

# Night Visions

March 2020

Newsletter of the **Baton Rouge** Astronomical Society

## Monthly Meeting March 11<sup>th</sup> at 7:00 PM at HRPO

(Monthly meetings are on 2<sup>nd</sup> Mondays, Highland Road Park Observatory).

**Presentation:** Dr. Manas Gartia, (Dept. of Mechanical and Industrial Engineering at LSU), presents his research into using the natural radiation in space as a means of purifying water for long-term space travel.

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INTERNATIONAL ASTRONOMY DAY



**Observing Notes:** Camelopardalis –The Giraffe & Mythology

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

## President's Message

For having such an unbelievably long January, February certainly seemed to fly by. I hope everybody had a fun Mardi Gras and is getting ready for the coming Spring and the galaxies that come into view with it. Unfortunately, that also means that the scourge of Daylight Saving Time is also upon us, and with new bills in the Louisiana legislature proposing a permanent switch to DST, I, for one, hope you take a moment to write, call, or visit with your elected representative to suggest their doing away with it altogether instead. There will have been a talk given at HRPO on this issue by the time this newsletter is published, so I hope some of you made it out. We had a pretty full February, including what, I believe, is the first time our outreach corps has been able to sustain two simultaneous events, serving over 300 people in the course of a few hours last week. Unfortunately, we missed out our standard Sidewalk Astronomy at Perkins Rowe this month due to weather, but we've got another one coming up the first week of March—and since this will be another dual outreach event, I encourage people to show up if they have the inclination.

Big thanks to Coy for putting together an impromptu talk for last month on sketching astronomical targets for us after a last minute cancellation. Hopefully, he encourages a few people to put the old pencil to paper to see what they can come up with next time they find themselves viewing. A good opportunity for which presents itself in the form of Chris Desselles' upcoming inreach star party which has had to be moved to 13 March on account of their having been too much rain as of late. Hopefully, we won't have to move it to May, which is post DST. People interested in that should contact Chris via email at [poppachris3057@gmail.com](mailto:poppachris3057@gmail.com). It's a fun time and a pretty short drive, so I hope to see a few of you there.

We've got a bunch of events scheduled for the next couple of months, so be sure to check the calendars below to find out where you can help out. The two biggest events listed will probably be Rockin at the Swamp and Astronomy Day, both of which will require as many volunteers as we can muster.

Our second quarterly members only night was had just a few weeks ago and it was generally well attended despite the late start time. Several people brought their own scopes to work on various projects until it got too cold for us southern turkeys and we retreated into the dome to let Merrill find us some targets with the 20 OGS. It's was pretty nice to know that we can still see as much from the city as we were able to find that night. The event did raise an interesting quandary though: since BREC has a standing reservation of the observatory for most Friday and Saturday nights, we have to choose between either starting after BREC events are over, or starting at an earlier time but on some night other than Friday or Saturday. If this is the type of event you're interested in and you have a preference, please drop us a line so we can get a feel for what ya'll would prefer. At this point, the Spring event has yet to be scheduled, so get your opinion in as soon as possible.

And, lastly, I would like to remind you that we do still have an excess equipment sale underway at HRPO. Drop by and peruse the catalog that John is putting together for us and see if anything strikes your fancy. We'll be adding an item of the month to the newsletters in the near future, so keep an eye out for that. And don't forget to stop by our Zazzle shop if you're interested in any branded merchandise—as I understand it, we get some of the proceeds from sales, so it helps the club out a bit too.

And that's it: happy spring everybody. I hope to see you at one of our upcoming events

Submitted by Scott Cadwallader, President 2020

### Upcoming BRAS Meetings:

NSN Training Kit Session, 1-3 p.m., Sunday February 2, HRPO

Monthly Business Meeting: 7:00 p.m., Wednesday, March 4; HRPO

Light Pollution Committee Meeting: 6:15 Wednesday, March 4 (before the business meeting)

Monthly Member Meeting: 7:00 Monday, March 9; HRPO

Star Party at Chris Desselles' house, Friday, March 13, arrive at dusk or before to set up.

MOON (Members Only Observing Night), TBA

ALCon Planning Meetings: Saturday, TBA.; Coffee Call, 3132 College Dr F, BR, LA 70808, contact Steven T

## Secretary's Summary of February Meeting

The February meeting was held at HRPO on February 10<sup>th</sup>. The guest speaker, Dr. Parks, had taken ill and could not attend. Coy Wagoner gave a program on Astronomical Sketching (required as part of some of the AL Observing Programs).

Highlights as follows:

- Artistic ability not needed
- Data required – latitude, longitude, date, and time
- Your sketch is validated when it is compared to astrophotography

Scott Cadwallader talked about upcoming events:

- MOON Night
- 2nd NSN training session
- ALCon planning meeting
- BRAG get-together at Chris Deselles house – all BRAS members invited

Chris Kersey made announcements about

- HRPO events,
- forming an exploratory committee to investigate a “Radio” group (Ham, Sideband, CB, Radio Astronomy) at HRPO,
- Astronomy Day on May 2<sup>nd</sup>,
- and a request for volunteers for HRPO events.

Trey Anding said several calendars are still available, and asked members to **PAY YOUR DUES!**

Scott Cadwallader announced that

- Merrill Hess is the new AL Award co-coordinator, s
- howed the new Light Pollution Awareness postcards,
- Country Roads Magazine had contacted BRAS and wanted a list of the best spots in Louisiana for stargazing.

Don Weinell talked about the Rockefeller trip that had nine attendees. His writeup was featured in the February Member’s Corner.

**RAFFLE:** Scott C. conducted a raffle, with 3 items being raffled off. He announced that there were three winners of one raffle ticket each in the February Night Visions “Magic Eye Contest” – Krista Reed, John Gar, and John Nagle.



Submitted by Thomas Halligan, Secretary

### 2020 Officers:



### GET ZAZZLED!

**President:** Scott Cadwallader  
**Vice-President:** Coy Wagoner  
**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

Public Information

Krista Reed

Webmaster:

Frederick Barnett

## WANT TO ATTEND ALCON 2020?

**Albuquerque, New Mexico from 15 to 18 July 2020**

Here is the print and Mail-In Registration Form, or register online:

<http://alcon2020.info/info-registration//>



## BRAS Outreach Report

Hi Everyone,

Wow! Things sure got busy in a hurry!! At the time of my writing this, and since last month's entry, we have had our second NSN toolkit training session, had successful outreach events at Westdale Heights, West Baton Rouge Library, Holy Family School and St. James, and we're about to head into a VERY busy stretch this week. (SEE BELOW)

A huge thank you to all that have volunteered this past month and to those that have come out to the training sessions for NSN kits. We're learning some good stuff about our kits and getting some new displays built, too. Here are some of those names: Chris R., Annette, Chris K., Krista, Scott C., Stephen, Barrow, Roz, Susan, Ben, Russell, and Dennis. (I'm sure I missed someone and I apologize!) That's a pretty nice list of names...it would be great to see some more added to it!

Finally, we had to cancel February's Sidewalk Astronomy at Perkins Rowe due to weather, and it looks like the same will happen for March. We have one at the end of March so maybe we'll have better luck!

Now, take a look at this list of events and please let me know ASAP if you can help out. A few were just recently added so there was not a lot of notice, but we'll try to accommodate everyone.

### Upcoming Outreach (I TOLD you we were busy!!)

#### **Thursday, March 5th**

6pm-8:30pm

St. George School (Siegen Lane)

Telescope viewing

3 or more people needed

#### **Saturday, March 7th**

9am-4pm

Bluebonnet Swamp and Nature Center

Rockin' At The Swamp

Demos, info, solar observing

Several people needed for shifts throughout the day

#### **Tuesday, March 10th**

5:30pm-8pm

Oak Grove Primary (Prairieville) STEAM night

Demos, info

3 or more people needed (I think we are all set for this one, actually)

#### **Thursday, March 12th**

5:30pm-7:30pm

Park Forest Elementary Creative Sciences and Art Magnet

Demos, info

2 or more people needed



At a recent kit training session, volunteers built this adjustable banner stand (plans were from the Back Bay Astronomy Club). This banner is part of one of our new NSN kits.

