

Night Visions

2018 June Issue

Newsletter of the Baton Rouge Astronomical Society

Monthly Meeting Monday, June 11th at 7PM at HRPO

(Monthly meetings are on 2nd Mondays, Highland Road Park Observatory).

Presenter: Tyler Ellis, a graduate assistant for Tabetha Boyajian, with more on Tabby's Star

What's In This Issue?



President's Message

Secretary's Summary

Outreach Report

NEW! Astrophotography Group

Light Pollution Committee Report

NEW! "Free The Milky Way" Campaign

Recent Forum Entries

NEW! Members' Corner – Coy Wagoner's AL Certificate



Messages from the HRPO

Friday Night Lecture Series

BRAS Showcase

Globe at Night

American Radio Relay League Field Day

Saturnian Opposition

Asteroid Day

Observing Notes – Lupus – The Wolf & Mythology

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President's Message

One of the highlights of May was the opposition of Jupiter. Jupiter and the Galilean moons is a real treat for public outreaches. Comet 46P/Wirtanen was reported at magnitude 20.3 R on 2018-May-08 by Lowell Observatory(MPC Code G37). There are expectations that Wirtanen will brighten to 3rd to 4th magnitude in December 2018. May also saw the recovery (re-discovery) and fly-by of the NEO 2010 WC9. 2010 WC9 was recovered at 2018 05 08.38858 by the Mt. Lemmon Survey (MPC Code G96) and made Close-Approach on 2018-05-15 of 0.00136 AU (0.53 LD), 122,150 Miles(196,582 KM), or if the Earth were the size of a basketball, this would be ~12.2 feet (~3.7 Meters). See slide below.

June 21st will be the shortest night of 2018 for the Northern Hemisphere. Saturn will reach opposition on June 27, another treat for public outreaches. Mars will continue to brighten in June as we head to the July 27 opposition. This gives observing members an opportunity to complete the Mars Observing Program (link <https://www.astroleague.org/content/mars-observing-program>)

REMINDERS:

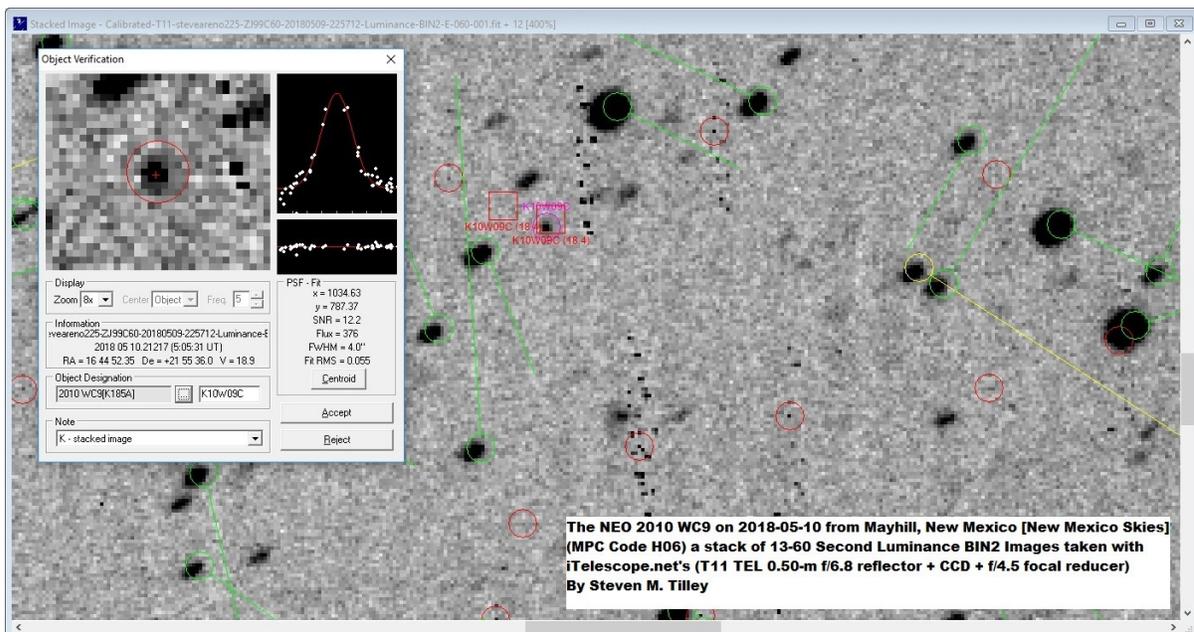
- ❖ The BRAS Business Meeting will be June 6 and the BRAS Monthly Meeting will be June 11, both will be at HRPO and at 7 PM.
- ❖ If you have not reserved your member pin yet, please come to a meeting to pick one up.
- ❖ June 30 will be the 1st Asteroid Day hosted by BRAS, at HRPO from 7:00 PM to 10:00 PM. There will be talks, displays, and hands-on demonstrations.

