

Newsletter of the Baton Rouge Astronomical Society



October, 2014

Next Meeting October, 13th 7PM at HRPO



NASA concept image of MAVEN which arrived at Mars September 21st
Click on image for more information!

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President's Message

I hope you are enjoying the cooler weather and clearer skies as much as I am. There have been a couple of mornings this week when I woke up before sunrise and kicked myself for not setting up a scope. It looks like we are going to have some good stargazing this Fall and Winter.

We have sold enough raffle tickets to draw a winner for the Lunt 35mm solar telescope! We will draw for a winner during the next meeting October 13, 2014. You don't have to be there to win but just think about walking out of the meeting room that night to take your new baby home. Whoever wins will have it in time to bring it to the Deep South Regional Stargaze (hint, hint).

If you haven't bought any tickets or wish to buy more chances, you will have another chance that night before the drawing. \$5 per ticket or 5 for \$20.

We will also have some other goodies as consolation prizes (or maybe we should call them constellation prizes).

Remember, the **Deep South Regional Stargaze is October 21 – 26, 2014**. It's coming up quickly. Be sure to complete your application AND the Liability Form. Without the Liability Form, your application is not complete. Please send them to Barry Simon at the address on the form ASAP. He needs them as early as possible to give a lodging and meal count to the camp managers.

December is election time. Time to begin thinking about your nominations for the different officer positions – President, Vice-President (currently vacant), Treasurer, Secretary. We will begin taking nominations at the November meeting. You can nominate yourself. Really.

We still have an Outreach Coordinator (OC) position open. The OC is the focal point of communication for BRAS outreach activities and event requests from outside groups. That usually takes the form of someone asking for BRAS to do a presentation or to bring scopes to allow their members or guests to view the skies. It doesn't mean you have to do the event yourself or even organize the event. It just means you act as a liaison between BRAS and the community. Trevor McGuire set up a BRAS Outreach email address to receive requests. He also created a contact group so that once you have the details, you could send an email request for manpower to the group. If you decide this is a role for you let me know and we can discuss the details.

Just one last note. Globe at Night has free smartphone apps for iPhone and Android for measuring light pollution. You can do your part in helping to map the progress (or hopefully the regression) of light pollution. Just go to the Globe at Night website for the downloads. Scroll down toward the bottom of the home page to find the links. <http://www.globeatnight.org>

Separated at Birth: Finding our Sun's Long-Lost Siblings?

Stars are born in groups or clusters when a cold giant molecular cloud collapses under its own gravitational force. If many stars form all at once—that is, if star formation efficiency is high—they will stay together as a gravitationally bound open cluster (like the Pleiades) or a globular cluster (like M13 in Hercules).

For more than a decade, it has been known that any two stars that are members of the same gravitationally bound star cluster always show the same pattern of chemical abundances. Stars are made mostly of hydrogen and helium, but they also contain traces of other elements: carbon, oxygen, iron, and even more exotic substances. By carefully measuring the wavelengths (colors) of light coming from a star, astronomers can determine how abundant each trace element is.

“The pattern of abundances is like a DNA fingerprint, where all the members of a family share a common set of genes,” said Mark Krumholz, associate professor at University of California, Santa Cruz. The pattern of abundances, set at birth, is consistent regardless of an individual star’s spectral type.

But most stellar families don’t stay together: stars don’t form fast enough for them to remain gravitationally bound, and so groups of stars drift apart, eventually even ending up on opposite sides of a galaxy. That is likely what happened with our Sun.

Thus, astronomers have long wondered whether it might be possible to tell if two stars now on opposite sides of the galaxy were born billions of years ago from the same cloud. In fact, they wondered, might it be possible to find our own Sun’s long-lost siblings?

Why such family resemblance?

Just one big problem: “Although we see that member stars of a long-lived star cluster today are chemically identical, we had no good reason to think that this would also be true of stars that were born together but then dispersed immediately,” explained Krumholz. After all, in a cloud where stars formed rapidly over a light-year apart, might the cloud not have had enough time to homogenize thoroughly, and form stars at the same time but not uniform in chemical composition?

“We didn’t really know why stars are chemically homogeneous,” he said. “Without a solid understanding of the physical mechanism that produces uniformity, everything was at best a speculation.”

So Krumholz and his graduate student Yi Feng ran a fluid dynamics simulation on UCSC’s Hyades supercomputer. They simulated two streams of interstellar gas converging to form a cloud that, over a few million years, collapses under its own gravity to make a cluster of stars. In the simulation, they added red tracer dye to one stream and blue tracer dye to the other.

Fast, early mixing

“We found that, as the streams came together, they became extremely turbulent, very effectively mixing the red and blue tracer dyes,” Krumholz recounted. By the time the cloud started to collapse and form stars, everything was purple—and the resulting stars were purple as well.

“This was a surprise,” Krumholz exclaimed. “I thought we’d get some blue stars and some red stars, instead of getting all purple stars. I didn’t expect the turbulence to be as violent as it was, and so I didn’t expect the mixing to be so rapid or efficient.”