**Friday, March 13th**

6pm-9pm  
Highland Road Community Park  
Flashlight Egg Hunt  
2-3 people needed  
(telescopes and possible demo)

**Saturday, March 14th**

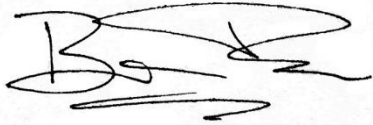
6pm-9pm  
Zachary Community Park  
Flashlight Egg Hunt  
2-3 people needed  
(telescopes and possible demo)

**Sunday, March 29th**

9:30am-6pm  
Zippity Zoo Fest 50th Anniversary (Baton Rouge Zoo)  
Demos, info, solar observing  
Several people needed for shifts throughout the day

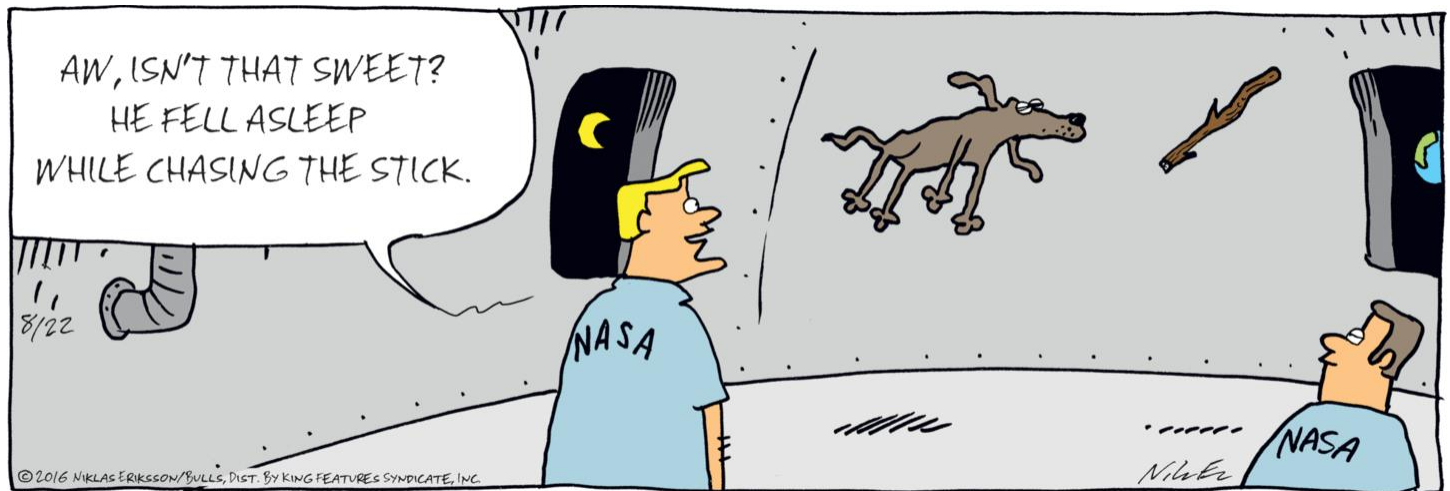
**Tuesday, March 31st**

6:30-8:30  
Sidewalk Astronomy Perkins Rowe  
Telescope Viewing (Yes, it's light out because of DST,  
but people still marvel at seeing the Moon in a daylight sky!)



Clear Skies,  
Ben Toman

P.S. There will be another training session in March, date TBA.





## **BRAS Light Pollution Committee Report**

This committee meets at 6:15, same day as the 7:00 BRAS Business Meeting  
(normally on Wednesday before the Monthly Meeting)

Everyone is welcome to join in..

Meeting called to order by John Nagle  
January minutes were published in February newsletter

### **Old Business:**

1. Agreed to develop a petition and sign-up sheets for Light Pollution, take sign-up sheets and Petition to all outreaches, have sign-up sheets at HRPO with Petition, master lists to be kept in the BRAS file cabinet at HRPO.
2. Preliminary letter about Light Pollution, for the public to send to their utility company, to be developed. Chris gave out a draft sample of the letter.
3. Draft a letter to BREC about section 6.1 of their Environmental Sustainability Program. Working on it.
4. Training BRAS members about Light Pollution. Approved a short 15 minute training session before the March membership meeting.
5. Codifying BRAS's ideas concerning BREC's Environmental Sustainability Program into the new CEA with BREC and LSU. Working on it.
6. Discussed ways and means to get more of the public involved in the reduction of Light Pollution. The Light Pollution postcards (via Ben) and the petition with sign-up sheets to be used.
7. Discussed exploring contacts with other groups (Astronomy clubs, nature groups, etc.) in regards to Light Pollution and what they are doing about it. Working on it.
8. Need to contact EBRP Public Works Department, Entergy, and Demco to find out who controls which street lights and who to contact about them. Suggestion made to invite responsible parties to view the skies at HRPO.

### **New Business:**

Discussed suggestions for the coming year:

- A. Discussed how HRPO can participate in the Globe at Night Program via the all-weather SQM donated to the Observatory. Working on means to install it and making it operational.
- B. Discussed the NASA book "Earth at Night". Investigation shows that only a small part of bood about Light Pollution.
- C. Discussed how to increase public participation in the Globe at Night citizen science program. Suggestion made to contact home schoolers and other groups about participation. Working on it.



Minutes of this meeting read and approved  
Meeting adjourned.

Submitted by John R. Nagle

## Globe At Night

The target for the Globe at Night program is Orion from March 14<sup>th</sup> through the 24<sup>th</sup>. If you would like to participate in this citizen science program, you can find instructions at <https://www.globeatnight.org>

P.S. There is an app called “Loss of the Night” that can be used for information and for reporting your observations

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**Three members won raffle tickets last month for guessing what celestial object is in this MagicEye puzzle.**

**I’m giving the rest of you another chance to see beyond the limits of your normal range of vision.**

**Email your answer to [newsletter@brastro.org](mailto:newsletter@brastro.org)**

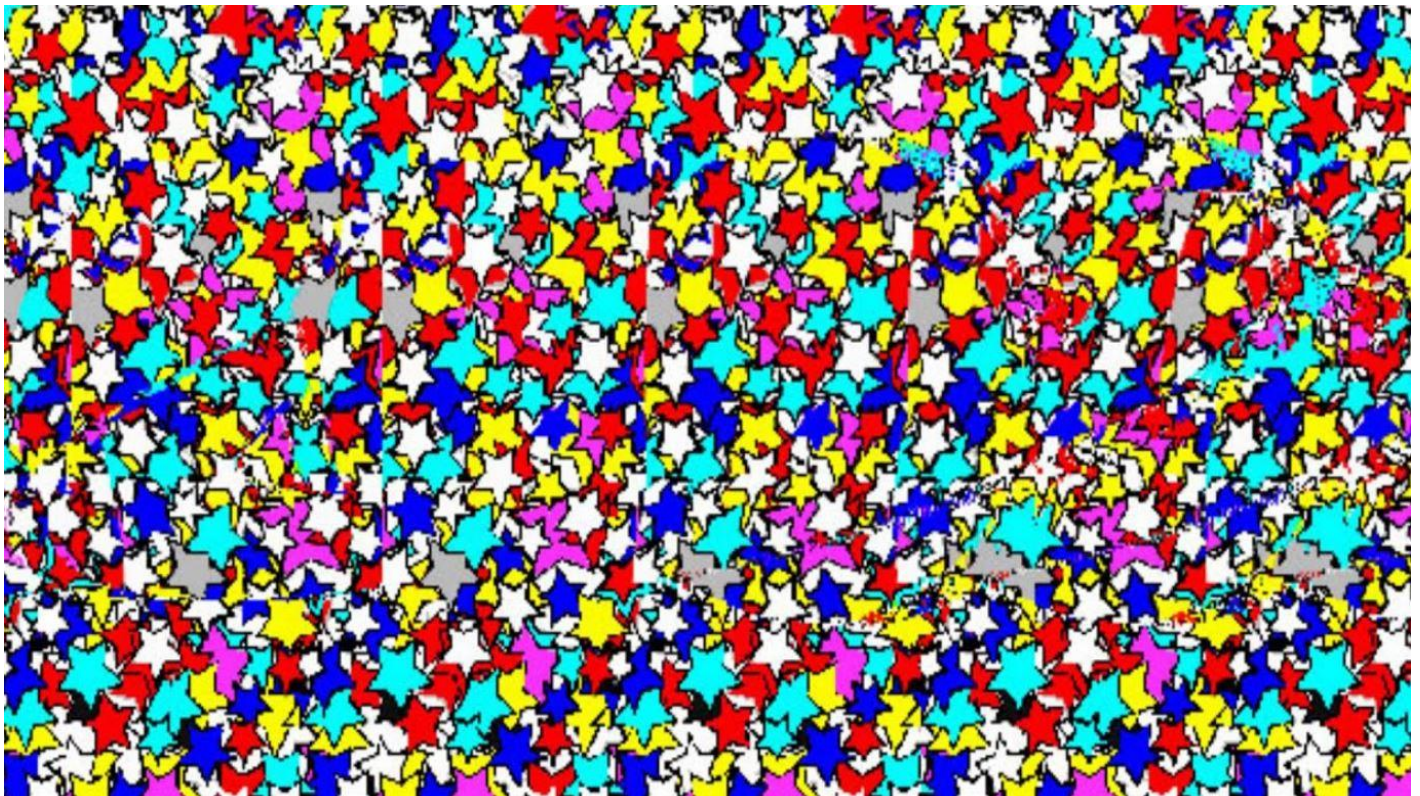
**You must be present at the March meeting to qualify.**