Please check with Ben Toman if you are willing to help with our Outreach Requests. Remember, Outreach to our community is a lot of what we do. Our astrophotographers (or members wishing to be astrophotographers) should check with Scott Louque about our astrophotography group (see below).

Clear Skies

Steven M. Tilley

Steven M. Tilley, President



Secretary's Summary of May Meeting

- Vice President, Scott Louque, calls the meeting to order at 7:07pm.
- 26 members in attendance.
- Scott asks the club to introduce themselves to the new members. 3 New members joined the club this month.
- Jim Gutierrez gives a lecture on Star Creation called "A Star is Born". Jim answered questions following his talk.
- Scott L. gave an update about the astrophotography club's last meeting.
- Scott Cadwallader received the Astronomical League Award for first level outreach.
- Outreach chair, Ben Toman, showed the club a certificate of appreciation from NASA JPL for Night Sky Network involvement and outreach.
- Ben gave an update on the most recent outreach events.
- John Nagle, Light Pollution chair, gave an update on the LPC. He has contacted an attorney, and they will review the city ordinances regarding bad lighting. He also contacted the IDA and is awaiting a response.
- Chris Desselles talked to the club about his experience with checking out the Sky Prodigy 6.
- Scott C explained the check-out process for telescopes from the BRAS inventory.
- Meeting adjourned 7:57

Krista Dison, Secretary



2018 Officers:

President: Steven M. Tilley
Vice-President: Scott Louque
Secretary: Krista Dison
Treasurer: Trey Anding

BRAS Liaison for BREC:

Chris Kersey

BRAS Liaison for LSU:

Greg Guzik

Committees/Coordinators:

Light Pollution:

John Nagle

Newsletter:

Michele Fry

Observing:

John Nagle

Outreach:

Ben Toman

Webmaster:

Frederick Barnett



Alice tried to play hard-to-get but in the end she was attracted to the black hole.



BRAS Outreach Report

Hi Everyone,

2018 is already half way gone and we've had a very busy year so far. We attended two new-to-us events this past month and had a great time at both. One was at the Mayfair Lab School for an after school family fair. The other event was at the Mid City Maker's Market which will be a monthly opportunity for us if we like.

Along with those two events, we also had our final Sidewalk Astronomy at Perkins Rowe before our Summer break. Despite a poor forecast, we were able to get some nice views of the Moon and Venus. We were extremely fortunate to get a 20 second or so glimpse of the ISS during a flyover, too. We'll be back out there again in September.

Special thanks this month to Krista Dison for putting some nice details on our Solar System model from the Night Sky Network. It's nice to have our gas giants actually showing off some cloud bands and features!

Coming up this summer, Chris Kersey will once again be representing BRAS at many libraries in East Baton Rouge Parish. Each of these events is only an hour long and would make a great first step into volunteering for outreach. Please take a look at the list below and let me know if you'd like to help out.



The Night Sky Network calendar is now on our BRAS webpage in the Outreach section. Take a look at it to see upcoming events not only for our club, but clubs across the country. (Special thanks to our webmaster, Fred Barnett for getting that up there!)

Finally, please take a look at your calendar for **Saturday, June 30th from 7pm-10:00pm**. This is Asteroid Day and we will be hosting a special event for it at the HRPO that night. We can't do this with just 2 or 3 people so if you are able, please consider helping out that night. Activities are still in the planning phases, but there will certainly be some demos, telescope observing and some support work in general.

Thanks again to our corps of volunteers. I know a few that are actively pursuing Outreach Club certificates for the Astronomical League (see our Members' Corner). Those hours add up fast!

