

Night Visions

October 2016 Issue

Newsletter of the Baton Rouge Astronomical Society

Next Meeting: Monday, October 10th at 7PM at HRPO
(2nd Mondays, Highland Road Park Observatory)

What's In This Issue?

[President's Message](#)

[Secretary's Summary of September Meeting](#)

[Outreach Report](#)

[Photo Gallery](#)

[Light Pollution Committee Report](#)

[Recent BRAS Events](#)

[Photo Gallery](#)

[Recent Forum Entries](#)

[20/20 Vision Campaign](#)

[Messages from the HRPO](#)

[Observe The Moon Night](#)

[The August Flood: How Rare Is Rare?](#)

[The Spooky Spectrum](#)

[Article: ASTRO SHORT: A Black Hole is Born – And Caught In The Act!](#)

[Observing Notes: Scutum – The Shield, by John Nagle & Mythology](#)

[Deep South Star Gaze Registration Form \(Pages 18-21, print and mail\)](#)



President's Message

October, and it is finally getting cooler. Nightfall is coming sooner and lasting longer. The onset of the autumn and winter observing season is here.

To celebrate the season, our ever-playful newsletter editor, my lovely wife Michele, has hidden the Witch's Nebula somewhere in these pages. The first 3 members to find it (independently of course), and report their finding to me (jonagle@cox.net), will receive 3 free raffle tickets at the October meeting. Of course you must attend the meeting to participate.

As we start trying to get back to some kind of normalcy after the flood, there will be many requests for outreach events. Tis the season to volunteer!

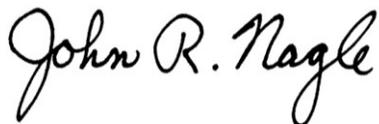
The Mini-Maker Faire is coming up on October 8th, and the Stargaze at the Vacheri Library on Tuesday, Oct. 11th.

Early registration for the Deep South Star Gaze is almost over. (See Registration Form at the back of this newsletter.)

It is time to start thinking about BRAS Officers for next year. We are only 3 meetings away from the Christmas meeting – the traditional nominating and electing meeting.

The November meeting will be the 35th Year Anniversary of BRAS. That's only a month away. We are looking for good ideas on how we should celebrate this. Please contact me if you have ideas/suggestions on how to observe this event.

Clear Skies,



John R. Nagle
President of BRAS
Observing Chairperson



**Here's a cool Google ad with this caption:
"Amazing things are all around us, but most people never find them."**





Secretary's Summary from September Meeting

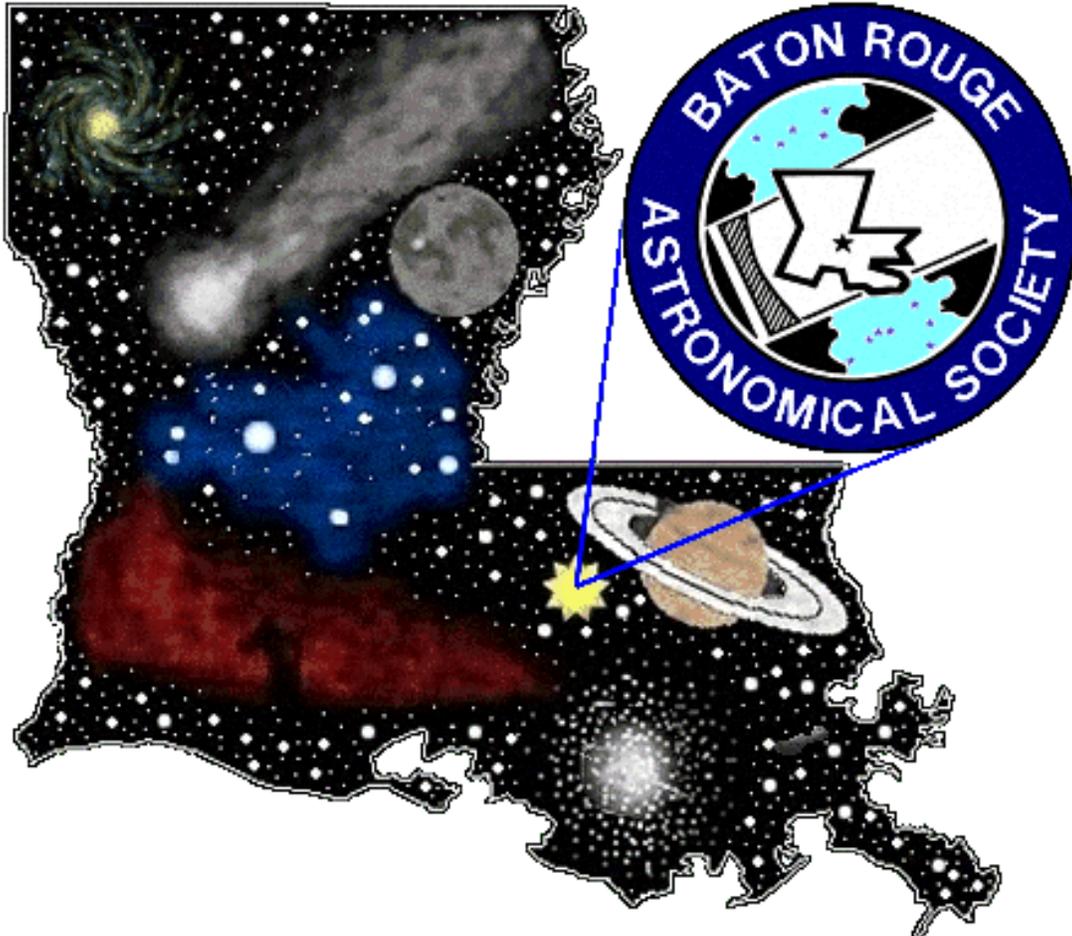
- Meeting called to order
- -Offer to assist with flood damaged scopes and astronomy equipment reiterated
- -Upcoming outreach events mentioned
- -Announced that the sound system has been partially installed. Just need to run the speaker cables
- -Introduction of guest speaker, Ed Shihadeh who spoke about high power rocketry
- -Dues are now being collected for 2017
- -Raffle was held
- -Meeting adjourned

Clear Skies,

Ben Toman
BRAS Secretary



This cool image created by BRAS Member Frederick Barnett, who also supplies our cartoons.





BRAS Outreach Report

Hi Everyone,

We've had some great outreach happening and had a lot of help from our members. Most recently, we were at the Lucher Library, LSU Art Museum and the Girls Scout BIG Event! at Southeastern's campus.

I'm happy to say that we had some great viewing at all three events. That's got to be some kind of record! We even got a picture in the Advocate for the LSU Museum event. Many thanks to the following volunteers: Scott Louque, Christopher Kersey, Steve Richard, Barrow and Susan Leake, Roz Readinger, Chris Raby and Ben Toman. We made some great new friends in the community and got to give a lot of people their first look through a telescope.