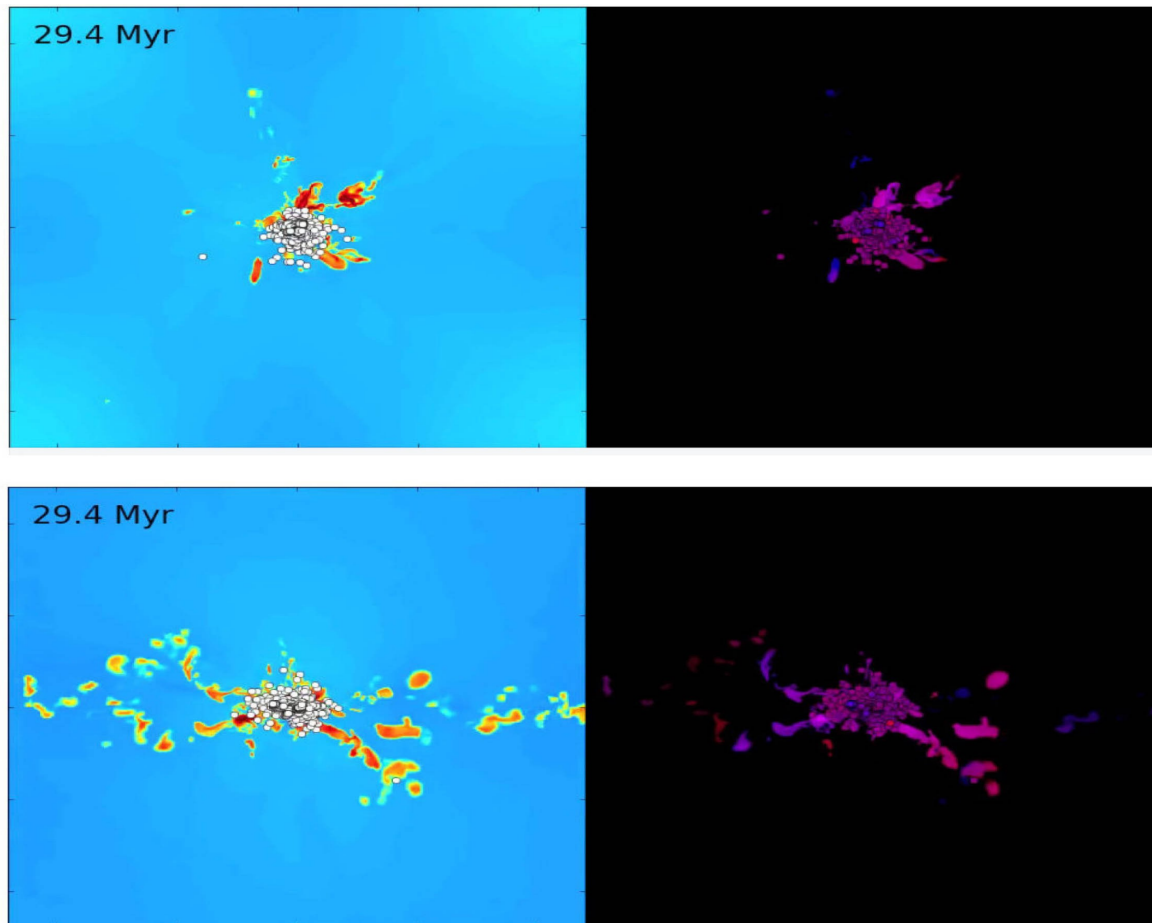
In other runs of the simulation, Krumholz and Feng observed that even clouds that do not turn much of their gas into stars—as the Sun’s parent cloud probably didn’t—still produce stars with nearly-identical abundances.

Their findings have given the “chemical tagging” method a boost. “We’ve provided the missing

physical explanation of how and why chemical mixing works, and shown convincingly that the chemical mixing process is very general and rapid even in an environment which did not yield a star cluster, like the one in which the Sun must have formed,” said Krumholz. “This is good news for prospects for finding the Sun’s long-lost siblings.” –*Trudy E. Bell, M.A.*

Further reading: The paper “Early turbulent mixing as the origin of chemical homogeneity in open star clusters” is published in the August 31 online issue of *Nature*. A UC-HiPACC press release is at <http://hipacc.ucsc.edu/PressRelease/sibling-stars.html> and a UCSC press release is at <http://news.ucsc.edu/2014/08/star-formation.html>.

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 Department of Energy laboratories (Lawrence Berkeley Laboratory, Lawrence Livermore Laboratory, and Los Alamos National Laboratory). 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>



Two 11-second movies at http://hipacc.ucsc.edu/PressRelease/sibling-stars_videos.html shows face-on and head-on views of a computational simulation of a collision of two converging streams of interstellar gas, leading to collapse and formation of a star cluster at the center. The simulation reveals that the gas streams are thoroughly homogenized well before stars begin forming.

Credit: Mark Krumholz/University of California, Santa Cruz

Secretary's Summary of Sept. Meeting

- The meeting started with Merrill making announcements about the raffle. Ben mentioned that the solar scope should be raffled at the next meeting. Then the items for this month's raffle were displayed.
- Dr. Geoff Clayton from LSU was introduced and spoke on an unusual class of variable star called the R Coronae Borealis.
- After the lecture the recent new article about the possible Nicaraguan meteor was discussed.
- There were a couple requests for aid from BRAS. Julia Rigsby is looking for help with a field experience at the Carver branch of the EBR Parish Library on Nov. 17th from 5 to 7 p.m. She would like someone there from our group to answer questions the public might have about astronomy. A student from St. Joseph's Academy is looking for mentoring help from BRAS until January for a research project. This has to do with galactic black hole mass and its corresponding (galactic) diameter.
- Chris mentioned the donation drive going on for the observatory during the latter half of September and most of October. He also spoke about the Maker Faire which is coming up at the main library on Saturday, Sep. 20th, from 10:00 a.m. to 4:00 p.m. sponsored by Make Magazine. This involves booths set up by different people and/or organizations that display homemade or kit-made items. BRAS will have a booth there; Chris is volunteering to man it from 1:00 p.m. to 4:00 p.m.
- Thomas asked about getting our group involved with possible doing sidewalk astronomy for the new civic/neighborhood association in his area. Since this group is close to Webb Park, he's thinking that this may be a possible venue for association events in the future.
- Deep South Regional Star Gaze is coming up on Oct. 21st – 26th. Since the people that sponsor this are not sure about continuing this in the future, this may be the last time we'll be able to participate in this event. Early registration ends soon (Oct. 3rd). They have various activities and events going on as well as astronomy. There are also different options as far as available accommodations. There's usually a big raffle prize on Saturday.
- The meeting adjourned with a raffle.