Please take a look at our upcoming events and let me know **ASAP** if you are able to help out. The more people we have helping out, the more we are able to do for each event.

Upcoming Events:

Tuesday, June 5th

2pm-3pm
Eden Park Library
(demos/info)

Thursday, June 7th

2pm-3pm
Carver Library
(demos/info)

Tuesday, June 12th

2pm-3pm
Pride-Chaneyville Library
(demos/info)

Thursday, June 14th

2pm-3pm
Zachary Library
(demos/info)

Saturday, June 16th

4pm-8pm
Mid City Maker's Market
(demos, telescope observing-solar/lunar, info)

Tuesday, June 19th

2pm-3pm
Bluebonnet Library
(demos/info)

Thursday, June 21st

2pm-3pm
Delmont Gardens Library
(demos/info)

Tuesday, June 26th

2pm-3pm
Goodwood Library
(demos/info)

Saturday, June 30th

7pm-10pm
Asteroid Day at the HRPO
(demos, telescopes, info, other?)
Would like to have several volunteers for this.



Photos in this report:

Top: Ben and Krista at the Mayfair Lab School.

Bottom:
Scott Louque at the Mid City Maker's Market.

Both photos by Scott Cadwallader.

(If you look closely in the photos, you can see a before and after of the planets that Krista painted.)



Clear Skies,

Ben Toman,
Outreach Coordinator



BRAS Astrophotography Group May Meeting

Scott Louque: The second meeting of the Astrophotography group was held on Saturday May 12th at my house. In attendance with me were Barrow Leake, John Nagle, Krista Dison, and Scott Cadwallader. For this meeting, we decided to take a scope out to do some actual imaging and grab some photos to make available over the internet and allow members of the group the opportunity to process them for themselves.

I showed the other members the beginning stages of how to process an image, and the difference between stacking images in Pixinsight and stacking images in Deep Sky Stacker. Next we decided to set up a couple scopes outside in the hopes the clouds would dissipate and allow time for imaging. I set up my 6" Newtonian and Scott C. brought his 9.25 inch SCT. However, because of cloudiness, which never dissipated, we were never able to demonstrate the steps involved in imaging and picked everything up at around 10:00 pm. Scott C. was able to give us peaks at Jupiter in between the clouds for a little while.

The next meeting will be held on June 9th, 6 p.m. (the Saturday before our next club meeting), at the home of Krista Dison. Let me know if you plan to attend and/or need directions: slouque@att.net

Here's a report on Scott Louque's latest photo, taken last Saturday night (May 19th):

Details:

Images were taken from my driveway with a Canon T1i through a Celestron 6" Newtonian. My mount is the Celestron AVX and my guiding software is phd2. I use the ASI120MC as my guide camera and the Orion 50mm mini guidescope.

Images taken:

21 - 240 sec light frames
8 - 240 sec dark frames
40 flat frames
100 bias frames



All images and calibration frames were calibrated and integrated in Pixinsight using the lightvortexastronomy pre processing tutorial.





BRAS Light Pollution Committee Report

This committee meets at 5:45, same day as the 6:30 BRAS Business Meeting
(which takes place on the Wednesday before the Monthly Meeting)

Everyone is welcome to join in.

May Meeting called to order by John Nagle
No new members, with 8 members in attendance
April minutes were published in the May newsletter

Old Business:

1. Discussed contradictions in the Unified Development Code, Outdoor lighting section, and to contact our City Council representatives about it.
2. Discussed Good Lighting Award, looking for possible recipients.
3. Asked Thomas to get together a list of neighborhood associations.

New Business:

1. Chris Kersey recommended that BRAS pay a lawyer to give us an interpretation of the UDC, and get the IDA involved if we can.
2. Suggestion that the LPC ask Marvin Owen to recommend a lawyer.
3. Discussed the new Baton Rouge Open data website, and the types of information available.
4. Discussed re-naming the 20/20 Vision Campaign. Consensus approved the new name as the

“Free The Milky Way Campaign”

5. Discussed brochures available from IDA, and how we could make our own use some of the information in the IDA brochures.
6. Chris Kersey announced that the 2nd annual natural Night Sky Conference will take place in November.

Minutes of this meeting read and approved.
Meeting adjourned.