We have plenty of things on the horizon, so please let me know if you are able to help out with any of these events:

Saturday, October 8th

Baton Rouge Mini Maker Faire

10am-6pm

Baton Rouge Main Library

Solar scope, info booth, homemade astro things?

(6-8 volunteers needed.)

Tuesday, October 11th

Stargazing at the Vacherie Library (2593 Highway 20)

6:30pm-8:30pm

Telescope observing

(1-2 more needed)

Saturday, October 15th

Farr Equestrian Center Open House

10am-12pm

info booth and demos most likely

(2-4 people needed)

Friday, October 21st

Halloween Event

West Baton Rouge Museum

5:30pm-6:45pm

Telescope observing, info table

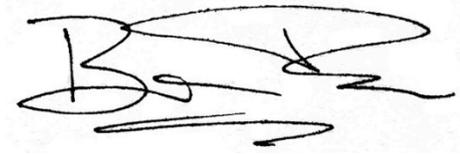
(2-3 volunteers needed)

In addition to these events, I'd like to try to get a sidewalk astronomy event in place for either Wednesday or Thursday October 12th-13th. I scouted out Perkins Rowe and it looks like it would be excellent both view of the sky-wise and passersby-wise. It will ultimately depend on who gives us

permission first since it is coming up soon.

As always, if you can help out with one (or ALL) of these events, let me know ASAP so I can start to build a list of volunteers for each event. We can always use the help!

Clear Skies,



Ben Toman
Interim Outreach Coordinator



BRAS Light Pollution Committee Report

2nd Mondays, from 6:15 pm to 7:00pm, before the BRAS public meeting.

One does not need to be a BRAS member to attend.

This meeting will...

- introduce the general public to the LPC
- explain the LPC's benefit to amateur astronomers, nature lovers, homeowners and taxpayers
- summarize the accomplishments of BRAS in this endeavor



Thomas Halligan
Light Pollution Chairperson

Space is right overhead—double stars, nebulae, the Milky Way Galaxy and other galaxies. We can see it if we let it through.





Recent BRAS Events/Photo Gallery



BRAS Monthly Meeting, September 12th.
Dr. Ed Shihadeh gives his high powered rocketry presentation at the Highland Road Observatory.



***Got one or more
BRAS event photos?
Send them to
newsletter@brastro.org,
att'n Michele,
with a caption,
preferably by the 26th of the month
for inclusion, (space permitting), in
this newsletter.
Cite photographer' credits too.***



Thursday, September 15th, 7pm-9pm LSU Art Museum atop the Shaw Center:
“Cocktails in Color: Sake tasting and Stargazing”. Telescope observing. BRAS Volunteers Barrow Leake (left) and Steve Richard (right) pointing out objects to patrons.



September 24th. The Girls Scout Event at Southeastern University, Hammond. Scott Louque and Chris Raby (left to right under the canopy)

These photos provided by Ben Toman.



Recent Entries in the BRAS Forum

Below are selected recent additions to the BRAS Forum. There are also nine active polls. The Forum has reached 4000 posts.

- Ninth Successful [Dragon Cargo Craft](#) Launch
- [ARRL Field Day](#): Fun was Had by All
- 2016 [Deep South Regional StarGaze](#) Takes Place 25 to 30 October
- [Juno Spacecraft](#) Orbit Insertion is Perfect
- [ISS Research-and-Development Conferences](#) Took Place in July
- More Talk about the [2020 Martian Rover](#)
- Fortieth Anniversary for the [Viking Mission](#)
- Jupiter's [Great Red Spot](#) Warmer than Previously Thought
- HRPO Apprentice Judah S. Captured [Moon-Aldebaran Conjunction](#)
- Inclement Weather Hinders [30 July Solar Viewing](#) at HRPO
- [OSIRIS-REx](#) Team Prepare to Send Spacecraft to [Bennu](#)





BRAS's 20/20 Vision Campaign
GLOBE at Night: until 1 Oct, then 21 Oct to 31 Oct
2016 GOAL: 200 Measurements. CURRENT: 53

OBSERVATIONS NEEDED FOR SCHOOL PROJECT

BRAS is in the process of assisting a student at St. Joseph's Academy acquire raw data. She needs descriptions of views of five Messier objects—Pleiades, Orion Nebula, Andromeda Galaxy, Beehive Cluster, Whirlpool Galaxy—together with date and time, and the observing location's GaN measurement and quality of view. Parameters have been set defining whether each observation yields a poor, good or excellent view. An alert will also be sent out describing this exercise. The student needs very much this information with at least three sky views (different limiting magnitudes). The observation parameters for this project are as follows...

M45 [Pleiades] Aperture: binocular. Magnification: 10x – 25x.

Poor View: fifteen stars or fewer seen.

Good View: sixteen to twenty-nine stars seen.

Excellent View: thirty or more stars seen.

M44 [Beehive Cluster] Aperture: 50mm – 70mm. Magnification: 10x – 25x.

Poor View: indistinct blob seen.

Good View: at least ten distinct stars seen.

Excellent View: eleven or more distinct stars seen.

M31 [Andromeda Galaxy] Aperture: at least 80mm. Magnification: 20x – 40x.

Poor View: only core of the galaxy seen.

Good View: arms of the galaxy seen.

Excellent View: galaxy's companion (M32) seen.

M51 [Whirlpool Galaxy] Aperture: at least 8". Magnification: 25x – 50x.

Poor View: indistinct blob seen.

Good View: arms of the galaxy seen.

Excellent View: galaxy's companion (NGC 5195) seen.

M42 [Orion Nebula] Aperture: at least 80mm. Magnification 60x – 100x.

Poor View: only Trapezium (the four brightest stars) seen.

Good View: fifth star seen.

Excellent View: sixth star seen.

Observations should only be made when the Moon is below the horizon. Each observation should include the location's GLOBE at Night measurement or SQM measurement. Use all of these parameters to report your results to observatory@brec.org.

NOTE: Ms. Angelle needs these measurements to compliment out the data she has gathered. Use any opportunity to take at least one or two measurements.

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Messages from HRPO

The Highland Road Park Observatory will be closed on 24 June.



FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

7 October: “Commercial Space Exploration” As NASA breaks ground with people in orbit, living in space, travels to the Moon...and beyond...commercial companies have are always there, building the hardware to make it possible. Now some companies are tentatively following in NASA’s historic footsteps to begin the [commercialization of low-Earth orbit](#). HRPO Center Supervisor Tom Northrop has all the details!

14 October: “Wonders of the Fall Sky” BREC Education Curator Amy Brouillette will take the audience on a fascinating tour of [Baton Rouge's autumn season](#). She’ll highlight the celestial gems that will sparkle throughout the next three months—gems visitors will be able to see live if they continue to visit HRPO!

21 October: “The August Flood—How Rare is Rare?” Very few of us did not have a family member, friend or property directly affected by the [devastating flood of mid-August](#). WAFB Chief Meteorologist Jay Grymes summarizes the flood stage and rain amount estimates and explains whether we should be wary of another such event in the near future.

