leonis**; on the 5<sup>th</sup> – about 3.5° southeast of **51 Leonis**; on the 10<sup>th</sup> – 1.7° south-southeast of **51 Leonis**; on the 15<sup>th</sup> –

2.5° southeast of **51 Leonis**, or 3° north-northeast of **52 Leonis**; on the 20<sup>th</sup> – 3° northeast of **52 Leonis**; on the 25<sup>th</sup> – 2.4° due west and a little south of **Theta Leonis (Chertan)**; and on the 30<sup>th</sup> – 1.6° southwest of **Theta Leonis (Chertan)**.

Asteroid **6 Hebe** – **Hebe's** positions, according to the *RASC Observer's Handbook, 2021 USA Edition*, are as follows: On May 16<sup>th</sup> – 20 00.61 -07 22 48, at magnitude 9.9; and on the 26<sup>th</sup> – 20 03.84 -07 03 54, at magnitude 9.7.

Asteroid **29 Amphitrite** – **Amphitrite's** positions, *by my estimates*, are as follows: On May 1<sup>st</sup> – about 1° northeast of **Nu Leonis**; on the 5<sup>th</sup> – just over 1° east and a little north of **Nu Leonis**, or 1.5° northwest of **Regulus (Alpha Leonis)**; on the 10<sup>th</sup> – 0.6° northwest of **Regulus**; on the 15<sup>th</sup> – 0.4° southeast of **Regulus**; on the 20<sup>th</sup> – 1.5° southwest of **Regulus**, or 1.7° northeast of **31 Leonis**; on the 25<sup>th</sup> – 2.2° east and a little north of **31 Leonis**; and on the 30<sup>th</sup> – 2.5° west-northwest of **Rho Leonis**.

Asteroid **63 Ausonia** – **Ausonia's** position, on May 26<sup>th</sup>, according to the *RASC Observer's Handbook, 2021 USA Edition*, is 16 47.26 -33 26 48, at magnitude 9.9.

**Comets** – Comet **7P/Pons-Winnecke** – **7P's** positions, according to *ALPO*, are as follows: On May 1<sup>st</sup> – 19 31 30 +04 00, at magnitude 12.8 in **Aquila**; on the 11<sup>th</sup> – 20 09 06 +00 19, at magnitude 12.4 in **Aquila**; on the 21<sup>st</sup> – 20 48 22 -04 39, at magnitude 12.0 in **Aquila**; and on the 31<sup>st</sup> – 21 28 12 -10 45, at magnitude 11.6 in **Capricornus**.

Comet **15P/Finlay** – **Finlay's** positions, according to *ALPO*, are as follows: On May 1<sup>st</sup> – 22 18 00 -18 02, at magnitude 16.4 in **Aquarius**; on the 11<sup>th</sup> – 22 57 36 -14 13, at magnitude 15.4 in **Aquarius**; on the 21<sup>st</sup> – 23 39 24 -09 37, at magnitude 14.5 in **Aquarius**; and on the 31<sup>st</sup> – 00 23 06 -04 21, at magnitude 13.5 in **Pisces**.

Comet **C/2020 R4 (ATLAS)** – **R4's** positions, according to *ALPO*, are as follows: On May 1<sup>st</sup> – 13 53 06 +33 14, at magnitude 9.7 in **Canes Venatici**; on the 11<sup>th</sup> – 12 07 12 +29 15, at magnitude 10.9 in **Leo**; on the 21<sup>st</sup> – 11 24 30 +25 04, at magnitude 11.9 in **Leo**; and on the 31<sup>st</sup> –

11 05 48 +22 05, at magnitude 12.8 in **Leo**. **R4's** positions, *by my estimates*, are as follows: On May 1<sup>st</sup> – about 4.5° north-northwest of **M3** in **Canes Venatici**; on the 5<sup>th</sup> – 5.5° northwest of **Gamma Coma Berenices**; on the 10<sup>th</sup> – 4.2° west-northwest of **Gamma Coma Berenices**; on the 15<sup>th</sup> – 5.5° due north of **92 Leonis**; on the 20<sup>th</sup> – 5.5° northeast of **Zosma (Delta Leonis)**; on the 25<sup>th</sup> – 2.6° due north and a little east of **Zosma**; and on the 30<sup>th</sup> – 2° northeast of **60 Leonis**.

Comet **C/2021 A1 (Leonard)** – **A1's** positions, according to *ALPO*, are as follows: On May 1<sup>st</sup> – 11 31 54 +61 24, at magnitude 17.3 in **Ursa Major**; on the 11<sup>th</sup> – 11 10 54 +60 25, at magnitude 17.2 in **Ursa Major**; on the 21<sup>st</sup> – 10 54 18 +59 00, at magnitude 17.1 in **Ursa Major**; and on the 31<sup>st</sup> – 10 42 18 +57 20, at magnitude 17.0 in **Ursa Major**.