John Nagle, Chairman



*Milky Way over Gila River, Gila
Wilderness, New Mexico*

P.S. Every year BRAS presents a Good Lighting Award to a company that uses BEST outdoor lighting practices. If you notice a business in EBRP that uses Full Cutoff lighting fixtures, please jot down and send their Business name, address, date and description to me at jonagle@cox.net. This would be much appreciated.

P.P.S. Marvin was asked for a recommendation of a lawyer and did not know of any that could help us, and the IDA was contacted via e-mail and has forwarded the information to a field director.



The Progression from Bad to Best Lighting Fixtures that decrease Light Pollution

No Cutoff - BAD



Partial Cutoff - BETTER



Full Cutoff - BEST



Free The Milky Way Campaign

used to be the 20/20 Vision Campaign, just renamed by the Light Pollution Committee.

This campaign's goal was to raise the SQM measurement at HRPO's back viewing pad to 20.0 by November 2017. We've decide to keep the effort going until the goal is reached, however long that takes.



Recent Entries in the BRAS Forum

Below are selected additions to the BRAS Forum. There are also nine active polls. The Forum has reached 5300 posts.

- Date for 2019 [International Astronomy Day](#) Announced
- Hubble Continues [Outer Planet Atmospheres Legacy](#) Program
- NASA Premieres "[Exploring Europa's Plumes](#)"
- [Expedition 56](#) Begins on 1 June
- Jupiter Currently [Close to Zubenelgenubi](#)
- [InSight](#) Launches
- Cracks in Rock Used to Determine [Early Mars' Water Level](#)
- Mars [Crosses in Capricornus](#)
- [GRACE-FO](#) Launches
- [G1 Conditions](#) First Week in May



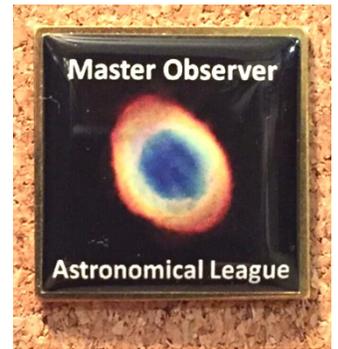


BRAS Members' Corner

*Here's where BRAS members can submit articles and photos about their astronomy-related accomplishments and adventures outside of BRAS activities (as if there were any spare time for such things!)
Send your contributions to Michele at newsletter@brastro.org*

Congratulations to BRAS member Coy Wagoner, who recently received in the mail his **Master Observer Certificate and Pin from the Astronomical League**. The award was dated May 1, 2018.

Coy describes the process: "To receive this certificate, members must complete five core programs and five additional programs. I completed these five core programs (Messier, Binocular Messier, Lunar, Double Star, and Herschel 400). I also completed the 36 hour Meteor Program, Caldwell 70 Program, Constellation Hunter, Deep Sky Binocular, Binocular Double Star, and Silver level Comet Program.



More information can be found here:
<https://www.astroleague.org/al/obsclubs/master/master.html>

Coy Wagoner"



Message from AL

2 New NASA Observing Challenge Certificates have just been announced: TESS and InSight

These activities have deadlines in 2018. For more information, check out the webpage: <https://www.astroleague.org/content/2-new-nasa-observing-challenges-tess-and-insight>

You do NOT need to be a member of the Astronomical League to participate in these Observing Challenges. Certificates will be awarded, but there are no lapel pins.



Messages from HRPO

Highland Road Park Observatory



FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

1 June: “The Next Seven Months” Very seldom over only three consecutive seasons has the HRPO patronage had so much anticipation for so varied a celestial schedule. In addition to the [Perseids](#) and [Geminids](#), the Baton Rouge sky will see a historic [Martian Opposition](#) and the possible [brightening of a well-placed comet](#).

8 June: “Sixty Years of Astronomical Ecstasy” Older local residents will remember Mike Mulhern. He wrote for the Baton Rouge *Advocate* over three decades and served as a two-term President of BRAS. He will recount the meteor showers, comets, eclipses and [equipment](#) that has brought him so much celestial joy.