28 October: “Quantum Physics” Quantum physics is the study of single particles and small groups of particles. At this level, everyday matter shows...well, some very strange behavior. We’ll shrink into the region of ultracold atoms and high-temperature superconductors with LSU physics professor Daniel Sheehy.

SCIENCE ACADEMY

Saturdays from 10am to 12pm

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

1 October: “Surveying the Sun”

8 October: “Surveying the Moon”

15 October: “Fall Day”

22 October: “Expedition 12”

ONE-TIME CALLS FOR VOLUNTEERS

*Saturday 8 October, 7pm to 10pm. *Two or three volunteers.* **Observe the Moon Night.** Telescope operation, front desk duty, games assistance. Easy to moderate difficulty.

*Saturday 29 October, 6pm to 10pm. *Two or three volunteers.* **The Spooky Spectrum.** Telescope operation, physical science demonstrations, front desk duty, games assistance. Easy to moderate difficulty.

ONGOING CALL FOR VOLUNTEERS

HRPO periodically needs BRAS volunteers for crafting (gluing, cutting, painting,

etc.); training is offered for these easy to moderate tasks. We also have plenty of “grunt work” to go around in preparation for ARRL Field Day. Finally, we would more than welcome any who can help for at least one or two hours anytime during Fall Rocket Camp. We are asking any BRAS volunteers with time to assist. Thank you.



UPCOMING HRPO EVENTS

(click links for more detailed info)



[Observe the Moon Night](#)

Saturday, 8 October from 7pm to 10pm

No admission fee. For all ages.

Our nearest celestial neighbor and constant companion has been visited by twelve human beings on six different occasions—and we’re going back! There’s nothing, however, to stop us from doing the next best thing right now. During this [night of lunar excitement](#) telescopes around the world will be pointed at our sole natural satellite. HRPO will showcase the best historical lunar imagery, fascinating displays describing fact-finding missions, Apollo landings, myths and little-known facts about the Moon. Telescope viewing will occur as usual, with the Moon taking precedence. Join us, and sketch the Moon while you’re here!

[The August Flood: How Rare is Rare?](#)

Friday, 21 October from 7:30pm to 8:30pm

No admission fee. For ages fourteen and older.

Very few of us did not have a family member, friend or property directly affected by the [devastating flood of mid-August](#). WAFB Chief Meteorologist Jay Grymes summarizes the flood stage and rain amount estimates and explains whether we should be wary of another such event in the near future.

[The Spooky Spectrum](#)

Saturday, 29 October from 6pm to 10pm

No admission fee. For all ages.

Come visit on this moonless night—if you dare—as HRPO delves into the eerie side of astronomy, physics and aeronautics. We'll have creepy science demonstrations, some of which we've never used. This year also premieres a brand-new engineering section of the event. And don't forget the stories. Strange sky phenomena...extra dimensions... extraterrestrials. Be warned—we want to make you think!



ARTICLE: ASTRO SHORT

A Black Hole is Born—and Caught in the Act!

The moment photons began arriving at Earth shortly after midnight New Mexico time on Saturday, April 27, 2013, from the spectacular suicide of a massive star and resultant birth of a black hole, cameras began clicking on telescopes both on the ground and in space. Exultant astronomers worldwide captured data at visible, X-ray, gamma-ray, and radio wavelengths from telescopes both on the ground and in space.

Three independent RAPTOR (Rapid Telescopes for Optical Response) full-sky monitoring telescopes—two in New Mexico and one in Hawaii—caught an optical flash that within seconds brightened up to a peak of 7th magnitude (yes, bright enough to have been seen in an amateur astronomer’s telescope had it been pointed north of the triangle in the constellation Leo), and then faded over the next minute and a half to below 10th magnitude.



Los Alamos National Laboratory astrophysicist Tom Vestrand poses with the fast-slew array of telescopes for RAPTOR (RAPid Telescopes for Optical Response) system. RAPTOR is an intelligent visual system that scans the skies for optical anomalies and zeroes in on them when it detects them. This unique capability allowed astronomers to witness the birth of a black hole in the constellation Leo.

Credit: Los Alamos National Laboratory

Simultaneously, the Gamma Ray Burst Monitor (GBM) on the Fermi satellite, the Burst Alert Telescope (BAT) on the Swift satellite, and a veritable armada of other instruments caught the cataclysmic stellar explosion in the act, as did radio telescopes around the world.

Even more unusual, the explosion left an afterglow across the electromagnetic spectrum that persisted for weeks following the initial burst. Now, a host of papers in the January 3, 2014, issue of *Science* magazine reveal in detail just what happened.

‘The burst of the century’

“This was the burst of the century!” exclaimed James A. Wren, an engineer at Los Alamos National Laboratory and co-author of one of the papers. Indeed, GRB 130427A (as it is now called) was the most powerful gamma-ray burst and the second-brightest optical flash measured in 18 years.

The supernova detonated in a tiny, inconspicuous galaxy with no name some 3.8 billion light-years away. Partly it was so bright because that point of origin is actually five times closer to the Milky Way than typical long-duration gamma-ray bursts monitored by Swift, which are from galaxies that are now more than 17 billion light years away from us (thanks to the faster-than-light expansion of the distant universe according to

General Relativity). But partly it was so bright because of the explosion’s intrinsic power: it released 10^{54} ergs of energy in all directions, making GRB 130427A one of the most powerful gamma-ray bursts ever detected.

The comparatively long life of the gamma-ray burst points to the death of a star perhaps 25 to 30 times more massive than the Sun, whose internal core of iron abruptly collapsed in on itself, creating a highly magnetized neutron star or black hole. Somehow, this fast-spinning, compact object launches a powerful jet of particles traveling at nearly the speed of light along its axis of rotation. Internal shockwaves within this relativistic jet creates the initial burst of what is called “prompt” emission spanning from optical to gamma-ray wavelengths; in the case of GRB 130427A, the prompt emission lasted about 5 minutes.

Then, when the jet starts colliding with the surrounding outer layers of the star and interstellar medium, external shock waves give rise to a longer-lasting afterglow emission. The afterglow of GRB 130427A—which spanned from radio waves to gamma rays—persisted for weeks.

‘A Rosetta-Stone event’

What made this burst different from most others is that the sheer power of the explosion so comparatively nearby allowed astronomers to follow the star’s decline in brightness over many wavelengths for weeks, giving them a glimpse into details of the explosion’s physics usually too faint to observe.

“It is the link between the optical phenomenon and the gamma rays we haven’t seen before,” observed another Los Alamos co-author Przemek Wozniak.