*To make this easier, expand the document on your computer screen to 150%. Or visit link below*

*If you’ve never done a Magic Eye puzzle, instructions are here:*

*[https://www.magiceye.com/How\\_to\\_see\\_printer\\_version.htm](https://www.magiceye.com/How_to_see_printer_version.htm)*

*Of course, the honor system applies. Don’t give the answer away to anyone else.*



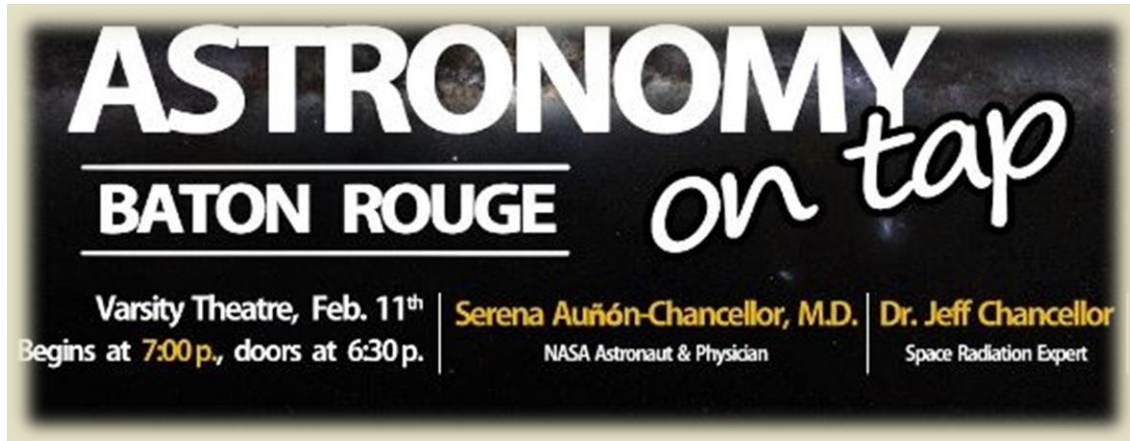
***An 11” x 17” poster has been placed on the wall at HRPO for visitors to puzzle over.***

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## Members/Community Corner

Here's where we feature articles and photos about BRAS members' astronomy-related accomplishments and adventures outside of BRAS activities (as if there were any spare time for such things!), and/or other astronomical happenings in our neck of the Universe. Send your contributions to Michele at [newsletter@brastro.org](mailto:newsletter@brastro.org)



On February 11th, guest speakers at Astronomy On Tap Baton Rouge were

## Meet Astronaut Dr Serena Auñón-Chancellor

who lives in Baton Rouge, with her husband



### LSU Professor Jeff Chancellor

Serena was aboard the International Space Station for nearly 200 days in 2018 and shared her extraordinary experience with attendees. Professor Chancellor, who complements his wife's profession fantastically with his research into the heavy ion radiation such as space radiation, and the healthcare outcomes, spoke on that topic.



Baton Rouge is extraordinarily privileged to have such accomplished professional astronomers helping to make up our strong astronomical community. THE FORCE IS WITH US as we just keep growing, including possible expansion of our well equipped Highland Road Park Observatory with an outdoor pavillion for gatherings. The observatory already boasts a "20" telescope housed in an elevated dome (see4 photo), a 16" housed in a smaller dome outside, plus classrooms and an active director who organizes several programs each month.

View pictures of the HRPO campus here:

<http://www.bro.lsu.edu/index.html>





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Flying “Rocks” and “Dirty Snowballs”:

**Asteroid and Comet News**

**March 2020**

**Volume 2, Issue 3.**

JPL Close Approach Data from Jan 27, 2020 to Fe 18, 2020 Distance Nominal < 1 Lunar Distance

Object	Close-Approach (CA) Date	CA Distance Nominal (LD (au))	H (mag)	Estimated Diameter
(2020 BA13)	2020-Jan-27	0.51 (0.00132)	28.8	4.6 m - 10 m
(2020 BA15)	2020-Jan-28	0.98 (0.00252)	27.3	9.1 m - 20 m
(2020 BZ13)	2020-Jan-29	0.28 (0.00072)	29.8	2.9 m - 6.5 m
(2020 CZ)	2020-Jan-31	0.82 (0.00210)	29.3	3.7 m - 8.2 m
(2020 CJ)	2020-Jan-31	0.92 (0.00236)	26.9	11 m - 25 m
(2020 CW)	2020-Feb-01	0.04 (0.00011)	32.5	0.83 m - 1.9 m
(2020 CA)	2020-Feb-02	0.57 (0.00147)	29.6	3.2 m - 7.2 m
(2020 BT14)	2020-Feb-03	0.49 (0.00126)	27.7	7.5 m - 17 m
(2020 CQ1)	2020-Feb-04	0.17 (0.00043)	28.8	4.6 m - 10 m
(2020 DU)	2020-Feb-13	0.85 (0.00217)	28.7	4.9 m - 11 m
(2020 CD3)	2020-Feb-13	0.12 (0.00031)	31.7	1.2 m - 2.7 m
(2020 CQ2)	2020-Feb-14	0.39 (0.00099)	28.6	5.0 m - 11 m
(2020 DA1)	2020-Feb-18	0.50 (0.00129)	29.7	3.0 m - 6.7 m
(2020 DW)	2020-Feb-18	0.63 (0.00161)	30.3	2.3 m - 5.1 m

As of 2020-02-26 there is

930,678 discovered asteroids (MPC)( <https://www.minorplanetcenter.net/>)

[545,135 have been numbered]( <https://minorplanetcenter.net/iau/lists/NumberedMPs.html>)

22,342 discovered Near-Earth Objects (MPC) (<https://www.minorplanetcenter.net/>)

4,141 discovered Comets ( MPC)( <https://www.minorplanetcenter.net/>)

992 objects listed on JPL’s Sentry: Earth Impact Monitoring(JPL) (<https://cneos.jpl.nasa.gov/sentry/>)

2,440 objects have been removed from Sentry(JPL) (<https://cneos.jpl.nasa.gov/sentry/removed.html> )

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

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

The following objects were removed from NASA JPL’s Sentry: Earth Impact Monitoring list from 2020-01-28 to 2020-02-26

<b>Object Designation</b>	<b>Removed (UTC)</b>
2020 DC2	2020-02-26 16:04:52
2013 JA17	2020-02-24 21:12:59
2020 BU13	2020-02-22 19:40:15
2020 AY1	2020-02-21 13:43:31
2020 DV	2020-02-19 18:26:47
2020 CP2	2020-02-17 13:32:12
2020 DA	2020-02-17 13:31:41
2020 CX1	2020-02-14 14:04:26
2020 BA14	2020-02-14 13:36:42
2020 BH7	2020-02-13 13:58:10
2014 HG196	2020-02-12 13:34:01
2020 BW14	2020-02-10 04:00:25
2020 BW13	2020-02-07 13:34:05
2020 BQ12	2020-02-06 14:06:29
2020 BV14	2020-02-06 14:03:22
2020 CJ	2020-02-05 14:20:59
2020 BP15	2020-02-05 14:16:01
2020 BP12	2020-02-05 14:14:02
2020 BD1	2020-02-03 14:06:33
2019 BE5	2020-01-30 16:41:39
2020 BN11	2020-01-30 16:19:14
2020 BC8	2020-01-28 14:31:49
2020 BC9	2020-01-28 14:29:12
2020 BD8	2020-01-28 14:27:00

**Useful Links:**

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

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

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

**The Tracking News**

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

**Accessible NEAs**

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

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# Messages from HRPO

Highland Road Park Observatory



## FRIDAY NIGHT LECTURE SERIES

*All start at 7:30pm.*

**13 March, 7:30pm to 8:30pm: “Star Mergers”** In a first-time presentation at HRPO, LSU professor Manos Chatzopoulos will discuss the mechanism that create one of the most astounding events in the Universe—the [merger of two stars into one](#). [For ages fourteen and older.]