SCIENCE ACADEMY

Saturdays from 10am to 12pm

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

2 June: “Expedition 1”

9 June: “Surveying the Earth”

16 June: “Saturn”

30 June: “Engineering”



ONE-TIME CALLS FOR VOLUNTEERS

***Tuesday 19 June, 10am to 3pm.** *One or two volunteers.* [Advanced Stargazers Camp.](#) Information about BRAS, brief description of Asteroid Day, testimonial regarding amateur skygazing in personal life. Low difficulty.

***Saturday 23 June, 2pm to 10pm.** *Two or three volunteers.* [ARRL Field Day.](#) Solar and evening viewing, assistance with children’s activities, front desk. Low to moderate difficulty.

***Tuesday 26 June, 10pm to 12am.** *Two or three volunteers.* **Saturnian Opposition.** Front desk greeting, merchandise sales, devices for Saturnian viewing, information about Voyager and Cassini. Moderate difficulty.

***Saturday 30 June, 7pm to 10pm.** [Asteroid Day.](#) *One to two volunteers.* Information about asteroids (origin, how to view, danger to Earth), information about BRAS.

ONGOING CALL FOR VOLUNTEERS

HRPO periodically needs BRAS volunteers for crafting (gluing, cutting, painting, etc.); training is offered for these easy to moderate tasks. We also have plenty of “grunt work”. We are asking any members with the time to do so to assist. Thank you.

SPECIAL ALERT: DAYLIGHT TIME DISCUSSION

There is a conversation right now in the Louisiana State Legislature to eradicate the back-and-forth of Daylight to Standard. There are two options if the twice-yearly switch is ended: to remain on Standard time year-round, or to remain on Daylight time year-round.



BRAS Showcase

Friday 15 June from 7pm to 10pm

No admission fee. For ages six and older.

On the 1st the upcoming majesty of space was outlined. On the 8th was a delivery of a personal testimony of past treats. On this night, it all merges with an amalgam of a history of the Baton Rouge Astronomical Society's accomplishments with an illustration of the benefits of the hobby. Also, with the current prorating of the membership, this is the best time of the calendar year to get in on the fun!



GLOBE at Night: 4 to 13 June [Hercules]

Instructions to participate in this project are at...
<http://www.braastro.org/phpBB3/viewtopic.php?f=29&t=2760>



American Radio Relay League Field Day

Saturday 23 June from 2pm to 10pm

No admission fee. For ages eight and older.

The Baton Rouge Amateur Radio Club will take part in an exciting nationwide emergency exercise. Temporary stations will be set up at HRPO as BRARC joins similar clubs across the continent in an exciting emergency exercise. Some clubs use strictly battery power and solar power. Some clubs use low power outputs (five watts or less) to make contact with other stations all over North America. Field Day is a twenty-four-hour endurance session of skill and suspense.

The Amateur Radio Service, founded decades ago, is the original “social medium!” Ten of thousands of licensed hams—including high schoolers, college kids, parents and grandparents—communicate day after day from coast to coast.

What can people do in the Amateur Radio Service?

- Talk around the world without the Internet or cell phones.
- Send a message to another country using less electricity than a nightlight.
- Transmit your communication in code—Morse code!
- Speak to astronauts on the International Space Station.

What can adults do in the Amateur Radio Service?

- Earn various awards.
- Have more peace of mind knowing that, unlike the internet, federal law mandates sending identifying information during any communication.
- Increase the chances of their families having contact with the outside world during an emergency, simply by connecting radio equipment to a car battery.
- Collect weather and flight data from a launched balloon.

What can kids do in the Amateur Radio Service?

- Work toward specialized merit badges and patches.
- Steer radio-controlled cars and airplanes, or control robots, using ham-only frequencies.
- Keep a hand-held remote transceiver during camping trips.

Come learn more about amateur (or “ham”) radio at this fantastic annual event. Remember, if you like what you see at Field Day, there will be plenty of friendly “hams” around to tell you exactly what you need to do to obtain your own amateur radio license and start transmitting!

NOTE: At these times telescope viewing will take place...

- *2:30pm to 5:30pm, The Sun (with safety equipment)
- *7pm to 10pm, the waxing gibbous Moon (in daytime and twilight)
- *8:45pm to 10pm, Venus (mostly in twilight)
- *9:15pm to 10pm, Jupiter (mostly in twilight)
- *9:30pm to 10pm, Saturn (mostly in twilight)



Saturnian Opposition

Tuesday 26 June from 10pm to 12am

No admission fee. For all ages.