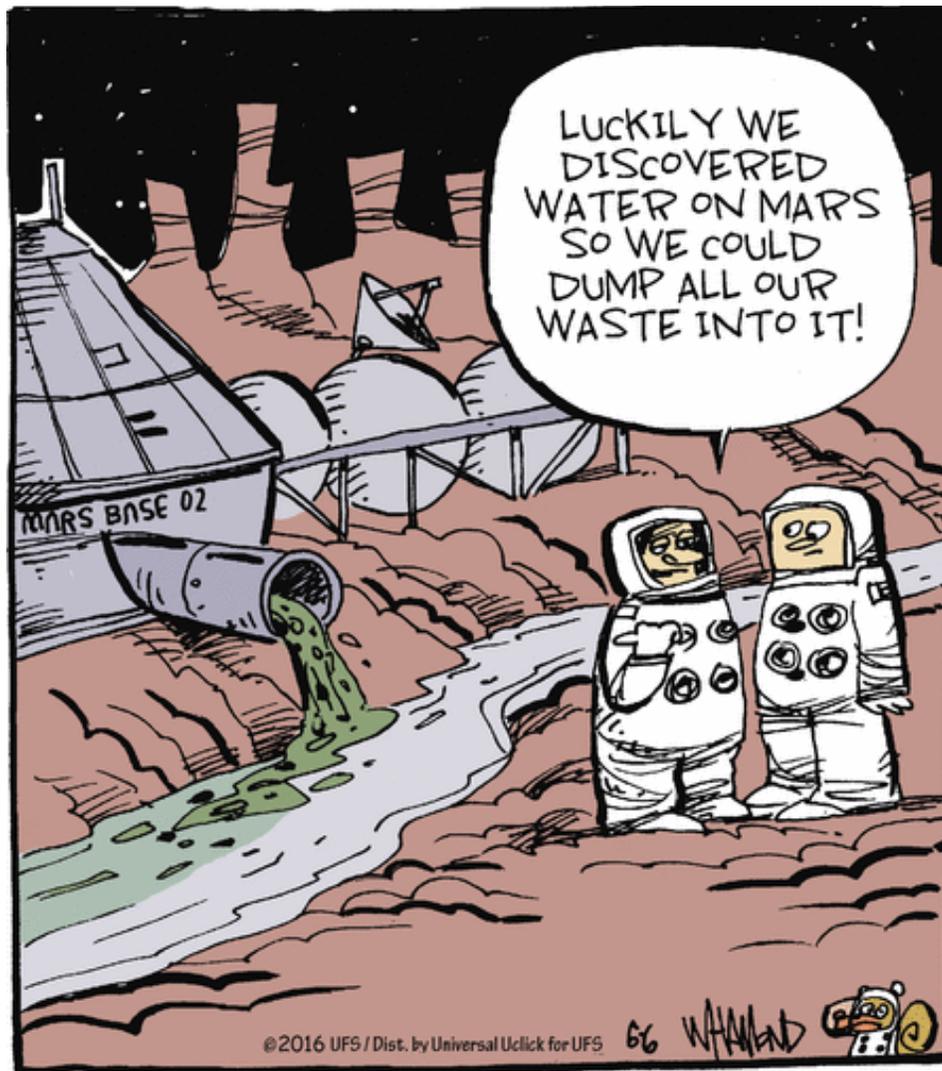
“This was a Rosetta-Stone event that illuminates so many things—literally,” affirmed lead author, Los Alamos astrophysicist W. Thomas Vestrand. “These are data that astrophysicists will be looking at for a long

time to come.” –*Trudy E. Bell, M.A.*

Further reading: Link to the paper “The Bright Optical flash and Afterglow from the Gamma-Ray Burst GRB 130427A” by Vestrand *et al.* published in *Science* is at <http://arxiv.org/abs/1311.5489> . A LANL press release “Black hole birth caught by cosmic voyeurs,” is at <https://www.lanl.gov/newsroom/news-releases/2013/November/11.21-black-hole-birth.php> .

The University of California High-Performance AstroComputing Center (UC-HIPACC), based at the University of California, Santa Cruz, is a consortium of nine University of California campuses and three affiliated Department of Energy laboratories (Lawrence Berkeley Lab, Lawrence Livermore Lab, and Los Alamos National Lab). UC-HIPACC fosters collaborations among researchers at the various sites by offering travel and other grants, co-sponsoring conferences, and drawing attention to the world-class resources for computational astronomy within the University of California system. More information appears at <http://hipacc.ucsc.edu>

IN LIGHT OF OUR RECENT FLOOD DEBRIS:





Observing Notes:

by John Nagle

Piscis Austrinus

The Southern Fish

Position: RA 22, Dec. -30°

Named Stars:

Fomalhaut (Alpha PsA), “fum al-hawt”, “the mouth of the fish”, mag. 1.7, 22 57 38.83 -29 37 18.6, forms a binary system with **TW PsA (Fomalhaut B)**. **Fomalhaut** emits excess infrared radiation, indicating it has a circumstellar disk in its orbit. In fact, **Fomalhaut** is surrounded by several debris disks. Besides being the tenth brightest star in the night sky, it is also the third brightest star with a planet in orbit around it.

TW PsA (Fomalhaut B), mag. 6.48, 22 56 23.83 -31 33 54.6, is an orange dwarf star and a flare star, ranging in magnitude from 6.44 to 6.49 over a period of 10.3 days. **Fomalhaut B**, discovered in 2004, has an estimated orbital period of 2,000 years.

Lacaille 9352, mag. 7.34, 23 05 52.04 -35 51 11.1, is a faint red dwarf star and the tenth closest star system to the **Sun** – only 10.68 light-years distant. **Lacaille 9352** can be seen with binoculars. The star is notable for having the fourth highest known proper motion, moving 6.9 arc seconds per year, and for being the first red dwarf star to have its angular diameter measured.

Deep Sky:

All Deep Sky objects are at magnitude 10 or greater – there are 35 NGC objects, 10 IC objects, and the Hickson Compact Group 90 (3 NGC’s). See me for particulars.

Other Stars:

Beta PsA, mag. 4.29, 22 31 30.29 -32 20 45.7, is a white main sequence dwarf star, and is a multiple star system.

Gamma PsA, mag. 4.46, 22 52 31.56 -32 52 31.6, is a multiple star system with the primary star being a white giant star.

Delta PsA, mag. 4.20, 22 55 56.89 -32 33 22.9, is a multiple star system with the primary component being a yellow giant star.

Epsilon PsA, mag. 4.18, 22 40 39.33 -27 02 37.0, is a blue-white main sequence dwarf star.

Eta PsA, mag. 5.43, 22 00 50.22 -28 27 13.5, is a multiple star system with the primary star being a blue-white sub-giant star.

Theta PsA, mag. 5.02, 21 47 44.17 -30 53 53.9, is a multiple star system with the primary component being a main sequence white dwarf star.

Iota PsA, mag. 4.35, 21 44 56.79 -33 01 32.0, is a multiple star system with the primary star being a B-type sub-giant star.

Mu PsA, mag. 4.50, 22 08 22.95 -32 59 18.2, is a white main sequence star.

Pi PsA, mag. 5.12, 23 03 29.76 -34 44 58.6, is a spectroscopic binary star, with the two stars having an orbital period of 178.3177 days.

HD 216770, mag. 8.10, 22 55 53.70 -26 39 31.6, has one planet in orbit.

HD 205739, mag. 8.56, 21 38 08.41 -31 44 14.9, has one planet in orbit.
HD 207832, mag. 8.79, 21 52 36.0 – 26 01 36, has two planets in orbit.
There are two more stars beyond mag. 10 that have transiting planets.