Roslyn Reader- BRAS Secretary
Assisted by- Susan Miller

HRPO

FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

3 October: "Perspective on Climate Change"

10 October: "Oddities of Outer Space"

17 October: "Wonders of the Winter Sky"

24 October: "The Great World Wide Star Count"

31 October: *no lecture*

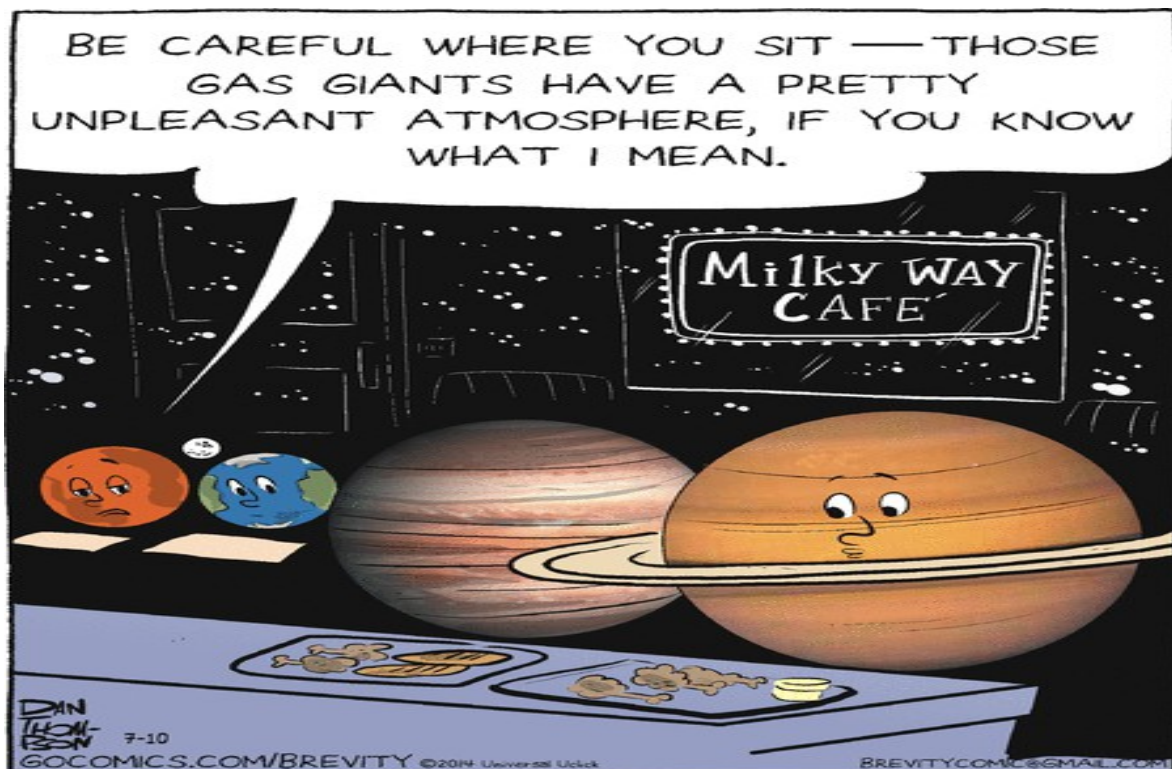
CALL FOR VOLUNTEERS

*Wednesday, 8 October from 3:30am to 6:30am. *Thre volunteers.* **Total Lunar Eclipse.** Small telescope and/or desk duty. Easy; training provided.

*Saturday, 11 October from 12pm to 2pm. *One volunteer.* **Solar Viewing.** Small telescope. Easy; training provided.

*Thursday, 23 October from 3:30pm to 6:30pm. *Six volunteers.* **Partial Solar Eclipse.** Small, moderate and solar telescopes. Must have previous telescope experience.

***Saturday, 25 October from 6pm to 10pm. Six volunteers. The Spooky Spectrum. Variety of tasks; call for more information.**



GLOBE At Night

14 October to 23 October

Everyone's favorite winter light pollution exercise is back...except it's no longer just for winter. During 2014 the GLOBE at Night staff will collect observations during *all twelve* New Moon periods!

This is an excellent time to start compiling a good historical record of sky glow in Baton Rouge. Each BRAS member should take at least one measurement per season during 2014. The GLOBE at Night website makes it as easy as possible, with step-by-step instructions and an downloadable instruction manual.

October is the only month during which participants use the constellation Pegasus.

The heading on this page hyperlinks to the BRAS Forum thread devoted to GLOBE at Night. Visit there regularly for updates and answered questions.

Recent Entries in the Forum

Below are selected recent additions to the BRAS Forum. There are also [nine active polls](#).

BRAS at Baton Rouge's First [Maker Faire](#)
Web Resources for [Using Binoculars](#)
Concerning [Landsat 8](#)
Payload Announced for the [2020 Mars Rover](#)
HRPO Takes Part in [Observe the Moon Night](#)
Pair of [CMEs](#) Strike Earth
["Meteorite Fall"](#) in Nicaragua Questioned
The Close Pass of [2014 RC](#)
Rosetta Reaches [67/P Churyumov-Gerasimenko](#)

Culmination times posted for the following objects...

[Sirius](#)
[NGC 6934](#)
[M55](#)
[The Pelican Nebula](#)

Total Lunar Eclipse

Wednesday, 8 October from 3:30am to 6:30am

Free and for all ages.

Overnight excitement at HRPO as we open to witness one of nature's most spectacular events! While in the constellation [Pisces](#), the Moon will enter the Earth's shadow, turning darker and darker—and then ??? The actual color can range from dark brown to red to bright orange to yellow, depending on the current state of the [Earth's atmosphere](#).
Don't miss it.