**20 March, 7pm to 8pm: “Skygazing—A Pursuer’s Guide”** This special early lecture aimed toward students and families introduces the science hobby and outlines how print and online resources, and HRPO and [BRAS](#), can support a lifetime of intellectual and aesthetic fulfillment. [For ages eight and older.]

**27 March, 7:30pm to 8:30pm: “The Great Martian Opposition”** This is the year of the last Great Martian Opposition until 2033! Are you prepared? Do you have the equipment, and the appropriate setup in your backyard? Do you have HRPO’s Mars schedule? [For ages fourteen and older.]



## Science Academy

*Saturdays from 10am to 12pm*

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

**7 March: “Dwarf Planets”** It is a [new category](#), but it still requires respect. Cadets will learn the members of the category and what lets them qualify.

**14 March: “Pi Day”** A two-hour whirlwind of all things mathematical awaits Cadets. Not only [Pi](#) but other special numbers like the “natural number” and the Hubble Constant, relationships like the Golden Ratio, games like the legendary game Nim, magic squares, Life...and a special all-numbers puzzle to obtain extra door prize tickets! [Note: This is a Historic Standalone session. It will not be repeated throughout the regular rotation of SA sessions.]

**21 March: “Venus”** In preparation for this year’s sole [Venusian Elongation](#), Cadets will learn how the features on Venus are named, when we last visited and what future trips we have planned.



## Solar Viewing

Saturday 21 March from 12pm to 2pm.

For all ages. No admission fee. 20OGS Tour at 1pm.

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

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

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

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

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

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



## STEM Expansion

Saturday 28 March from 3:30pm to 7:30pm. For ages twelve to sixteen.

\$15/\$18 per kid.

*Hour One: Medical Benefits of Space Studies*

*Hour Two: Compton Gamma Ray Observatory (Data, Model Building)*

*Hour Three: Electronics Learning Lab (Console Sections/Part Insertions)*

*Hour Four: Unearth and Tech Connect Games*

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



## Plus Night

Saturday 7 March from 12pm to 2pm.

For all ages. No admission fee.

Theme: "The Three Brightest Baton Rouge Stars"

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

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

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

\*An unaided eye sky tour takes place, showing the public major features of the sky for that

month. The tour takes place at 8pm during Standard Time, and at 9pm during Daylight Time.

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

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



## **Edge of Night**

**Friday 6 March from 5:30pm to 7:30pm**

**No admission fee. For all ages.**

It's not light, it's not dark. It's that special time called twilight, and HRPO wants to introduce you to it! *Are all sections of the sky the same shade of blue? Which stars are seen first? Are Mercury and Venus or the Moon out? Is that moving object a plane, a satellite or space debris? How much actual darkness should I expect in a light-polluted city when twilight has passed?* There is no other time like twilight. Bring it into your life!



## **Starlink Watch**

**Tuesday 24 March from 8pm to 9pm**

**at Burbank Soccer Complex**

**No admission fee; for all ages. Binocular required.**

The STARLINKs are a group of very small satellites currently being launched in groups called “constellations.” Satellites of this size have the potential to lower launch costs.

Unfortunately, they also may clutter up the night sky, and amateur and professional photographic studies of the heavens. During this half-hour, fourteen STARLINK satellites may reflect enough sunlight to be visible to the unaided eye—all between magnitudes 2.5 and 3.0. Join us early for this astonishing and troubling display.



## **Venusian Elongation**

**Tuesday 24 March from 9pm to 10:30pm**

**at Burbank Soccer Complex**

**No admission fee; for all ages.**

Periodically Mercury reaches its greatest angular separation in the sky (elongation) from the Sun. This is the safest way to view Mercury by amateurs. The planet will appear as a “half-Mercury”. Venus will also be seen.



## **NanoDays**

***Saturday 4 April from 3pm to 7pm***

***For ages eight and older. No admission fee.***

For the ninth consecutive year at HRPO, big things in the Universe take a backseat to all things tiny. Children and adults alike will be able to see how big they are compared to nanoscale objects; understand how a Scanning Probe Microscope explores the nanoworld; try to pour water out of a nano-cup; learn about nanomaterials used stain-free clothes; have a chance to build models of nanoscale structures; play with liquid crystals; make fluids part in the middle by applying magnets to them.



## **INTERNATIONAL ASTRONOMY DAY**

***Saturday 2 May from 3pm to 11pm***

***Thirteenth Consecutive Year!***

***Volunteers needed! HRPO will be calling!***

RAFFLE TICKETS, \$5 EACH

EXPECTED EXHIBITORS...

American Institute of Aeronautics and Astronautics  
 Baton Rouge Amateur Radio Club  
 Baton Rouge Metropolitan Airport  
 Baton Rouge Mosquito Abatement  
 Baton Rouge Zoo  
 Bluebonnet Swamp Nature Center  
 Civil Air Patrol  
 LIGO  
 Saint Joseph's Academy

POTENTIAL RIDES...

18" Dry Slide  
 Spacewalk  
 Obstacle Course  
 Hamster Ball

OTHER...

Adventure Quest  
 Face Painting  
 Homemade Comet  
 Scope-on-a-Rope

**Early volunteer sign-up is needed for International Astronomy Day. It is extremely difficult to schedule a volunteer if that person reveals his availability with only two or three days to go. Sign-up now, please!**

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# AREN'T YOU PROUD OF HRPO!!!

LET OTHERS KNOW IT BY WEARING THE LATEST T-SHIRT.

**Get your 2019 HRPO T-Shirt, all sizes, \$7.00**

**Apollo 8 "Earthrise"**

**Call the Observatory to place your orders.**

**225-768-9948 or email [observatory@brec.org](mailto:observatory@brec.org)**

White and blue on black, the design (created by HRPO Education Curator Amy Brouillette and BREC's Marketing Department) takes its inspiration from the legendary Apollo 8 "Earthrise" photo.





# Observing Notes: March

by John Nagle

## Camelopardalis – The Giraffe

Position: RA 06, Dec. +70° °

*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 recycle and update the constellations, but the Sky Happenings calendar and associated information are new each month.*

### *Named Stars:*

There are no named stars in Camelopardalis.

### *Deep Sky:*

**vdB 14**, mag. 4.32, 03 29.2 +59 57, 20'x8' in size, is an extremely faint milky streak with many faint stars imbedded in the bluish nebula. Also known as **LBN 681**.

**vdB 15**, mag. 4.58, 03 30.1 +58 54, 25'x10' in size, is a bluish nebula surrounding a 5<sup>th</sup> magnitude star. Located  $\frac{3}{4}$ ° south of **vdB 14**. Also known as **LBN 684**, and **Ced 14**.

**Kimble 1**, mag. 5.0, 03 57 25.3 +63 04 19, 20 stars. **NGC 1502** is by the southeast end, and **Cz 17** is 1° to the south.

**St 3 (Pazimwo's Cluster)**, mag. 5.6, 03 16 10.8 +60 06 56, 29' in size, 25 stars, is an open cluster; detached, no concentration of stars; large range in brightness; involved in nebulosity. Central star is **HD 20040**, magnitude 7.6, and the star  $\Sigma$  362 is in the cluster. Also known as **Lund 104**, **OCL 375**, **OCL 375.0**, and **CGCG 0312+598**.