Sky Happenings: July 2016

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

- Oct. 3rd** - The **Moon** passes 5° north of **Venus** at 12:00 noon CDT,
 Dusk – The thin crescent **Moon** hangs about 4° above or to the upper right of **Venus**, very low in the west southwest.
- Oct. 4th** - The **Moon** is at apogee (252,336 miles from **Earth**) at 6:03 AM CDT.
- Oct. 5th** - Dusk – The waxing crescent Moon shines a bit higher this evening, standing 5° or 6° to the right of Saturn in the southwest. Look 6° below Saturn for twinkling Antares.
- Oct. 6th** - The **Moon** passes 4° north of **Saturn** at 3 AM CDT.
- Oct. 7th** - **Asteroid Pallas** is stationary at 9 PM CDT.
- Oct. 8th** - The **Moon** passes 7° north of **Mars** at 7 AM CDT,
First Quarter Moon occurs at 11:33 PM CDT.
- Oct. 10th** - **Mercury** passes 0.9° north of **Jupiter** at 11 PM CDT.
- Oct. 13th** - The **Moon** passes 1.2° north of **Neptune** at 1 AM CDT.
- Oct. 15th** - **Uranus** is at opposition at 6 AM CDT,
 The **Moon** passes 3° south of **Uranus** at 9 PM CDT,
Uranus reaches its 2016 peak, shining at mag. 5.7 and appearing 3.7" across through a telescope,
 The **Full Moon** occurs at 11:23 PM CDT.
- Oct. 16th** - The **Moon** is at perigee (222,624 miles from **Earth**) at 6:34 PM CDT.
- Oct. 18th/19th** - Night – The **Moon** occults **Aldebaran** for the southern half of **North America** and **Central America**.
- Oct. 19th** - The **Moon** passes 0.3° north of **Aldebaran** at 2 AM CDT.
- Oct. 20th thru 22nd** - Morning – The modest **Orionid Meteor Shower** peaks early on the morning of Oct. 21st.
 Activity should be strong for several nights before and after the peak, but the waning gibbous **Moon** will wash out the region of the **Orionid** radiant.
- Oct. 20/21** - The dwarf planet **Ceres** is at opposition at 12:00 midnight CDT.
- Oct. 21st** - The **Orionid Meteor Shower** peaks.
- Oct. 22nd** - **Last Quarter Moon** occurs at 2:14 PM CDT.
- Oct. 23rd** - **Asteroid Melpomene** is at opposition at 6 PM CDT.
- Oct. 24th** - **Venus** passes 3° north of **Antares** at 11 PM CDT.
- Oct. 25th** - Morning – The waning crescent **Moon** rises just after **Regulus**, the star marking the fore-foot of **Leo**. By dawn, the pair will be about halfway up the sky in the east southeast.
- Oct. 26th** - Dusk – Look for **Saturn** approximately 5° to the upper left of the much brighter **Venus** in the southwest.
- Oct. 27th** - **Mercury** is in superior conjunction with the Sun at 11 AM CDT,
 Dusk – **Saturn**, **Venus**, and **Antares** are fairly close this evening, forming a vertical line 7° tall in the southwest. Red **Antares** is only 7° high a half hour after sunset.
- Oct. 28th** - The **Moon** passes 1.4° north of **Jupiter** at 5 AM CDT.
- Oct. 29th** - **Mars** is at perihelion (128.4 million miles from the **Sun**) at 8 AM CDT.
- Oct. 30th** - **Venus** passes 3 south of **Saturn** at 3 AM CDT,
New Moon occurs at 12:38 PM CDT.
- Oct. 31st** - The **Moon** is at apogee (252,688 miles from **Earth**) at 2:29 PM CDT.

Planets:

Mercury – On Oct. 1st, **Mercury** shines with a magnitude of -0.8, with a disk diameter of 7", at about 8° above the due east horizon 45 minutes before the sunrise. About Oct. 8th, **Jupiter** emerges below **Mercury**, moving higher each day as **Mercury** moves lower. On Oct. 10th, **Jupiter** appears 1.6° below **Mercury**, and on the 11th, **Mercury** (now at mag. -1.1) beams just 0.8° to the left of **Jupiter** (at mag. -1.7). They will be only about 5° above the horizon in the bright sky 30 minutes before sunrise. A telescope may reveal **Mercury**'s 90% illuminated disk to be only 5" wide compared to **Jupiter**'s 31". **Mercury** appears lower each morning thereafter, becoming lost in the sunrise by mid-month before dropping through superior conjunction with the **Sun** on Oct. 27th.

Venus – **Venus** appears low in the southwest after sunset, shining at mag. -3.9, jumping out of the bright twilight. **Venus** stands nearly 10° above the horizon a half-hour after sunset. During the month **Venus** changes only gradually, growing from 12" to 14" wide while its phase decreases from about 86% to 78% lit. A few days into the month, and well into **Libra**, **Venus** passes below the wide double star **Alpha Librae (Zubenelgenubi)**. They are less than 1° apart on Oct. 5th. On Oct. 17th, **Venus** crosses into **Scorpius**, and then into **Ophiuchus** on the 24th. Around Oct. 20th, **Venus** brushes very close to the bright and unpredictable variable star **Delta Scorpii (Dschubba)**. On the evenings of Oct. 25th and 26th, **Venus** will be 3° to the upper right of **Antares**. On Oct. 27th, **Venus** passes midway through the gap between **Saturn** and **Antares**, forming a nearly vertical line with them low in the twilight. **Saturn** will shine at mag. +0.5, **Venus** at mag. -4.0, and **Antares** at mag. +1.0. **Antares** will be the lowest, at less than 10° high only 30 minutes after sunset. On Oct. 29th and 30th, **Venus** will be 3° south of **Saturn**.

Mars – on Oct. 1st, **Mars**, at mag. 0.1, is in **Sagittarius** – it lies in the same binocular field as **M 8 – The Lagoon Nebula**, which stands 2.5° to the northwest of **Mars**. **Mars** moves 0.8° south of 7th magnitude globular cluster **M 28** on Oct. 5th. On Oct. 6th, **Mars** passes 0.2° south of 3rd magnitude **Lambda Sagittarii**. **Mars** skims 4' south of 9th magnitude globular cluster **NGC 6638** on Oct. 7th, and rounds out its encounters with globular clusters on the 9th, when it appears 1.6° south of 5th magnitude **M 22**. During the 2nd half of Oct., **Mars** passes over the **Teapot**'s bright handle and treks a few degrees below the dimmer **Teaspoon Asterism**. **Mars**' disk shrinks to less than 8' wide over the course of the month. **Mars** reaches perihelion with the **Sun** on Oct. 29th.