Partial Solar Eclipse

Thursday, 23 October from 3:30pm to 6:30pm

Free and for all ages.

HRPO personnel will be at the Burbank Soccer Complex for the duration of the event. There will be telescopes set up at the back of the Complex between the pond and the dog park. These designated viewing devices will be marked for convenience. (The Sun will actually set here in Baton Rouge during the eclipse.)



Cepheus – The King Of Æthiopia

Position: RA 22, Dec. +70

Named Stars:

Alderamin (Alpha Cep), “The Right Arm”, mag. 2.45, 21 18 34.58 +62 35 07.6, is a white main sequence star evolving into a red sub-giant, and is rotating at a very high speed (at least 240 km/sec.), and completes one revolution within 12 hours or less. There is an optical companion at mag. 10.5, at a distance of 207”. This star lies near the path traced by the Earth’s axis in space in the course of its 25,800 year precessional cycle. Alpha Cep will thus replace Polaris as the pole star in the course of time, and will be nearest to the true pole at about 7500 AD. It last held this position at around the year 18,000 BC.

Alfirk (Beta Cep), “The Flock”, mag. 3.23, 21 28 39.58 +70 33 38.5, is a triple star, and is the proto-type for the Beta Cephei variable stars (visual magnitude of this star varies from 3.15 to 3.21 within a period of 0.1904844 days). Beta Cep A is a blue giant star, at mag. 3.2, and is a slow rotator, taking about 51 days to complete a single rotation. An 8th magnitude companion at 14” separation is an easy object for amateur telescopes.

Alrai (Gamma Cep), “The Shepherd”, mag. 3.21, 23 39 20.98 +77 37 55.1, is an orange sub-giant star, and is also a binary star, that can be seen by the naked eye. The companion has about 0.409 solar masses and is thought to be a red dwarf star. The primary star has one planet in orbit around it. Gamma Cep will take Polaris’s place as pole star before Alpha Cep, at around the year 4,000 AD.

Al Radif (Delta Cep), “The Follower”, mag. 4.07, 22 29 10.25 +58 24 54.7, is a double star with the primary component being a yellow-white supergiant star, and the secondary is blue-hued at 7.5 magnitude, located 41 arc seconds away. Delta Cep serves as the proto-type of a class of stars known as the Cepheid Variable Stars, or simply Cepheids. Cepheids are dying high mass stars that are luminous enough to be seen with the naked eye, and since their luminosities are directly tied to their pulsation periods, astronomers only need to measure the star’s visual magnitude to determine their distance and the distance of galaxies where the stars are located.

Al Kidr (Eta Cep), mag. 3.41, 20 45 17.27 +61 50 12.5, is an orange giant star with a fairly large annual proper motion of 0.82”-the radial velocity is about 52m/s in approach.

Erakis (Mu Cep), “Herschel’s Garnet Star”, mag. 4.23, 21 43 30.45 +58 46 48.2, is a red super giant star, and is one of the most luminous stars known. Mu Cep is one of the largest stars ever observed in the entire galaxy, with a radius of 1,650 times that of the Sun, or 7.7 AU. Mu Cep is the proto-type of the Mu Cephei Variable stars. The star has begun to fuse helium into carbon and is approaching its final stages of life. It is unstable and expected to explode as a supernova in the relatively near future – up to a few million years.

Kurhah (Xi Cep), mag. 4.26, 22 03 47.16 +64 37 39.9, is a triple star with a primary a blue-white “metallic” dwarf star and its companion, at a separation of 8.2”, is a dwarf star similar in color. The third companion is either a dwarf star, or a line of sight coincidence.

Al Kaib al Rai (Rho Cep), mag. 5.45, 22 29 52.97 +78 49 27.6, is a double star with Rho Cep 2 being the primary. Rho Cep 1 is at mag. 5.83, at 22 26 42.45 +78 47 09.4.

Deep Sky:

There are no Messier Objects in Cepheus.

NGC 7160, mag. 6.1, 21 53.7 +62 36, 7’ in size, is an open cluster of 12 stars; detached, weak concentration of stars; large range in brightness; mag. of brightest star is 7.1.

NGC 7235, mag. 7.7, 22 12.6 +57 17, 4’ in size, is an open cluster of 30 stars; detached, no concentration of stars; moderate range in brightness; mag. of brightest star is 8.8; contains a ruby colored 10th magnitude star.

NGC 6939, mag. 7.8, 20 31.4 +60 38, 7' in size, is an open cluster of 80 stars; detached, strong concentration of stars; small range in brightness; mag. of brightest star is 11.9; pretty large, and is located about 2.5° south of Theta Cep, or about 2° southwest of Eta Cep.

NGC 7510, mag. 7.9, 23 11.5 +60 34, 4' in size, is an open cluster of 60 stars; detached, weak concentration of stars; moderate range in brightness; mag. of brightest star is 9.7; fan shaped; involved in a large, faint nebula.

NGC 188 (Caldwell 1), mag. 8.1, 00 44.4 +85 20, 14' in size, is an open cluster of 120 stars; detached, weak concentration of stars; moderate range in brightness; large cluster; mag. of brightest star is 12.1. NGC 188 is one of the oldest known open clusters, and is believed to have formed 10 – 20 billion years ago, and lies about 5° away from the North Celestial Pole.

NGC 7261, mag. 8.4, 22 20.4 +58 05, 6' in size, is an open cluster of 30 stars; detached, no concentration of stars; small range in brightness; mag. of brightest star is 9.6; a large cluster.

Mrk 50, mag. 8.5, 23 15.3 +60 28, 5' in size, is an open cluster of 5 stars; detached, no concentration of stars; a small brightness range; mag. of brightest star is 9.8; involved in nebulosity.