**Meteor Showers** – The only major meteor shower (Class I) in May is the **Eta Aquarids**, active from April 19<sup>th</sup> through May 28<sup>th</sup>, peaks on May 5<sup>th</sup> with a maximum zenith hourly rate (mzhr) of 50 per hour. There will be a 24 day old **Moon** rising one hour after the radiant, and about one hour before dawn. The radiant will be 10° to 20° before dawn. The shower comes from the debris of comet **1P/Halley**.

There is one minor shower (Class II), the **Eta Lyrids**, active from May 6<sup>th</sup> through 13<sup>th</sup>, peaking on May 10<sup>th</sup> with a mzhr of 3.

The only Class III shower (Variable) is the **Tau Herculids**, active from May 19<sup>th</sup> through June 4<sup>th</sup>, peaking on June 2<sup>nd</sup>.

There are 5 Class VI (weak) showers active in May. The **April Rho Cygnids**, peaked on April 28<sup>th</sup>; the **h-Virginids**, peaked on April 30<sup>th</sup>; the **Theta<sup>2</sup> Sagittariids**, active from May 10<sup>th</sup> through May 15<sup>th</sup>, peaks on May 13<sup>th</sup> with a mzhr of <2; the **daytime Arietids**, active from May 22<sup>nd</sup> through June 24<sup>th</sup>, peaking on June 7<sup>th</sup>; and the **June Mu Cassiopeids**, active from May 18<sup>th</sup> through June 15<sup>th</sup>, peaking on June 8<sup>th</sup>.

## *When to View the Planets:*

### Evening Sky

Mercury (west)

Venus (west)

Mars (west)

### Midnight

### Morning Sky

Jupiter (southeast)

Saturn (southeast)

Uranus (east)

Neptune (east)