Jupiter – By about Oct. 8th, **Jupiter** emerges in the morning below **Mercury**, rising higher each day as **Mercury** gets lower. On Oct. 11th, **Mercury** (at mag. -1.1) is just 0.8° to the left of magnitude -1.7 **Jupiter**. They will be only about 5° above the horizon in the bright sky 30 minutes before sunrise. **Jupiter**'s disk will be at 31", while **Mercury**'s disk will be only 5" wide. On Oct. 10th, **Jupiter** will be 1.6° below **Mercury**, and on the 11th, the two planets will be just 0.8° apart, with **Jupiter** on the right and shining at mag. -1.7, and with **Mercury** at mag. -1.1. **Jupiter** continues to climb higher each morning, ending the month by rising almost 2½ hours before the **Sun**.

Saturn – **Saturn** doesn't look as spectacular through the telescope this month as it did during the Spring and Summer. Its lower altitude results in poor "seeing". **Saturn**'s disk measures 16' across at mid-month, while the rings span 35" and tilt 26° to our line of sight. The dark **Cassini Division** that separates the outer A ring from the brighter B ring should appear conspicuous in descent seeing. At the start of Oct., **Saturn** stands only about 20° high in the southwest an hour after sunset. By month's end, it is only half of that. Back in Sept., **Saturn** was 6° north northeast of **Antares** – **Saturn** moves slowly but surely eastward and away from **Antares**, but by the end of Oct., they are still close, only 7° apart. On Oct. 27th, **Venus** will pass midway through the gap between **Saturn** and **Antares**, forming a nearly vertical line with them low in the twilight. **Saturn** will shine at mag. +0.5, **Venus** at mag. -4.0, and **Antares** at mag. +1.0. You should be able to see several of **Saturn**'s satellites. The brightest, 8th magnitude **Titan**, shows up easily through any telescope. **Titan** orbits the planet in 16 days and slides due south of **Saturn** on Oct. 2nd and 18th, and north of the planet on Oct. 11th and 27th. **Saturn**'s three 10th magnitude moons – **Tethys, Dione, and Rhea** – are a bit harder to see with the planet so low to the horizon. Still, a 4-inch telescope with good optics should pick them up on most evenings.

Uranus – **Uranus** is in **Pisces**, and reaches opposition and peak visibility on Oct. 15th, though the view hardly suffers during the rest of the month. **Uranus** glows at mag. 5.7 throughout Oct., which makes it bright enough to glimpse with the naked eye from under a dark sky. **Uranus** climbs above 30° by 9 PM

Local Daylight Time in mid Oct. To track **Uranus** down, first find the **Great Square of Pegasus**. From mag. 2.8 **Gamma Pegasi (Algenib)**, the square's southeastern corner, scan 12° southeast to find the 4th magnitude stars **Delta** and **Epsilon Piscium**. Then look a few degrees east and south to locate 5th magnitude **Zeta** and **Mu Piscium**. At opposition, on Oct. 15th, **Uranus** will be midway between and a bit north of a line joining these two stars. To confirm a planet sighting, point your telescope at the target. Only **Uranus** shows a disk, which measures 3.7" across, and has a distinct blue-green color.

Neptune – **Neptune** resides among the background stars of **Aquarius**, which lies due south and is at its highest in mid-evening. Glowing at mag. 7.8, **Neptune** shows up quite easily through tripod mounted 7x50 binoculars. **Neptune** begins Oct. 2° southwest of 4th magnitude **Lambda Aquarii** and slowly drifts away. By the month's final week, it lies 2.5° from **Lambda Aquarii** and just 0.1° north of a pair of 9th magnitude stars. A telescope will reveal **Neptune**'s 2.3" diameter disk and subtle blue-gray color.

Pluto – **Pluto** is in **Sagittarius**, in proximity to **Omicron Sgr** (mag. 5.8) in the northeast of the constellation. During Oct.'s final week, **Pluto** lies 0.3° north and a touch west of **Omicron Sgr**. **Pluto** will pass 4' due north of a 7th magnitude field star on the 27th and just 8" north of a 9th magnitude star on the 30th. At mag. 14.2, **Pluto** glows 100 times dimmer than the latter star.

Moon – The crescent **Moon** waxes above and to the right of **Venus** on the evening of Oct. 3rd, to the right of **Saturn** on the 5th, and to the upper left of **Saturn** on the 6th. The **First Quarter Moon** lies rather to the far upper right of **Mars** on Oct. 7th, then similarly to the far upper left of it on the next night. A widely visible occultation of Aldebaran by the waning gibbous **Moon** occurs on the night of Oct. 18th/19th. At dawn on Oct. 28th, a hair thin waning crescent **Moon** hangs very close to the lower left of **Jupiter**.

Asteroids – **Asteroid II Parthenope** lurks near the border between **Pisces** and **Cetus**, a region that climbs high in the southeast by mid-evening. To find **Parthenope**, first locate mag. 3.5 **Iota Ceti**, and then slide north to **Parthenope**. The 9th magnitude asteroid will show up through tripod mounted binoculars or a telescope. By my reckoning of the charts, **Parthenope** will be due south of a line between **12 Ceti** and **13 Ceti** on Oct. 1st, and on the 4th/5th, **Parthenope** will be due south just over 1° from **12 Ceti**.

Comets – Comet 43P/Wolf-Harrington, 11th magnitude, will be in **Leo**'s front paw near the border with **Hydra** and **Sextans**. During Oct.'s first week, NGC 2962 (12th magnitude) will lie within a couple of degrees of the comet.

Meteor Showers – The **Orionid Meteor Shower** peaks before dawn on Oct. 21st. Unfortunately, a waning gibbous **Moon** shares the sky, likely cutting the observed number in half from an expected peak of 15 meteors per hour. The **Orionid** meteors stem from the debris trail left behind by comet **1P/Halley** during its regular visits to the inner solar system. Although it has been 30 years since **Halley** last visited, the debris spreads pretty evenly along the orbit. The **Orionids** appear to radiate from near the right elbow of **Orion**.

The minor **Southern Taurid Meteor Shower**, which derives from comet 2P/Encke, will have its peak on Oct. 10th, with the **Moon** being absent from the prime viewing time after midnight. Observers under a dark sky can expect to see up to 5 meteors per hour.