**NGC 1502**, mag. 5.7, 04 07 50 +62 20.2, 8' in size, is an open cluster of 63 stars and is part of the **OB1 Cam Association**; detached, weak concentration of stars; large range in brightness; magnitude of brightest star is 6.9. There are two binary stars,  $\Sigma$ 484 and  $\Sigma$ 485, at the center. The visual double star's secondary is mis-id'ed as **HD 25639 (ADS 2984)**. In actuality, the secondary is **SZ Camelopardalis**, 7<sup>th</sup> magnitude, orbital period of 2.69 days with a separation of 17.9. **SZ Camelopardalis** is also a double star with an eclipsing pair of stars in a 55 year orbit, and the non-eclipsing spectroscopic binary has a period of 2.8 days. **NGC 1502** is located at the apex of an equilateral triangle with **Alpha** and **Beta Camelopardalis**, and at the southeast end of the **Kemble's Cascade** asterism. Also known as **The Golden Harp Cluster**, **The Jolly Roger Cluster**, **Cr 45**, **Lund 124**, **OCL 383**, **OCL 383.0**, **Mrk 10**, **H7-47**, and **CGCG 0403+622**.

**Al 2**, mag. 7.0, 04 46 24 +55 15 00, 15' in size, 10 stars, is a possible asterism. Also known as the **Umbrella Cluster**, and **LaDrew 4**.

**PK 449+4.1**, mag. 7.9, 04 20.75 +56 18.1. Also known as **KOH 4-47**, and **PNG 0149.0+4.4**.

**IC 342**, mag. 8.4, 03 49.5 +68 50, 21.4'x20.9' in size, is a faint, very large, and round galaxy; very small, bright nucleus (a prominent nucleus surrounded by a diffuse outer halo of about 12' across) oriented almost face on, and is as perfect in form as **M101**. Hard to see because of dust. Contains 31 X-ray sources. Also known as "The Hidden Galaxy", **UGC 2847**, **PGC 13826**, and **MCG+112-05-003**.



**Tom 5**, mag. 8.4, 03 47 44 +59 05.4, 16' in size, 102 stars, is an open cluster; detached, no concentration of stars; moderate range in brightness; magnitude of brightest star is 11.6. It is a faint, large, and loose irregular galaxy. Located about 5° southwest of **NGC 1502**. Also known as **Lund 118**, **OCL 385**, and **CGCG 0343+589**.

**NGC 2403**, mag. 8.5, 03 46 49.6 +68 05 56, 23.4'x13' in size, is a bright, very elongated, very large galaxy; irregular arms; small, very faint nucleus. Has a mottled texture visible in an 8-inch or larger telescope, similar in appearance to **M33**. The northern arm connects to **NGC 2404** (over 2,000 light years long, harbors thousands of blue supergiant and Wolf-Rayet stars). In the **M81** group of galaxies. Also known as **UGC 3918**, **H5-44**, **PGC 21396**, **CGCG 0310-003**, **CGCG 0732.0+6543**, **C7**, and **MCG+11-010-007**.

**NGC 2655**, mag. 10.1, 08 55 37.8 +78 23.1, 6.1'x5.3' in size, is a very bright, quite large, and slightly elongated galaxy; very bright, very large nucleus with an absorption lane on one side; very faint, diffuse outer arms. Also known as **UGC 4637**, **H1-288**, **PGC 25009**, and **ARP 125**.

**NGC 1501**, mag. 11.5, 04 06 59.6 +60 55 17, 52" in size, is a planetary nebula with a central star at magnitude 14.0 (a Wolf-Rayet star). Also known as **PK 144+06.1**, **PNG 144.5+06.1**, **PNG 144.5+06.5**, the **Camel's Eye**, and the **Blue Oyster Nebula**.

**UGC 3697**, mag. 13.5, 07 11.4 +71 50, 3.5' in size. Also known as "The Integral Sign Galaxy", and **PGC 20348**.

**Kemble's Cascade**, 03 57.0 +63 00, is a 3° long chain of more than 20 stars running northwest of **NGC 1502**. It is a celestial waterfall of dozens of 9<sup>th</sup> and 10<sup>th</sup> magnitude stars in a visually straight line. It is not labeled in *Sky Atlas 2000.0*, although its brightest stars are plotted. The brightest star is **HD 244479** (4.96 magnitude). The asterism was named after Father Lucian J. Kimble, a Franciscan friar, who discovered it and wrote a letter to Walter Scott Houston (a columnist for *Sky and Telescope* magazine), describing the sight as "a beautiful cascade of faint stars tumbling from the northwest down to the open cluster **NGC 1502**". Houston named it "**Kemble's Cascade**" in his "*Deep Sky Wonders*" column in 1980. Father Kimble died in 1999.

**Other Deep Sky Objects in Camelopardalis are as follows: 51 NGC; 269 UGC, 3 UGCA; 28 IC; 54 MGC; 9 CGCG; 8 PGC; 9 Arp; 3 Sh2; 2 KK4; 5 PNG; 3 Radio galaxies; 2 Quasar galaxies; 7 B; 1 Cr; 2 Cz; 2 C; 2 Be; 1 vdB; 2 Shk; 1 Mrk; 1 Waterloo; 8 PK; 44 LDN; 1 Ced; 10 Herschel; 10 VV; 2 LBN; 1 Mel; 1 Tom; 1 King; 1 Mayer; 1 Sh; 1 Kemble; 1 Zannin; 1 7Zw; 1 HBC; 1 Al; 1 Kron; 1 Arg; 1 Min; 2 Ju; 1 Webb; 1 S; 1 Alcante; 2 BRD; 1 Holmberg; 1 St; 1 LaDrew; 1 Ring galaxy; 7 Flat galaxies; 5 Super Clusters of Galaxies; 4 of the Tully Group 10 (in the UMa Cloud 12); 4 galaxies of the CVn-Cam Cloud (Tully Cloud 42); 1 HS; 1 AL; 2 Kro; 1 MS; 1 RXS; and 1 [PKL98]. A total of 593 objects.**

## **Other Stars:**

**CS Cam**, mag. 4.21, 03 29 04.13 +59 56 25.2, is a binary star with the primary being a blue-white supergiant star and the secondary a magnitude 8.7 star, separation is 2.9". Located in the reflection nebula **vdB 14**. This is one of the hind legs. Also known as **HD 21291**, and **HIP 16228**.

**Alpha Cam**, mag. 2.46, 04 54 03.01 +66 20 33.6. Also known as **HD 30614**, **HIP 22783**, **9 Camelopardalis**, and as **Shǎowèi (The Minor Guard)** by the Chinese.

**BE Cam**, mag. 4.39, 03 49 31.29 +65 31 33.6, is an irregular variable red giant star, and is the other hind leg. Also known as **HD 23475**, and **HIP 17884**.

**7 Cam**, mag. 4.43, 04 57 17.22 +53 45 07.5, is a triple star and is one of the front legs. Also known as **HD 31278**, and **HIP 23040**.

**M Cam**, mag. 4.55, 07 00 03.85 +76 58 38.8, is an orange giant star, located in the neck. Also known as **HD 49878**, and **HIP 33694**.

**HD 42818**, mag. 4.76, 06 18 50.76 +69 19 12.1, is a white dwarf star located at the snout. Also known as **HIP 29997**, and **L Camelopardalis**.

**K Cam**, mag. 5.08, 05 22 33.78 +79 13 50.7, has one planet in orbit with an orbital period of 388 days.

Also known as **HD 33564**, and **HIP 25110**.

**HD 106112**, mag. 5.14, 12 12 11.9 +77 36 58.3, is a rotating ellipsoidal variable star. Also known as **HIP 59504**, and **N Camelopardalis**.

**31 Cam**, mag. 5.20, 05 54 57.83 +59 53 18.3, is an eclipsing spectroscopic binary star. Also known as **HD 39220**, **HIP 27971**, and **TU Camelopardalis**.