NGC 6946 (Caldwell 12), “The Fireworks Galaxy”, Arp 29, mag. 8.8, 20 34.9 +60 09, 11.0' x 9.8' in size, is a very faint and very large galaxy; several massive arms; extremely small, bright nucleus. Open cluster NGC 6939 lies just 0.6° to the northwest. Nine super novae have been observed in NGC 6946 over the last century – SN 1917A, 1939C, 1948B, 1968D, 1969P, 1980K, 2002hh, 2004et, and 2008s. This galaxy is on the border of Cepheus and Cygnus, and is listed in either one, depending on the source.

NGC 7142, at mag. 9.3, is an open cluster in the vicinity of nebula NGC 7129 and is believed to be obscured by an interstellar cloud, and is thought to be one of the oldest clusters known.

NGC 7023 (Caldwell 4, Collinder 429), “The Iris Nebula”, 21 00.5 +68 10, 18' in size, is one of the brightest of the reflection nebulae; has bright and dark filaments; contains a 5' open cluster and one bright 7th magnitude star. NGC 7023 is located near Beta Cephei and T Cephei.

NGC 7129, 21 42.5 +66 10, 7'x6' in size, is a reflection nebula that has the shape of a rosebud (containing over 130 stars), and is a faint, pretty large, loose cluster, and is adjacent to the reflection nebula NGC 7133.

NGC 7133, 21 44.4 +66 12, 7'x6' in size, has a faint star involved in a very faint, pretty large patch of nebulosity and is located adjacent to the reflection nebula NGC 7129.

NGC 7380, “The Wizard Nebula”, 22 47.0 +58 06, 30'x25' in size, contains 40 stars in a 12' region; detached, no concentration of stars; large range in brightness; total magnitude of cluster is 7.2; mag. of brightest star is 8.6; and the cluster is involved in a large emission nebula.

NGC 7538, 23 13.5 +61 31, 10'x5' in size, has a pair of 11th magnitude stars involved in a large, very faint nebula. This nebula contains the biggest proto-star (a large mass formed when gas inside a large molecular cloud contracts) discovered to date. This proto-star is 300 times the size of the solar system.

NGC 78223, 00 03.6 +68 37, 60'x30' in size, is an extremely faint and large arc of nebulosity; possibly a supernova remnant.

IC 1396, 21 39.1 +57 30, 2.8°x2.3° in size, is a faint and very large emission nebula containing an open star cluster with 30 stars; detached, weak concentration of stars; large range in brightness; total mag. of cluster is 3.5 with the brightest star at mag. 3.8. Dark Nebula B160 lies approximately 1° to the north.

IC 1470, 23 05.2 +60 15, 15'x1' in size; is very faint and comet shaped; possibly a planetary nebula.

There are 6 more deep space objects below magnitude 10. See me if you want them.

There are 15 Barnard Dark Nebulae, 4 van den Berg reflection nebulas, 3 Sharpless objects, and 1 Perek-Kohoutek planetary nebula in this constellation.

Other Stars:

Zeta Cep, mag. 3.39, 22 10 51.26 +58 12 04.5, is an orange sub-giant star marking the left shoulder of Cepheus, and is suspected to be both a binary and variable star.

VV Cep (HD 208816), mag. 5.11, 21 56 39.14 +63 37 32.0, is an eclipsing binary star almost as large as the Garnet Star, with its radius spanning between 7.5 and 8.8 AU. The system is consisting of a red hyper-giant and a blue companion star. The hyper-giant, VV Cep A, is the third largest star known with a radius between 1,600 and 1,900 solar diameters, and is located about $1\frac{1}{4}^{\circ}$ southwest of Xi Cep.

Kruger 60, mag. 9.59, 22 27 59.47 +57 41 45.2, is a binary star composed of two red dwarf stars orbiting each other with a period of 44.6 years and a separation of 9.2 AU. The binary is located less than 1° south-southwest of Delta Cep, and is only 13.15 light years from Earth.

Cepheus has over 130 double and multiple stars, 55 variable stars, and 24 star clusters, nebulas, and galaxies.

Meteor Showers: The Orionid meteor shower peaks in the predawn of Oct. 21st. Observers under a dark sky could see close to the maximum possible rate of 25 meteors per hour. Orionid meteors originate from debris that Comet 1P/Halley (Halley's Comet) has shed.

Asteroid 37 Fides, at 10th magnitude, passes within 2° of Uranus during October's 2nd and 3rd weeks. The pair is residing in southern Pisces. On Oct. 1, 37 Fides will be less than 1° from Epsilon Pis., and around Oct. 18th-19th will be about $1\frac{1}{2}^{\circ}$ from Delta Pis and 1° from 96 Pis, and about $\frac{1}{2}^{\circ}$ from 60 Pis.

Comets: **Comet Siding Spring (C/2013 A1)** will have a historic encounter with Mars on Oct.

19th when the two pass within 81,000 miles of each other at 2:00 PM CDT. Mars is at mag. 9, and the comet glows at around 8th magnitude.

Oukalmeden (C/2013 V5) should glow at 7th magnitude during the first week of Oct., but lies close to the southwest horizon during twilight. **Panstarrs (C/2012 K1)**, at 6th magnitude, can be seen before dawn in puppies. In mid-Oct. it will be in the same binocular field as 6th magnitude star cluster M 93.

When to view the planets:

Evening Sky	Midnight	Morning
Sky		
Mercury (west)	Uranus (south)	Mercury
(east)		
Mars (southwest)	Neptune (southwest)	Jupiter
(southeast)		
Saturn (southwest)		Uranus
(west)		
Uranus (east)		
Neptune (southeast)		

Dark Sky Viewing: October 25th, on all of the other weekends, the Moon phase is half full as a minimum.

October Sky Happenings:

Sept. 21st-Oct. 6th –Dawn – The zodiacal light is visible 120 to 80 minutes before sunrise from dark locations at mid-northern latitudes. Look east for a huge, tall pyramid of light stretching up through Jupiter.