When to View the Planets:

Evening Sky

Venus (southwest)

Mars (south)

Saturn (southwest)

Uranus (east)

Neptune (southeast)

Midnight

Uranus (south)

Neptune (southwest)

Morning Sky

Mercury (east)

Jupiter (east)

Uranus (west)

DARK SKY VIEWING - PRIMARY ON OCT. 1ST, SECONDARY ON OCT. 29TH

Mythology



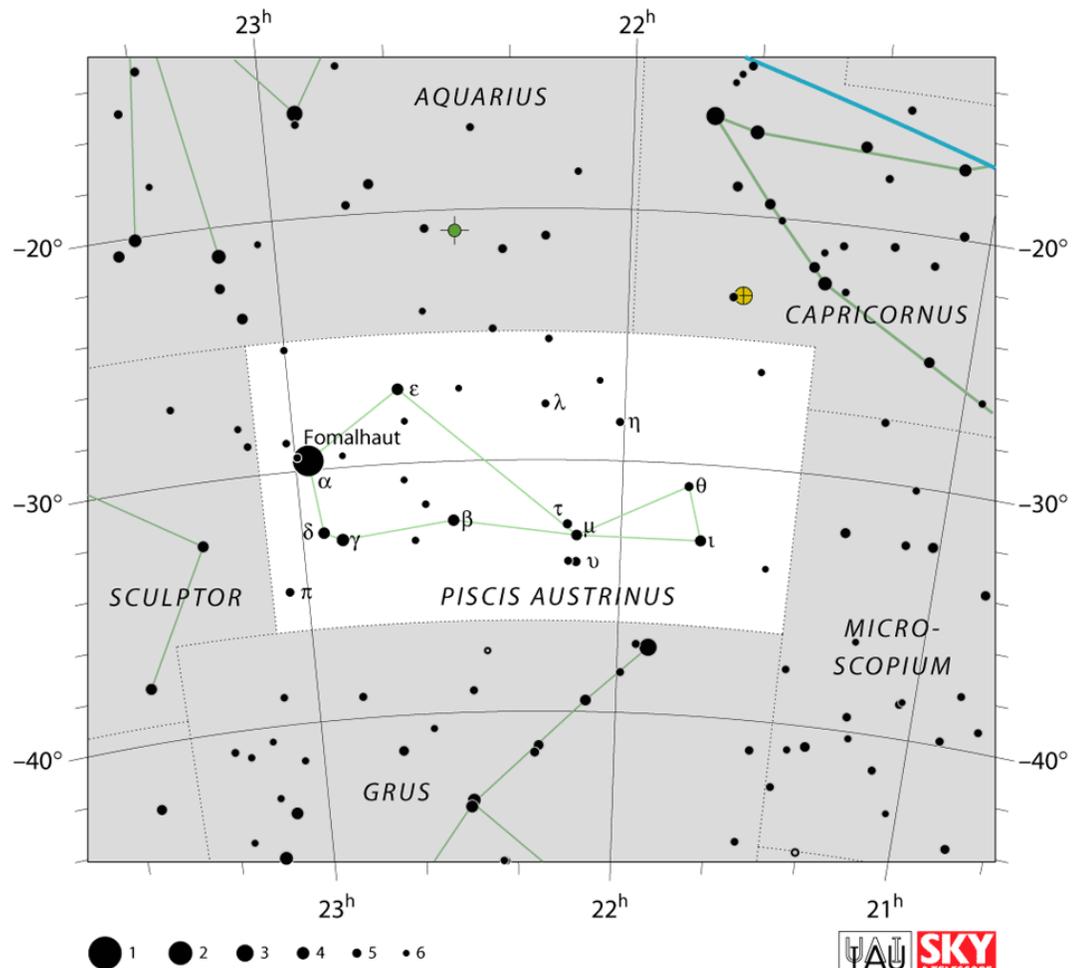
Piscis Austrinus – the Southern Fish

Eratosthenes called this the great fish, and said that it was the parent of the two smaller fishes of **Pisces**. Like **Pisces**, its mythology has a Middle Eastern setting that reveals its Babylonian origin. According to the brief account of **Eratosthenes**, the **Syrian** fertility goddess **Derceto** (the Greek name for **Atargatis**) is supposed to have fallen into a lake at **Bambyce** near the **Euphrates** River in Syria, and was saved by a large fish. **Hyginus** says, in repetition of his notes on **Pisces**, that as a result of this the Syrians do not eat fish, but they worship the images of fish as gods. All of the accounts of this constellation's mythology are disappointingly sketchy.

Bambyce later became known to the Greeks as **Hieropolis** (meaning sacred city), now called **Membij**. Other classical sources tell us that temples of **Atargatis** contained fish ponds. The goddess was said to punish those who ate fish by making them ill, but her priests ate fish in a daily ritual.

According to the Greek writer **Diodorus Siculus**, **Derceto** deliberately threw herself into a lake at **Ascalon** in **Palestine** as a suicide bid in shame for a love affair with a young **Syrian**, **Caystrus**, by whom she bore a daughter, **Semiramus**. **Derceto** killed her lover and abandoned her child, who was brought up by doves and later became queen of **Babylon**. In the lake, **Derceto** was turned into a mermaid, half woman, and half fish.

Piscis Austrinus is more noticeable than **Pisces** in the sky because it contains the first magnitude star **Fomalhaut**. This name comes from the **Arabic** meaning 'fish's mouth', which is where **Ptolemy** describes it. In the sky the fish is shown drinking the water flowing from the jar of **Aquarius**, a strange thing for a fish to do.



The End



34th Annual Deep South Star Gaze Registration Form Feliciana Retreat Center – Tuesday 10-25-16 to Sunday 10-30-16

NAME _____

ADDRESS(City) _____ (State) _____ (Zip) _____

TELEPHONE () _____ CLUB AFFIL. (if any) _____ EMAIL _____

1. Registration Fee - All attendees must register (1a or 1b) regardless of lodging choices

1a) Full Registration - \$30.00 per person / \$40.00 per family *if in advance and postmarked by 10/07/2016.*

Registrations postmarked *after this date* are \$45.00 per person / \$60.00 per family. Refunds will be made only if notified on or before this date or in the unlikely event of a Star Gaze cancellation. One door prize ticket per full registration.

Number attending _____ List names _____

1b) Reduced Registration - \$10.00 per person / \$15.00 per family. This applies if you do not want a door prize ticket, you are not setting up any equipment and you will not be staying overnight. Note, if you stay overnight in any type of vehicle, the camping fee applies.

Number attending _____ List names _____

Total Registration Fee (1a OR 1b) \$ _____

2. Overnight Reservation Choices - Select desired lodging type (2a, 2b or 2c) if staying on site

2a) Cottage Reservations (bring you own bedding and towels, pillows, etc.)

	Rate		# of people		Amount Due
Tuesday (10/25)	\$33.00 per person	X	_____	=	_____
Wednesday (10/26)	\$33.00 per person	X	_____	=	_____
Thursday (10/27)	\$33.00 per person	X	_____	=	_____
Friday (10/28)	\$33.00 per person	X	_____	=	_____
Saturday (10/29)	\$33.00 per person	X	_____	=	_____

Cottage Reservations Total \$ _____

2b) Tent, Camper & RV Reservations – Limited electrical hookup is for telescopes only, and there are no sanitary hookups for campers nor RVs. Generator use is not permitted on the observing field at night. Picnic canopies are permitted on the observing field in compliance with our Light and Parking Rules.