**HD 104985**, mag. 5.78, 12 05 14.74 +76 54 21.4, has one planet in orbit at a separation of 0.78 au, and an orbital period of 198 days. Also known as **HIP 58952**, and as the final results of a *Name Exo Worlds Public Vote* – **Tonatiuh** (an *Aztec God of the Sun*).

**Σ 1694**, mag. 5.38, 12 49 13.8 +83 24 46.3, is a binary star with both components having a blue-white hue. The secondary star is magnitude 5.7, and is also a spectroscopic binary itself. Separation of primary to secondary is 20.9". These stars represent the head. **UGC 7956** (14<sup>th</sup> magnitude) is 5' to the west, and is 7° north-northeast of **Polaris**. Also known as **HR 4893**.

**HD 40956**, mag. 6.42, 06 06 39.20 +63 27 13.7, has one planet in orbit. Also known as **HIP 28951**.

**HD 32518**, mag. 6.44, 05 09 36.62 +69 38 22.4, has one planet in orbit at a separation of 0.59 au, and an orbital period of 157.5 days. Also known as **HIP 24003**.

**HD 44385**, mag. 6.60, 06 33 04 +78 58 46, has one planet in orbit. Also known as **HIP 31231**.

**HD 24064**, mag. 6.75, 03 56 36 +74 04 48, has one planet in orbit. Also known as **HIP 18451**.

**HD 35759**, mag. 7.74, 05 31 33 +64 16 58, has one planet in orbit. Also known as **HIP 25883**.

**SZ Cam**, mag. 7.0, 04 07.9 +62 20, is a pair of double stars. The primary, a visual non eclipsing binary, is a blue-white variable, with the secondary being **HD 25639** at magnitude 7.1, and a separation of 17".

The second pair is an eclipsing binary star (magnitude 9.0), the secondary at magnitude 9.5, and a separation of 5.3", with a period of 2.7 days, orbiting the primary component in a 55 year orbit.

**SZ Camelopardalis** was erroneously designated as **ADS 2984A**, and was also misidentified as **HD 25639** in the *Bright Star Catalogue*, while in all other sources it is cross-referenced with **HD 25638**. Also known as **Σ 485** for the A component, and **Σ 484** for the second binary star.

**HD 29021**, mag. 7.76, 04 37 52.2 +60 40 34, has one planet in orbit. Also known as **HIP 21571**.

A partial list of stars in **Camelopardalis** are as follows: **38Σ**; **6 OΣ**; **1 OΣΣ**; **2 β**; **1 h**; **2 Mlr**; and **5 A**.

## ***Sky Happenings: March, 2020***

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

- March 1<sup>st</sup>** - The **Moon** passes 0.1° south of asteroid **Vesta** at 12 AM CST,  
Dawn: **Mars**, **Jupiter**, and **Saturn** are in a line 19° long to the left of the **Teapot** asterism in **Sagittarius**. The three planets will linger there all month.
- March 2<sup>nd</sup>** - **First Quarter Moon** occurs at 1:57 PM CST.
- March 4<sup>th</sup>** - The **Moon** is 1.2° south of **M35** at 3 AM CST.
- March 6<sup>th</sup>** - The **Moon** is 1.1° north of the **Beehive (M44)** at 4 PM CST.
- March 8<sup>th</sup>** - **Daylight Savings Time** begins at 2 AM CST,  
**Neptune** is in conjunction with the **Sun** at 7 AM CDT.
- March 9<sup>th</sup>** - **Mercury** is stationary at 3 AM CDT,  
**Venus** passes 2° north of **Uranus** at 10 AM CDT,  
**Full Moon** occurs at 12:48 PM CDT (the largest **Moon** of 2020).
- March 10<sup>th</sup>** - The **Moon** is at perigee (221,905 miles or 357,122 km from **Earth**) at 1:30 AM CDT.
- March 14<sup>th</sup>** - Asteroid **Euterpe** is at opposition at 1 PM CDT.
- March 16<sup>th</sup>** - **Last Quarter Moon** occurs at 4:34 AM CDT.
- March 17<sup>th</sup>** - Double shadow transit on **Jupiter** at 9:51 AM CDT.
- March 18<sup>th</sup>** - The **Moon** passes 0.7° south of **Mars** at 3 AM CDT,

- The **Moon** passes 1.5° south of **Jupiter** at 5 AM CDT,  
 Dawn: The waning crescent **Moon**, **Mars**, and **Jupiter** form a tight triangle, with **Saturn** roughly 7° to the left of the trio,  
 The **Moon** passes 0.9° south of **Pluto** at 10 AM CDT,  
 The **Moon** passes 2° south of **Saturn** at 7 PM CDT.
- March 19<sup>th</sup>** - The **Vernal Equinox** occurs at 10:50 PM CDT. Spring begins in the **Northern Hemisphere**.
- March 20<sup>th</sup>** - **Mars** passes 0.7° south of **Jupiter** at 1 AM CDT.
- March 21<sup>st</sup>** - Dawn: Above the east-southeast horizon the thin sliver of the waning crescent **Moon** and **Mercury** are less than 6° apart,  
 The **Moon** passes 4° south of **Mercury** at 1 PM CDT.
- March 23<sup>rd</sup>** - **Mercury** is at greatest western elongation (28°) at 9 PM CDT.
- March 24<sup>th</sup>** - **New Moon** occurs at 4:28 AM CDT,  
 The **Moon** is at apogee (252,707 miles or 406,692 km from **Earth**) at 10:23 AM CDT,  
 Double shadow transit on **Jupiter** at 1:50 PM CDT,  
**Venus** is at greatest eastern elongation (46°) at 5 PM CDT.
- March 26<sup>th</sup>** - The **Moon** passes 4° south of **Uranus** at 4 PM CDT.
- March 27<sup>th</sup>** - **Mercury** is at aphelion.
- March 28<sup>th</sup>** - The **Moon** passes 7° south of **Venus** at 6 AM CDT,  
 Dusk: The waxing crescent **Moon**, **Venus**, and **Aldebaran** form a shallow triangle after sunset, above the western horizon.
- March 29<sup>th</sup>** - The **Moon** passes 0.2° south of asteroid **Vesta** at 2 AM CDT.
- March 29<sup>th</sup>/30<sup>th</sup>** - Dusk: The growing **Moon** is between the horns of **Taurus**, a little more than 3° from **Aldebaran**, and on the 30<sup>th</sup>, less than 1° from **Zeta Taurii**.
- March 31<sup>st</sup>** - Dawn: **Mars** and **Saturn** are less than 1° apart, with **Jupiter** 5° to their upper right,  
**Mars** passes 0.9° south of **Saturn** at 6 AM CDT,  
 The **Moon** is 0.9° south of **M35** at 11 AM CDT,  
 Double shadow transit on **Jupiter** at 4:13 PM CDT.
- April 1<sup>st</sup>** - **First Quarter Moon** occurs at 5:21 AM CDT,  
 Dawn: A trio of planets will be above the southeastern horizon before the **Sun** rises. **Saturn** and **Mars** are 1° apart, with **Jupiter** a little more than 6° to the upper right of the pair.
- April 2<sup>nd</sup>** - Asteroid **Juno** is at opposition at 3 PM CDT.
- April 3<sup>rd</sup>** - **Mercury** passes 1.4° south of **Neptune** at 10 AM CDT,  
 Evening: **Venus** is positioned just ¼° southeast of **Alcyone**, the brightest **Pleiad**.

## ***Planets:***

**Mercury** – **Mercury**, after last month's inferior conjunction, emerges into the morning sky, staying at a relatively low altitude throughout March due to the low tilt of the ecliptic to the predawn eastern horizon. The planet rises about an hour before the Sun on the 10<sup>th</sup>, at magnitude 1.0. By 7 AM local daylight time, it has climbed to 7° high. The best opportunity to spot the planet is on the 20<sup>th</sup> and 21<sup>st</sup>, when a wafer thin crescent **Moon** stands nearby – both will rise an hour before the **Sun**, and thirty minutes later, **Mercury** is 5° high in the east-southeast. On the 20<sup>th</sup>, the **Moon** and the planet are 15° apart, and just 5° apart on the 21<sup>st</sup>, with the planet at magnitude 0.2. **Mercury** reaches greatest western elongation (28°) on the 23<sup>rd</sup>. By the 31<sup>st</sup>, the planet will brighten to magnitude 0.0, and will stand 4° high 30 minutes before sunrise.