**DARK SKY VIEWING - PRIMARY ON MAY 8TH, SECONDARY ON MAY 15TH**

## Mythology:

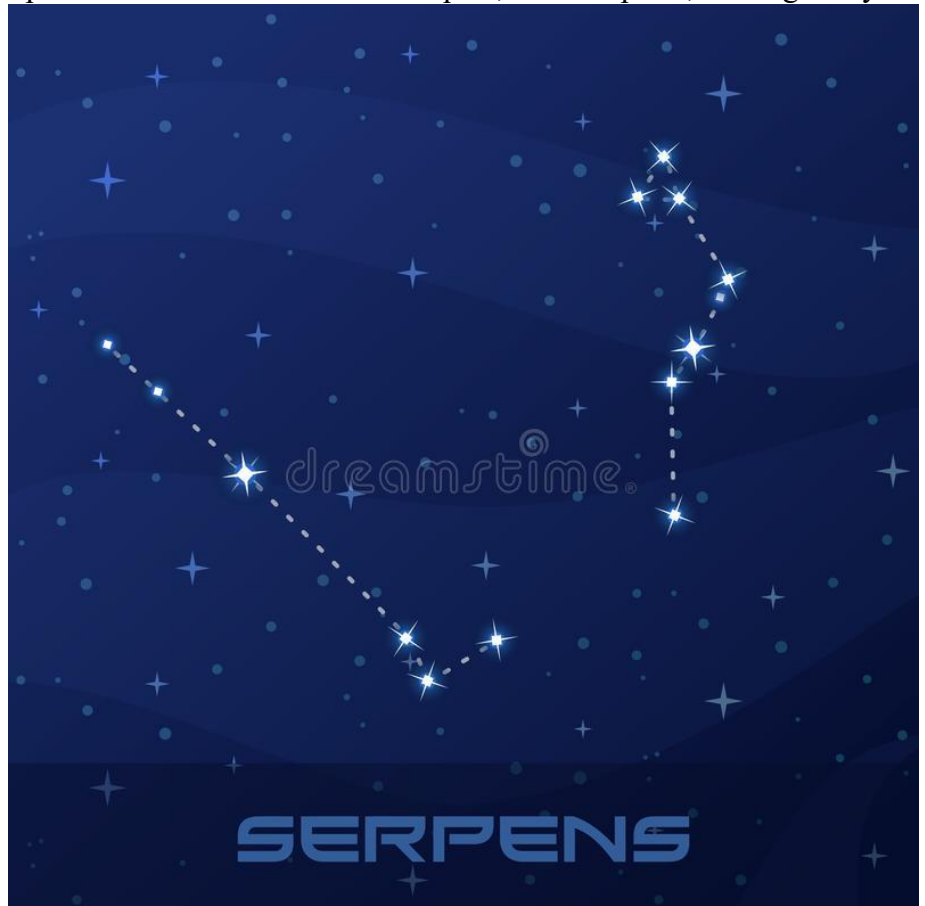
### Serpens – The Serpent

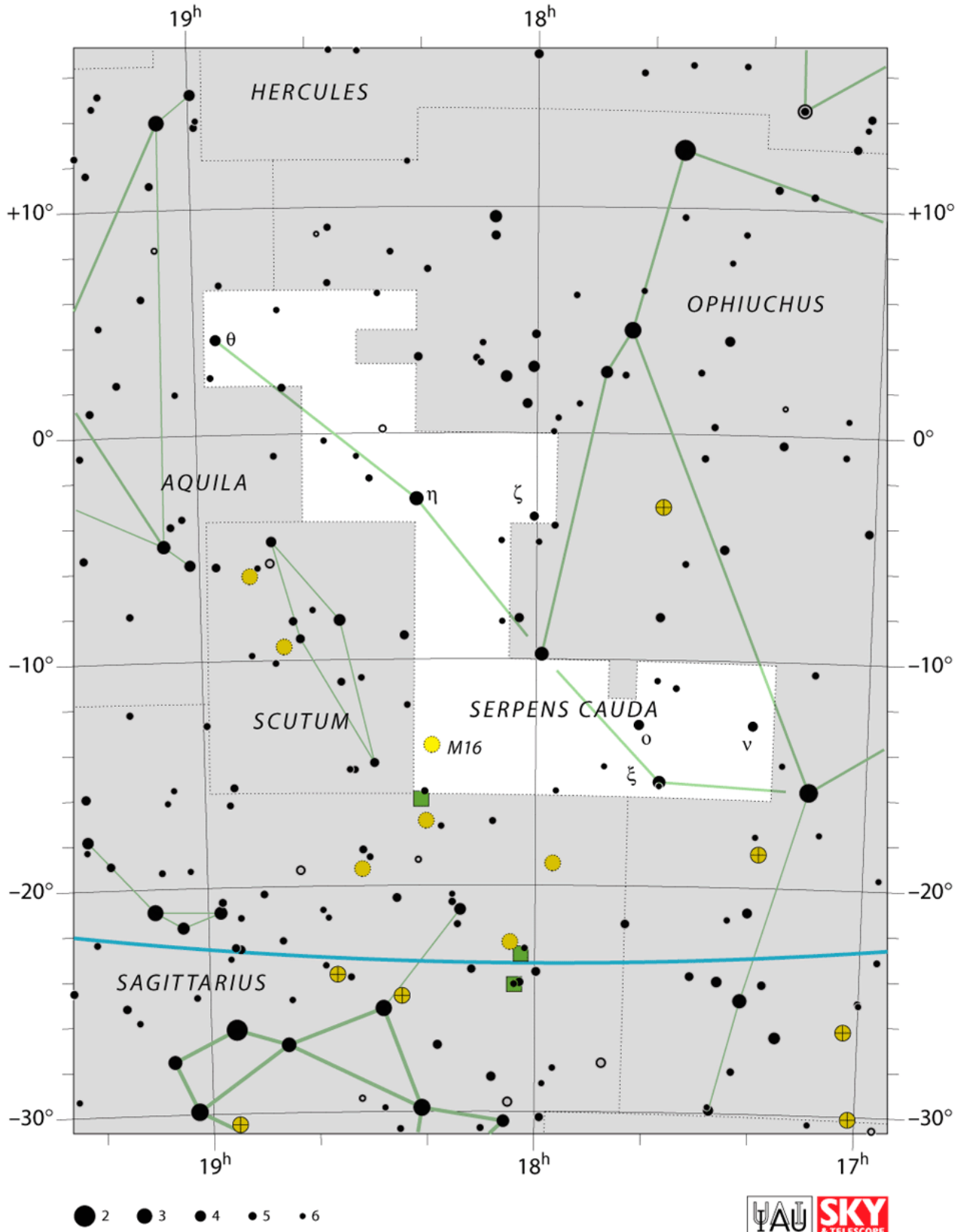
This constellation is unique, for it is divided into two parts – Serpens Caput, the head, and Serpens Cauda, the tail. But astronomers regard it as a single constellation.

Serpens represents a huge snake held by the constellation Ophiuchus. In his left hand Ophiuchus grasps the snake's head, which is turned to look back at him, while his right hand holds the tail. Aratus and Manilius agreed that Serpens was coiled around the body of Ophiuchus, but most star atlases show the snake simply passing between his legs. In mythology, Ophiuchus was identified as Asclepius, son of Apollo, although why he appears to be wrestling with a serpent in the sky is not fully explained. His connection with snakes is attributed to the story that he once killed a snake that was miraculously restored to life by a herb placed on it by another snake. Asclepius subsequently used the same technique to revive dead people.

Snakes are the symbol of rebirth because they shed their skins every year. The star Alpha Serpentis is called Unukalhai from the Arabic meaning "The Serpent's neck", where it is located. The tip of the serpent's tail is marked by Theta Serpentis, called Alya, an Arabic word that actually refers to "a sheep's tail".

The most celebrated object in Serpens is a star cluster called M16, embedded in a gas cloud called "The Eagle Nebula".





The End