	Rate		# of people (T, C, or RV)		Amount Due
Tuesday (10/25)	\$21.00 per camper or rv or \$10 per adult per tent	X	_____ ()	=	_____
Wednesday (10/26)	\$21.00 per camper or rv or \$10 per adult per tent	X	_____ ()	=	_____
Thursday (10/27)	\$21.00 per camper or rv or \$10 per adult per tent	X	_____ ()	=	_____
Friday (10/28)	\$21.00 per camper or rv or \$10 per adult per tent	X	_____ ()	=	_____
Saturday (10/29)	\$21.00 per camper or rv or \$10 per adult per tent	X	_____ ()	=	_____

Tent, Camper or RV Reservations Total \$ _____

2c) Lodge Reservations – The Lodge has 23 motel style rooms (*two of the rooms have queen beds*). The other rooms have 1 twin bed & 1 twin bunk bed. All have a private bathroom with a shower. Linens and towels are provided. Queen rooms are only upon request, (*check here ___ to request a queen*). Room numbers are assigned.

Note: Lodge room prices have increased if your stay is two nights or shorter. If three nights or longer, your lodge room fees are discounted to the same prices in effect in 2015.

(If 3 nights or more)>>>>>>Rate	# of People	Total per
Night		
Tuesday (10/25) \$60.00(<i>single</i>)/\$100.00(<i>double</i>)/\$117(<i>triple</i>)	X _____	=

Wednesday (10/26) \$60.00(<i>single</i>)/\$100.00(<i>double</i>)/\$117(<i>triple</i>)	X _____	=

Thursday (10/27) \$60.00(<i>single</i>)/\$100.00(<i>double</i>)/\$117(<i>triple</i>)	X _____	=

Friday (10/28) \$60.00(<i>single</i>)/\$100.00(<i>double</i>)/\$117(<i>triple</i>)	X _____	=

Saturday (10/29) \$60.00(<i>single</i>)/\$100.00(<i>double</i>)/\$117(<i>triple</i>)	X _____	=

or

(If 2 nights or less)>>>>>>Rate	# of People	Total per
Night		
Tuesday (10/25) \$64.00(<i>single</i>)/\$106.00(<i>double</i>)/\$129(<i>triple</i>)	X _____	=

Wednesday (10/26) \$64.00(<i>single</i>)/\$106.00(<i>double</i>)/\$129(<i>triple</i>)	X _____	=

Thursday (10/27) \$64.00(<i>single</i>)/\$106.00(<i>double</i>)/\$129(<i>triple</i>)	X _____	=

Friday (10/28) \$64.00(<i>single</i>)/\$106.00(<i>double</i>)/\$129(<i>triple</i>)	X _____	=

Saturday (10/29) \$64.00(<i>single</i>)/\$106.00(<i>double</i>)/\$129(<i>triple</i>)	X _____	=

Lodge Reservations Total \$ _____

3. Meal Reservations – To eat in the FRC dining hall, you **must** reserve meals here in advance

Note - Meals have to be paid in advance; there will be no on-site meal payment. (By the 10/07/16 deadline.)

Please indicate the number of meals you want –

Tuesday (10/25)		Dinner \$14 X _____ = \$
Wednesday (10/26)	Breakfast \$9 X _____ = \$ _____	Dinner \$14 X _____ = \$
Thursday (10/27)	Breakfast \$9 X _____ = \$ _____	Dinner \$14 X _____ = \$
Friday (10/28)	Breakfast \$9 X _____ = \$ _____	Dinner \$14 X _____ = \$
Saturday (10/29)	Breakfast \$9 X _____ = \$ _____	Dinner \$14 X _____ = \$
Sunday (10/30)	Breakfast \$9 X _____ = \$ _____	

All Meals Total \$ _____

Grand Total

Total of sections 1, 2 and 3	TOTAL REMITTED	\$ _____
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All checks should be made payable to “**Barry Simon**” and mailed to:

Barry Simon, DSSG Director
842 Crystal Street
New Orleans, LA 70124

Email me at bsimon615@aol.com if you have any questions. For registration verification, please include your email on your registration paperwork and I will confirm receipt and registration.



Deep South Star Gaze 2016 RELEASE OF LIABILITY

I, _____, of _____
(print name) *(city and state)*

in consideration of my registration being accepted for the 2016 Deep South Star Gaze (the DSSG), I hereby irrevocably covenant, promise and agree to relieve, release and hold harmless the DSSG, it's organizers, and workers from any and all losses, claims, expenses, law suits, costs, demands, damages or liabilities, whether joint or several or of whatever kind or nature related, or from any injuries and / or losses, up to and including accidental death, which may occur to the undersigned registrant or his family, or any third person or party for whom the undersigned may be legally responsible while attending the 2016 DSSG.

I further agree to indemnify any party indicated above should such party suffer any claims, liabilities, losses, demands, causes of action, law suits and expenses (including attorney fees), caused directly or indirectly by my negligent or intentional acts, or failure to act, or if such acts or failures to act are directly or indirectly caused by any person in my family while participating in the DSSG 2016.

It is understood that the DSSG is held at the Feliciana Retreat Center located near Norwood, Louisiana. It is understood that the above named event commences at 12 noon on Tuesday, October 25th 2016 and runs until 12 Noon on Sunday, October 30th 2016. As this is a rural area with a number of events held out of doors and in and around motor vehicles and in the presence of large numbers of other participants, certain dangers and perils are understood and accepted by me in registering for and attending this event. **SPECIFICALLY I HOLD HARMLESS THE DSRSG, IT'S ORGANIZER(S), THE FELICIANA RETREAT CENTER AND ANY OTHER REGISTRANTS WHO MAY VOLUNTEER THEIR TIME AND EFFORTS WITH THE FUNCTION.**

I further agree to abide by all rules established by **the DSSG** and it's organizers as specified in rules established for the event.

This does include a prohibition against setting up canopies, tents and telescopes on or around the marked observing field perimeter until after the observing field has been staked out and marked by the event organizers on the 1st day of the event.

In addition, the Feliciana Retreat Center has a prohibition against alcohol use on Feliciana Retreat Center grounds. We are obligated to respect and follow this prohibition. Do not bring alcohol to the DSSG. Violation of this policy as well as other policies will result in expulsion from the DSSG and possible exclusion from future events.

I hereby waive any and all claims against the DSSG, IT'S ORGANIZERS, THE FELICIANA RETREAT CENTER AND ANY OTHER REGISTRANTS WHO MAY VOLUNTEER THEIR TIME AND EFFORTS DURING THE COURSE OF THIS FUNCTION for injury, death or personal property damage or theft in excess of my personal insurance coverage, except in matters of gross neglect or criminal action by either the DSSG, the Feliciana Retreat Center, it's organizer and volunteers. In any incident involving other registrants outside of the actual management of the DSSG, those registrants will be directly responsible for and shall be held accountable for their actions.

My signature on this form also indicates agreement and acceptance on behalf of all minor children (under 18 years of age) under my care in attendance.

_____ *(initial here)* I have received a copy of the DSSG Light and Parking Rules, in force during the Deep South Star Gaze and will abide by them.

*Name _____ Signature _____ Date _____
(Please Print)

*** Note - A separate Release of Liability form must be completed by each attending member of your family, age 18 and over.**

Additional names of minors (under 18) attending _____ *(age)* _____
_____ *(age)* _____
_____ *(age)* _____
_____ *(age)* _____
_____ *(age)* _____

Note - Registration is not complete until this form is completed and submitted with the Registration Form.