Oct. 1st – First Quarter Moon occurs at 2:33 PM CDT.

Oct. 4th – Mercury is stationary at 1:00 PM CDT.

Oct. 5th – The Moon passes 5° north of Neptune at 4:00 PM CDT.

Oct. 6th – The Moon is at perigee (225,232 miles from Earth) at 4:39 AM CDT.

Oct. 7th – Uranus is at opposition at 4:00 PM CDT.

Oct. 8th – Full Moon occurs at 5:51 AM CDT,

Total lunar eclipse is visible in the predawn or dawn over North America,

The Moon passes 1.2° north of Uranus at 6:00 PM CDT.

Oct. 15th – Last Quarter Moon occurs at 2:12 PM CDT.

Oct. 16th – Mercury is in inferior conjunction at 4:00 PM CDT.

Oct. 17th – The Moon passes 5° south of Jupiter at 11:00 PM CDT.

Oct. 18th – The Moon is at apogee (251,591 miles from Earth) at 1:06 AM CDT.

Oct. 19th – Nightfall – Comet Siding Spring (C/2013A1) passes 81,000 miles from Mars and appears within 2' of the red planet.

Oct. 20th-22nd – Predawn – The modest Orionid Meteor Shower is active shortly before dawn's first light.

Oct. 20th-Nov. 4th – The zodiacal light is again visible before sunrise, as described above.

Oct. 21st – The Orionid Meteor Shower peaks.

Oct. 22nd – Dawn – Binoculars may show Mercury below the thin crescent Moon very low in the east a half hour before sunrise.

Oct. 23rd – Partial Solar Eclipse is visible over most of North America,
New Moon occurs at 4:57 PM CDT.

Oct. 25th – Mercury is stationary at 2:00 AM CDT,

Venus is in superior conjunction at 3:00 AM CDT,

The Moon passes 1° north of Saturn at 11:00 AM CDT,

Dusk – Saturn floats a few degrees to the lower right of the thin crescent Moon, low in the west-southwest a half hour after sunset.

Oct. 26th – Asteroid Pallas is in conjunction with the Sun at 11:00 AM CDT.

Oct. 27th-28th – Dusk – The waxing crescent Moon shines to the right of Mars on the 27th, and above Mars on the 28th.

Oct. 28th – The Moon passes 7° north of Mars at 8:00 AM CDT.

Oct. 30th – The First Quarter Moon occurs at 9:48 PM CDT.

Mercury – Mercury goes through inferior conjunction on Oct. 16th and then rapidly ascends into dawn view, appearing higher in the east-southeast each morning on its way to greatest elongation on Nov. 1st. Mercury should become visible to the unaided eye around Oct. 24th, shining at mag. +1.1. In a telescope on the morning of the 24th, Mercury is 8.7' tall and has a 19% lit crescent. By Oct. 31st it has brightened fourfold to mag. -0.5, and it is more than 50% illuminated. Mercury shines about 9° high 45 minutes before sunrise, with Spica about 7° to its lower right.

Venus – Venus starts the month rising only ½ hour before the Sun, and it rises later each morning. The

planet soon becomes lost from view in the solar glare, passing through superior conjunction about 1° north of the Sun on Oct. 25th.

Mars – Mars sets about three hours after the Sun all month. The Red Planet begins Oct. at mag. +0.8, appearing a tiny 6” across, slightly brighter than Antares, its rival in color, and is only about 4° from the star. Mars moves rapidly eastward relative to the background stars this month, allowing it to maintain its angular distance from the Sun. The Red Planet traverses the southern part of Ophiuchus the Serpent-bearer during the first three weeks of Oct. On the 14th, Mars passes just 19’ north of 3rd magnitude Theta Ophiuchi, a hot star with a distinct bluish color. On Oct. 19th, Mars meets Comet Siding Spring (C/23013 A1), which skims within 81,000 miles of the planet. No comet has ever come closer to either Mars or Earth. The comet should glow at about mag. 8. After crossing into Sagittarius on Oct. 21st, Mars makes a beeline toward the exceptional Lagoon Nebula (M 8). The planet passes less than 1Æ south of the massive star forming region on the 27th. Although a 4 day old crescent Moon lies 9° northwest of Mars, it won’t reflect enough light to detract from the view.

Jupiter – Jupiter rises around 2:30 AM DST at the start of Oct., and around 1:00 AM by the end of the month. At the beginning of the month, Jupiter lies in the eastern part of Cancer – The Crab, crossing into Leo – The Lion on the 14th and ends the month 10° west-northwest of Regulus. Jupiter’s magnitude improves from -1.9 to -2.1 during Oct., with its apparent diameter growing from 34” to 36”. Oct. marks the first time in 2014 that one of Jupiter’s moons eclipses another of its moons. An event “season” occurs twice during each of Jupiter’s 12-year orbits around the Sun. The current “season” will continue through August 2015. The best timed occurrence of the eclipse for North American observers this month happens on Oct. 24th when Io occults Callisto. The six-minute event begins at 3:24 AM CDT. Three minutes later, Io’s disk lies completely inside Callisto’s larger one.

Saturn – Saturn stands about 20° east of Mercury in early Oct. and appears 10° above the horizon a full hour after sunset. At mag. +0.6, the ringed planet shines bright enough to see in the deepening twilight even if the dim background stars of its host constellation, Libra – The Balance, remain hidden. Saturn’s ring system spans 35” and tilts 22° to our line of sight. Saturn dips lower in the sky with each passing day. Although it sets two hours after the Sun on the 1st, that drops to less than an hour in late Oct. A challenging occultation of Saturn by the 3.5%-lit Moon may be visible through a telescope around mid-day on Oct. 25th from eastern most Canada. For most of North America, the thin crescent Moon hangs a few degrees to Saturn’s upper left.