**Venus** – **Venus** starts the month in **Pisces** along with the waxing crescent **Moon**. The planet shines at magnitude -4.3. During the first few days of March, the planet moves into southern **Aries**, close to **Uranus**. On the 7<sup>th</sup> and 8<sup>th</sup>, the two planets are just 2.2° apart – on the 7<sup>th</sup>, **Uranus** is southeast of **Venus**, and on the 8<sup>th</sup>, a pair of 7<sup>th</sup> magnitude stars are about 1.2° to the lower left of **Venus**. **Venus** reaches perihelion on the 19<sup>th</sup>. On the 24<sup>th</sup>, the planet reaches greatest eastern elongation (46.1°) from the **Sun**. On the 27<sup>th</sup> and 28<sup>th</sup>, the waxing **Moon** and **Venus** hover just below the **Hyades** in **Taurus**. On the 29<sup>th</sup>, the **Moon**, **Hyades**, **Pleiades**, and **Venus** all lie in a 17° wide circle as **Venus** crosses into **Taurus**. The planet ends the month less than 3° from the **Pleiades** (**M43**). The disk of **Venus** grows from 19" to 25" wide during the month,

while the phase shrinks from about 63% to 48% lit. The planet's magnitude increases from -4.3 to -4.5 during the month.

**Mars** – **Mars** begins March in the southeast horizon with **Jupiter** and **Saturn** – just east of the **Teapot** asterism in **Sagittarius**, spanning 19° along the ecliptic. On the 18<sup>th</sup>, the waning crescent **Moon** is about 2° away from **Mars** and **Jupiter**, with the planets only 1.3° apart in the predawn sky, with **Saturn** 2° to the east. On the 20<sup>th</sup>, **Mars** passes ¾° south-southeast of **Jupiter**, with **Mars** measuring just 6" across – the pair of planets rise about 4 AM and climbs 10° high in the southeast an hour later. **Jupiter** will shine at magnitude -2.1 and **Mars** at magnitude 0.9. On the 31<sup>st</sup>, **Mars** is less than 1¾° south of **Saturn** at around 5:30 AM, and the planets will be standing 15° high. **Saturn**, at magnitude 0.7, is 16" across with the rings spanning 36". **Mars** has a diameter of 6", showing a non-descript surface at magnitude 0.8. On the 23<sup>rd</sup>, **Mars** passes less than 0.02° south of the 14<sup>th</sup> magnitude **Pluto** at around 12:15 AM CDT. Unfortunately for viewers in **North America**, the gap between the two will widen to about 10' by the time the pair rise above the horizon.

**Jupiter** – **Jupiter** begins March between **Mars** and **Saturn**, east of the **Teapot** asterism in **Sagittarius**, in a line that spans 19° along the ecliptic. **Jupiter** will brighten only from magnitude -2.0 to -2.1 during the month. The planet is in conjunction with **Mars** on the morning of the 20<sup>th</sup>. The pair rises at about 4 AM CDT and will climb 10° high in the southeast an hour later. **Mars** will then be 42' south of **Jupiter**, with **Jupiter** at -2.1 magnitude with a disk of 36", and **Mars** at 0.9 magnitude, showing a disk of 6". At 4:30 AM CDT on the 20<sup>th</sup>, **Io** will be eclipsed by **Jupiter**'s shadow, and be occulted by the planet at 7:58 AM CDT. On the 17<sup>th</sup>, there is a double shadow transit (**Europa** and **Io**) starting at 9:51 AM (**Europa**) and at 12:48 AM CDT **Io**'s shadow starts its transit. On the 24<sup>th</sup>, there is another double shadow transit starting with **Europa** at 1:50 PM CDT, followed by **Io** at 2:37 PM CDT, ending at 4:55 PM CDT. On the 31<sup>st</sup>, a third double shadow transit occurs, starting at 4:13 PM CDT (**Io**), followed by **Europa** at 5:49 PM CDT.

**Saturn** – **Saturn** starts the month with **Jupiter** and **Mars**, east of the **Teapot** asterism in **Sagittarius**. **Saturn** moves into **Capricornus** in the middle of March. On the morning of the 18<sup>th</sup>, the waning crescent **Moon** joins **Saturn**, **Jupiter**, and **Mars** at dawn, low above the horizon. On the 31<sup>st</sup>, **Mars** and **Saturn** are in conjunction, with **Mars** (magnitude 0.8 and a disk spanning 6") 56' south of **Saturn** (magnitude 0.7, a disk of 16", and the rings spanning 37"). At 5:30 AM CDT the pair of planets will stand 15° high.

**Uranus** – **Uranus** is in southern **Aries**. The planet is roughly 2¼° south-southeast of **Venus** on the evening of March 8<sup>th</sup>, with **Uranus** at magnitude 5.9 and **Venus** at magnitude -4.3.

**Neptune** - **Neptune** is in conjunction with the **Sun** on March 8<sup>th</sup>, and is too close to the **Sun** to be visible this month.

**Pluto** – **Pluto** is in conjunction with **Mars** on March 23<sup>rd</sup> at about 12:15 AM CDT. **Pluto**, at 14<sup>th</sup> magnitude, will be less than 0.02° north of **Mars**, but unfortunately by the time the pair rise above the horizon, the gap will be 10'. **Pluto** is located at about 19 45 -22 02 on the 11<sup>th</sup>, 5' east and a little north of **HD 185447** in **Sagittarius**.

**Sun** – The **Vernal Equinox** occurs at 10:50 PM on March 19<sup>th</sup>, starting **Spring** in the **Northern Hemisphere**.

**Moon** – A waning crescent **Moon** forms a dramatic compact triangle with the close-paired **Jupiter** and **Mars**, 1° to 2° below the planets on the morning of March 18<sup>th</sup>. At nightfall on the 27<sup>th</sup>, the waxing lunar crescent is almost 10° to the lower left of **Venus**. Favorable librations: **Inghirami Crater** on March 8<sup>th</sup>; **Pingré Crater** on the 9<sup>th</sup>; **Casatus Crater** on the 10<sup>th</sup>; and **Bogaslowsky Crater** on the 11<sup>th</sup>.

Greatest northern declination is on the 5<sup>th</sup> (+23.4°)

Greatest southern declination is on the 18<sup>th</sup> (-23.4°)

Libration in longitude: Eastern Limb most exposed on the 16<sup>th</sup> (+7.5°)

Western Limb most exposed on the 5<sup>th</sup> (-7.8°)

Libration in latitude: Northern Limb most exposed on the 24<sup>th</sup> (+6.5°)

Southern Limb most exposed on the 11<sup>th</sup> (-6.5°)

**Asteroids** – Asteroid **2 Pallas** will be approximately 10<sup>th</sup> magnitude at 19 04 +09 03 on March 11<sup>th</sup>.

Asteroid **3 Juno**, per the *RASC Observers Manual – USA edition*, is located as follows:

On March 2<sup>nd</sup> - 13 21.72 -02 27.6, at magnitude 9.9; on the 12<sup>th</sup> - 13 16.69 -01 09.8, at magnitude

9.8; and on March 22nd – 13 09.99 +0015.1, at magnitude 9.7.

Asteroid **4 Vesta** will be located at the following positions: On March 2<sup>nd</sup> – 03 26.97 +15 23.2, at magnitude 8.7; and on the 12<sup>th</sup> – 03 39.75 +16 31.4 at magnitude 8.3. **Vesta**'s positions, *by my estimate*, are as follows: On March 1<sup>st</sup> – just over 2° north-northwest of the star **5 Taurii**; on the 6<sup>th</sup> – just over 3° north-northeast of **5 Taurii**; on the 11<sup>th</sup> – 4° northeast of **5 Taurii**; on the 16<sup>th</sup> – 5.3° northeast of **5 Taurii**, or 5.5° northwest of **Lambda Taurii**; on the 21<sup>st</sup> – 5.2° north-northwest of **Lambda Taurii**; on the 26<sup>th</sup> – 5.5° north of **Lambda Taurii**, or 2.4° southwest of **43 Taurii**; and on the 31<sup>st</sup> – 1° south and a little west of **43 Taurii**.