Saturn is exactly 180 degrees from the Sun, rising as the Sun is setting. We are now the closest we'll be to Saturn this year! Weather permitting viewing of Saturn will take place.



Asteroid Day

Saturday 30 June from 7pm to 10pm

No admission fee. For all ages.

Spearheaded by B.R.A.S., this very first celebration at HRPO of this worldwide event will provide for patrons information on the origins of asteroids, viewing them and their danger to Earth. Hands-on demonstrations and activities will focus on the “minor planets”.



Observing Notes:

by John Nagle

Lupus – The Wolf

Position: RA 15, Dec. -45°

Named Stars:

Men (Alpha Lup), Chinese “Yang Men”, “the South Gate”, on the Euphrates River it was probably known as “Kakkab Su-gub Gad-Elim”, “the star left hand of the Horned Bull”, mag. 2.30, 14 41 55.77 -47 23 17.3, is a blue-white giant star and a **Beta-Cephei** variable star. **Alpha Lup** is a member of the large **Scorpio-Centaurus** moving group.

Kekouan (Beta Lup), Chinese “Imperial Guards”, “Ke-Kwan”, “the cavalry officer”, mag. 2.68, 14 58 31.95 -43 08 01.9, is a blue-white giant star, and a **Beta-Cephei** variable star. **Beta Lup** is also another member of the large **Scorpio-Centaurus** moving group.

Thusia (Gamma Lup), “the Sacrifice”, mag. 2.80, 15 35 08.48 -41 10 00.1, is a blue-white sub-giant star and a close binary, with the primary component itself a spectroscopic binary star with an orbital period of 2.8081 days. The secondary star has an orbital period of 147 years and a separation of 0.68”.

Deep Sky:

Cr 289, mag. 6.5, 15 04 2.2 -54 23 47, an open cluster of 100 stars, diameter of 39’, part of **NGC 5822**.

Mel 130, mag. 6.5, 15 04 21.2 -54 23 47, 39’ in size, part of **NGC 5822**.

NGC 5288, mag. 6.5, 15 05.2 -54 21, 39’ in size, is an open cluster of 150 stars; detached, weak concentration of stars; small range in brightness; brightest star is photo magnitude 10; very large. Located 3° southwest of **Zeta Lupi**.

Mel 136, mag. 7.6, 15 46 03.4 -37 47 10, 9.8’ in size, is part of **NGC 5986**.

NGC 5986, mag. 7.6, 15 46.1 -37 47, 8’ in size, is a globular cluster; medium concentration of stars; very bright, large, and round. Located 2.5° west-northwest of **Eta Lupi**.

NGC 5823, C88, mag. 7.9, 15 05.7 -55 36, 10’ in size, is an open cluster of 100 stars; detached, no concentration of stars; moderate range in brightness; magnitude of brightest star is 9.7.

Mel 134, mag. 8.0, 15 28 00.4 -50 40 22, 6’ in size, is part of **NGC 5927**.

NGC 5927, mag. 8.0, 15 28.0 -50 40, 5’ in size, is a globular cluster with a medium concentration of stars; quite bright; large, round, and well resolved.

Cr 287, mag. 8.8, 14 48 53.9 -54 29 51, 7’ in size, is an open cluster of 16 stars. **Part of NGC 5749**.

NGC 5749, mag. 9.0, 14 48.9 -54 31, 10’ in size, is an open cluster of 20 stars.

NGC 5824, mag. 9.1, 15 04.0 -33 04, 7’ in size, is a globular cluster with a high concentration of stars; a pretty bright and small cluster; stellar nucleus.

NGC 5882, PK 327+10.1, mag. 9.4, 15 16.8 -45 39, 14” in size, is a planetary nebula; very small, round; photo magnitude of 10.5; central star magnitude is 13.4.

Beyond magnitude 10 there are: 10 NGC objects; 5 IC objects; 23 ESO objects; and 1 Cr object.

Other Stars:

KT Lup, mag. 4.55, 15 35 53.27 -44 57 30.0, is a BE star.

Nu² Lup, mag. 5.65, 15 21 49.57 -48 19 01.1, has three planets in orbit.