Uranus – Uranus reaches opposition in Pisces – The Fish on Oct. 7th and is therefore visible all night this month. Uranus has a close conjunction with the Moon 91”) near the peak of Oct. 8th’s total lunar eclipse. At mag. 5.7, Uranus is usually too faint to spot through a telescope when near the Full Moon, but it should be easy when the Moon is drastically dimmed in Earth’s shadow. The 3.7” wide blue or blue-green disk of Uranus should look especially beautiful in a telescope near the vast reddish eclipsed Moon. To find Uranus, locate Delta and Epsilon Piscium, both at 4th magnitude, located in south central Pisces. The planet lies south of a line joining these two stars, beginning Oct. some 3° south-southeast of Delta Pis and ending the month due south of this star.

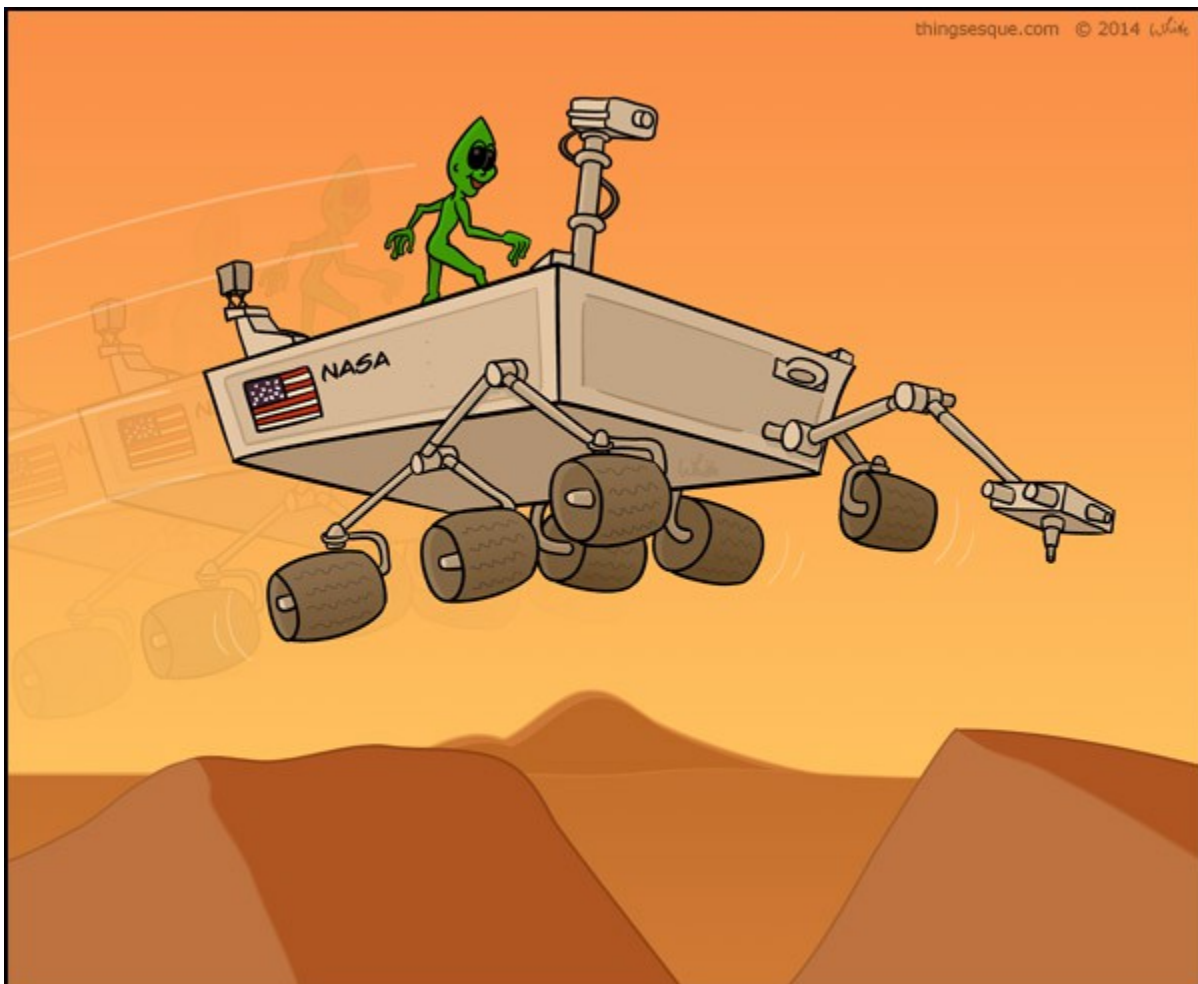
Neptune – Neptune, in Aquarius – The Water Bearer (less than 1° west of Sigma Aqr), transits the meridian in the evening about 2 ½ hrs before Uranus does. The planet glows at mag. 7.8, and Neptune’s blue-gray disk appears 2.3” across.

Pluto – Pluto is in northeastern Sagittarius – The Archer and is highest in a dark sky at the end of evening twilight.

Moon – The Moon undergoes a total eclipse while passing near or in front of Uranus on Oct. 8th. The waning crescent Moon is to the right of Jupiter at dawn on Oct. 17th, and below Jupiter, forming a triangle with Regulus, on the 18th. Back in the evening sky after the solar eclipse, the thin waxing lunar

crescent is just to the upper left of Saturn shortly after sunset on Oct. 25th. A thicker crescent Moon passes to the right of Mars on Oct. 27th and above Mars on the 28th.