Asteroid **27 Euterpe**, per the *RASC Observer's Manual, USA Edition*, will be located at: On the 2<sup>nd</sup> of March – 11 55.57 +03 29.9, at magnitude 9.7; on the 12<sup>th</sup> – 11 46.32 +04 32.2, at magnitude 9.4; and on the 22<sup>nd</sup> – 11 36.88 +05 33.6, at magnitude 9.6. Note: **Euterpe** reaches opposition on March 14 at magnitude 9.4, and the asteroid will stay within 5° of the 4<sup>th</sup> magnitude star **Nu Virginis** all month.

Asteroid **37 Fides** will be located, by my estimates, at the following positions: On the 1<sup>st</sup> of March - ½° east-northeast of **Gamma Cancri**, or ½° north-northeast of the **Beehive**; on the 6<sup>th</sup> – 0.3° north and a little west of **Gamma Cancri**; and on the 11<sup>th</sup> – 0.7° northwest of **Gamma Cancri**.

**Comets** – Comet **2I/2019 Q4 (Borisov)**, per the *RASC Observer's Manual, USA Edition*, will be located at the following positions: On March 1<sup>st</sup> – 12 57.6 -65 43, at magnitude 16.6; on the 11<sup>th</sup> – 55.1 – 67 50, at magnitude 16.9; on the 21<sup>st</sup> – 12 49.7 -69 12, at magnitude 17.2; and on the 31<sup>st</sup> – 12 42.8 -69 53, at magnitude 17.5.

Comet **PANSTARRS C/2017 T2** is located in **Cassiopeia**, and its locations per **RASC** are as follows: On March 1<sup>st</sup> – 02 09 +61 20, at magnitude 8.9; on the 11<sup>th</sup> – 02 18.3 +63 18, at magnitude 8.8; on the 21<sup>st</sup> – 02 34.0 +65 42, at magnitude 8.7; and on the 31<sup>st</sup> – 02 59.0 +68 29, at magnitude 8.6. The comet, *by my estimates*, will be located at the following positions: On March 1<sup>st</sup> – just under 3° southeast of **Epsilon Cassiopeiae**; on the 6<sup>th</sup> – 2.6° southeast of **Epsilon Cassiopeiae**, or 2½° northwest of **IC 1805**; on the 11<sup>th</sup> – about 3° east of **Epsilon Cassiopeiae**, or 2.6° northwest of **IC 1805**; on the 16<sup>th</sup> – 4° east and a little north of **Epsilon Cassiopeiae**, or just under 3° south of **Iota Cassiopeiae**; on the 21<sup>st</sup> – 2° southeast of **Iota Cassiopeiae**; on the 26<sup>th</sup> – 2° east of **Iota Cassiopeiae**; and on the 31<sup>st</sup> – 3.5° northeast of **Iota Cassiopeiae**.

**Meteor Showers** – March is the month to glimpse isolated meteors not associated with any known showers. There are nine very minor showers, and one minor daytime shower this month, and all but one of the showers peak in the last half of the month.

### *When to View the Planets:*

Evening Sky

Venus (west)  
Uranus (west)

Midnight

Morning Sky

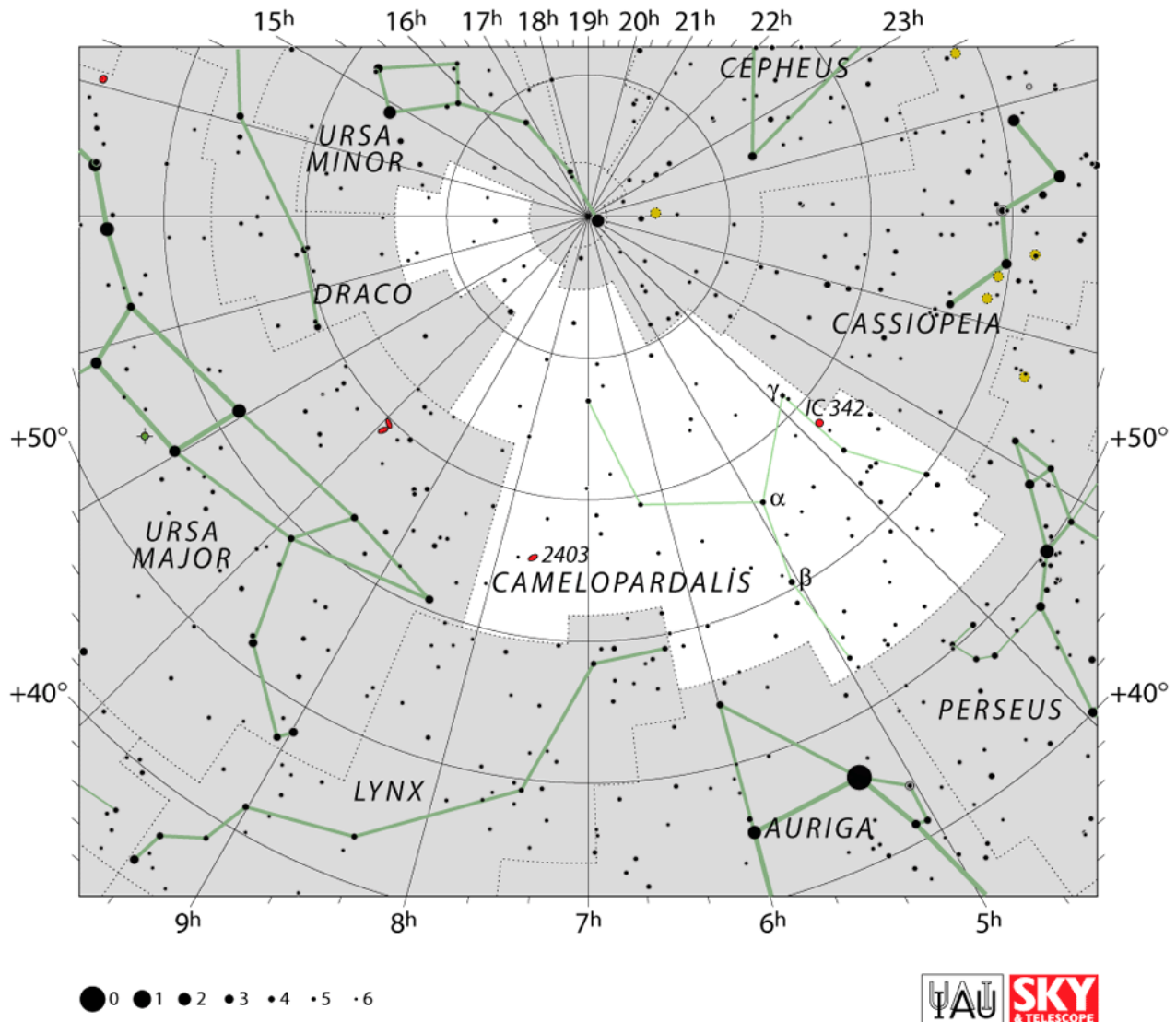
Mercury (east)  
Mars (southeast)  
Jupiter (southeast)  
Saturn (southeast)

**DARK SKY VIEWING · PRIMARY ON MARCH 21ST, SECONDARY ON MARCH 28TH**



## Camelopardalis – the Giraffe

One of the most unlikely animals to be found in the sky is a giraffe. The constellation Camelopardalis was invented in 1613 by the Dutch theologian and astronomer Petrus Plancius. It lies in an area between the head of the Great Bear (Ursa Major) and Cassiopeia, a region that was left blank by the Greeks since it contains no stars brighter than 4<sup>th</sup> magnitude. The constellation supposedly represents the animal on which Rebecca rode into Canaan for her marriage to Isaac. The German astronomer Jacob Bartsch showed the constellation on his map of 1624 and wrongly attributed its invention to Isaac Habrecht of Strasbourg, who had shown the constellation on his star globe of 1621. The constellation represents a giraffe, not a camel, and the origin of its name is unclear. The Greeks, for reference, called the giraffe the “leopard camel” because it had a leopard’s spots and the head of a camel. To the early Romans, the giraffe was Camelopardalis (a camel marked like a leopard) – they thought of it as a composite creature, described as having characteristics of both a camel and a leopard. The constellation’s name is sometimes wrongly spelled Camelopardalus.



**The End**