- HX Lup**, mag. 6.6, 14 22 38.72 -48 19 11.4, is a rotating ellipsoidal variable star.
HIP 74890, mag. 7.05, 15 18 17.0 -41 25 14, has one planet in orbit.
HD 126525, mag. 7.85, 14 27 33 -51 55 59, has one planet in orbit.
HD 142527, mag. 8.34, 15 56 41.89 -42 19 23.3, has a circumstellar disk.
SAO 206462, mag. 8.71, 15 15 48.44 -37 09 16.0, has a circumstellar disk.
HD 135778, mag. 9.0, 15 17 56.0 -30 28 41, has one planet in orbit.
HE 2-113, mag. 11.88, 14 59 53.48 -54 18 07.5, has one planet in orbit.
4U 1543-47, mag. 14.9, 15 47 08.6 -40 40 10, is a low-mass X-ray binary star.



Sky Happenings: June, 2018

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

- June 1st** - Early morning: The waning gibbous **Moon** passes 3° to the left of **Saturn** above the **Teapot** in **Sagittarius**.
- June 2nd** - The **Moon** is at apogee (251,852 miles or 405,317 km from **Earth**) at 11:35 PM CDT.
- June 3rd** - Dawn: The waning gibbous **Moon** is 2½° north of **Mars** in the east-southeast, **Jupiter** is less than 1° north of **Alpha Librae (Zubenelgenubi)**, The **Moon** passes 3° north of **Mars** at 7 AM CDT.
- June 5th** - **Mercury** is in superior conjunction with the **Sun** at 9 PM CDT.
- June 6th** - The **Moon** passes 2° south of **Neptune** at 1 PM CDT, **Last Quarter Moon** occurs at 1:32 PM CDT.
- June 8th** - **Venus** passes 5° south of **Pollux** at 8 PM CDT.
- June 9th** - The **Moon** passes 5° south of **Uranus** at 10 PM CDT.
- June 10th** - Evening: **Venus** and the bright lights of **Gemini** form a shiny string of beads as they set toward the west, with **Venus** blazing on the left, **Castor** twinkling on the right, and **Pollux** almost exactly half-way between them.
- June 13th** - **New Moon** occurs at 2:43 PM CDT.
- June 14th** - The **Moon** is at perigee (223,385 miles or 359,503 km from **Earth**) at 6:53 PM CDT.
- June 15th** - Asteroid **Amphitrite** is at opposition at 8 AM CDT, The thin crescent **Moon** is 7° below **Venus** at dusk, **Mercury** emerges from the gloaming as it sets in the northwest.
- June 16th** - The **Moon** passes 2° south of **Venus** at 8 AM CDT, Asteroid **Metis** is at opposition at 3 PM CDT, Evening: Look toward **Cancer** in the west after sunset to see the thin sliver of the waxing crescent **Moon** about 8° from dazzling **Venus**, with the **Beehive Cluster (M 44)** almost exactly between them.
- June 17th** - The **Moon** leads **Regulus** by 3° as they sink together in the west.
- June 19th** - **Neptune** is stationary at 7 AM CDT, Asteroid **Vesta** is at opposition at 3 PM CDT, **Venus** is ½° from the **Beehive** star cluster (**M 44**), low in the evening twilight, All night: **Vesta**, at magnitude 5.3, is visible throughout the night, even to the naked eye at dark enough locations. To find **Vesta**, look just under 1° to the upper left of the half-way point along a line connecting **Lambda Sagittarii** (the top of the **Teapot**) and **Eta Ophiuchi**.
- June 20th** - **First Quarter Moon** occurs at 5:51 AM CDT.
- June 21st** - Summer solstice occurs at 5:07 AM CDT. Summer officially begins for the **Northern Hemisphere**.
- June 23rd** - The **Moon** passes 4° north of **Jupiter** at 2 PM CDT, A waxing gibbous **Moon** and **Jupiter** shine 4° apart in **Libra**.
- June 25th** - **Mercury** passes 5° south of **Pollux** at 11 AM CDT.
- June 27th** - The **Moon** passes 0.3° north of asteroid **Vesta** at 4 AM CDT, **Saturn** is at opposition at 8 AM CDT, shining at magnitude 0.0, All night: The full **Moon** is only about 1° away from **Saturn** as they rise together at sunset.