Cepheus was the mythological King of Æthiopia. He was deemed worthy of a place in the sky because he was fourth in descent from the Nymph Io, one of the loves of Zeus – and having Zeus as a relative was always an advantage when it came to being commemorated among the constellations. The Kingdom of Cepheus was not the Ethiopia we know today, but stretched from the southeastern shore of the Mediterranean Sea southwards to the Red Sea, an area that contains parts of the modern Israel, Jordan, and Egypt. Ptolemy described Cepheus as wearing the tiara-like headdress of a Persian king. Cepheus was married to Cassiopeia, an unbearably vain woman whose boastfulness caused Poseidon to send a sea monster, Cetus, to ravage the shores of Cepheus's kingdom. Cepheus was instructed by the Oracle of Ammon to chain his daughter, Andromeda, to a rock in sacrifice to the monster. She was saved by the Hero Perseus, who killed the monster and claimed Andromeda for his bride. King Cepheus laid on a sumptuous banquet at his palace to celebrate the wedding. But Andromeda had already been promised to Phineus, brother of Cepheus. While the celebrations were in progress, Phineus and his followers burst in, demanding that Andromeda be handed over, which Cepheus refused to do. The dreadful battle that ensued is described in gory detail by Ovid in Book V of his "Metamorphoses". Cepheus retired from the scene muttering that he had done his best, and left Perseus to defend himself. Perseus cut down many of his attackers, turning the remainder to stone by showing them the Gorgon's head.



32nd Annual Deep South Regional Star Gaze Registration Form

Feliciana Retreat Center – October 21st – October 26th 2014

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 - \$25.00 per person / \$35.00 per family *if in advance and postmarked by 10/3/2014*. Registrations postmarked *after this date* are \$40.00 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 reg.

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. Lodging Reservation Choices - Select desired lodging type (2a, 2b or 2c) if staying onsite

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

	Rate		# of people	Amount Due
Tuesday (10/21)	\$25.00 per person	X	_____	= _____
Wednesday (10/22)	\$25.00 per person	X	_____	= _____
Thursday (10/23)	\$25.00 per person	X	_____	= _____
Friday (10/24)	\$25.00 per person	X	_____	= _____
Saturday (10/25)	\$25.00 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 (10/21)	\$5.00 per person	X	_____ ()	= _____

Wednesday (10/22)	\$5.00 per person	X	_____ () = _____
Thursday (10/23)	\$5.00 per person	X	_____ () = _____
Friday (10/24)	\$5.00 per person	X	_____ () = _____
Saturday (10/25)	\$5.00 per person	X	_____ () = _____

Tent, Camper or RV Reservations Total \$ _____

2c) Lodge Reservations – The Lodge has 24 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, first come, first serve (*check here ____ to request a queen*).

	Rate		Number of rooms	Amount Due
Tuesday (10/21)	\$54.00 (single) OR \$84.00 (double)	X	_____ =	
Wednesday (10/22)	\$54.00 (single) OR \$84.00 (double)	X	_____ =	_____
Thursday (10/23)	\$54.00 (single) OR \$84.00 (double)	X	_____ =	_____
Friday (10/24)	\$54.00 (single) OR \$84.00 (double)	X	_____ =	_____
Saturday (10/25)	\$54.00 (single) OR \$84.00 (double)	X	_____ =	_____

Lodge Reservations Total \$ _____

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

Meals are breakfast (\$9) at 10 a.m. and dinner (\$13) at 4 p.m. on the days shown below. Sunday breakfast will be held one hour earlier at 9 a.m.

Note - Meals have to be paid in advance; there will be no on-site meal payment.

Please indicate the number of meals you want –

Tuesday (10/21)		Dinner \$13 X _____ = \$ _____
Wednesday (10/22)	Breakfast \$9 X _____ = \$ _____	Dinner \$13 X _____ = \$ _____
Thursday (10/23)	Breakfast \$9 X _____ = \$ _____	Dinner \$13 X _____ = \$ _____
Friday (10/24)	Breakfast \$9 X _____ = \$ _____	Dinner \$13 X _____ = \$ _____
Saturday (10/25)	Breakfast \$9 X _____ = \$ _____	Dinner \$13 X _____ = \$ _____
Sunday (10/26)	Breakfast \$9 X _____ = \$ _____	

All Meals Total \$ _____

Grand Total

Total of sections 1, 2 and 3

TOTAL REMITTED

\$

All checks should be made payable to "Deep South Regional Star Gaze" (or "DSRSG") and mailed to:
Barry Simon, DSRSG Director
842 Crystal Street
New Orleans, LA 70124

Email me at bsimon615@aol.com if you have any questions. For registration verification, please send a self-addressed stamped envelope or include an email address at the top of this form. Please note if you will need a receipt.

Deep South Regional Star Gaze 2014 RELEASE OF LIABILITY

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

in consideration of my registration being accepted for the 2014 Deep South Regional Star Gaze, I hereby irrevocably covenant, promise and agree to relieve, release and hold harmless the Deep South Regional Star Gaze, 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 2014 Deep South Regional Star Gaze.

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 Deep South Regional Star Gaze.

It is understood that the Deep South Regional Star Gaze 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 21st and runs until 12 Noon on Sunday, October 26th 2014. 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 DEEP SOUTH REGIONAL STAR GAZE, 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 **DEEP SOUTH REGIONALSTAR GAZE** 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. Refusal to abide by this directive and any other established rule will result in expulsion from the event and possible exclusion from future events.**

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 Deep South Regional Star Gaze. Violation of this policy will result in expulsion from the Deep South Regional Star Gaze and possible exclusion from future events.

I hereby waive any and all claims against the DEEP SOUTH REGIONAL STAR GAZE, 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 Deep South Regional Star Gaze, the Feliciana Retreat Center, it's organizer and volunteers. In any incident involving other registrants outside of the actual management of the Deep South Regional Star Gaze, 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 DSRSG Light and Parking Rules, in force during the Deep South Regional 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 Registrants in your party _____ (*age*)

_____ (*age*)

_____ (*age*)

_____ (*age*)

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