- June 28th** - **Full Moon** occurs at 11:53 AM CDT – the most southerly full **Moon** of 2018, **Mars** is stationary at 9 AM CDT.
- June 29th** - The **Moon** is at apogee (252,315 miles or 406,061 km from **Earth**) at 9:43 PM CDT.
- June 30th** - The **Moon** passes 5° north of **Mars** at 9 PM CDT.

Planets:

Mercury – **Mercury** is at superior conjunction on the night of June 5-6 but emerges into visibility low in the dusk by mid-month. Your first good chance to spot this planet comes on June 19th. Scan the area above your west-northwest horizon starting 30 minutes after sunset. **Mercury** lies 7° high, shining at magnitude -0.8. During the evening, **Castor** and **Pollux** stand side-by-side 10° above **Mercury**. On June 27th, the planet sits inline with **Castor** and **Pollux**. **Mercury** (now at magnitude -0.3) appears on the left with **Pollux** 7° to its right, and **Castor** 4.5° beyond it. The trio stands 10° high a half-hour after sunset. On June 19th, the planet spans 5.6” and shows an 81% lit phase. By the 22nd, it appears 6.3” across and 66% illuminated.

Venus – As the month opens, the planet lies in central **Gemini** 9° below **Pollux**. On June 6th, **Venus** attains its highest sunset altitude of the year at almost 28°. The planet starts the month setting more than 2½ hours after the **Sun**, but the interval is about 15 minutes shorter before the month is over. By June 11th, it stands 6° to the left of **Pollux**, crossing into neighboring **Cancer** that same day. A waxing crescent **Moon** joins **Venus** on June 15th and 16th. On the 15th, **Luna** hangs 7° below the planet; on the 16th, the planet is 8° to the lower right of the **Moon**, with the **Beehive** star cluster (**M 44**) standing mid-way between the planet and the **Moon**. **Venus** skirts the northern edge of **M 44** on the 19th, passing just 44’ from the cluster’s center. The planet continues eastward through the rest of June, crossing into **Leo** on the 29th, ending the month 10° shy of 1st magnitude **Regulus**. During June, **Venus** will brighten from magnitude -3.9 to -4.1, with its apparent diameter increasing from about 13” to more than 15”, and its phase decreases from 80% to 70%. The best telescopic views of **Venus** are in twilight. On June 1st, it appears 13” across and 80% lit. By the 30th, the planet spans 16” with a 70% lit disk.

Mars – **Mars** rises around midnight as June begins, and around 10:30 PM as the month ends. The planet is in **Capricornus**, moving eastward until it becomes stationary on June 28th, and then begins its westward (retrograde) motion. On its way to a spectacular late July opposition, **Mars** more than doubles in brightness during June, from magnitude -1.2 to -2.1. The planet’s diameter grows 35% from 15.3” to 20.7”. **Mars** will remain low in the sky for **Northern Hemisphere** observers. The best telescopic views come when the planet climbs highest in the hours before dawn. The hemisphere we see changes slowly from night to night because the planet rotates on its axis every 24.6 hours. The planet’s darkest feature, **Syrtis Major**, lies near the same longitude as its most prominent bright feature, **Hellas**. From **North America**, both lie near the center of **Mars**’ disk on the mornings of June 6th-10th, against the backdrop of **Libra**.

Jupiter – **Jupiter** is already visible in the southeast as nightfall during June and is highest around 11 PM local time as the month begins and around 9 PM as it ends. The giant planet dims from magnitude -2.5 to -2.3 during June, and its angular diameter decreases from 44” to 41½”. **Jupiter** starts the month 0.9° north-northeast of **Zubenelgenubi (Alpha Librae)**, ending the month 2° northwest of this 3rd magnitude star. The planet’s four **Galilean** moons show up clearly through small telescopes. There will be an intriguing event on the night of June 7th/8th. **Ganymede** will lie in **Jupiter**’s shadow in early evening, but gradually returns to view between **Io** and **Callisto**. At around 11:40 PM CDT, **Io** and **Callisto** appear 25” apart southeast of the planet. If you watch the space between these moons, you will see **Ganymede** emerge into sunlight starting at 11:43 PM CDT. It returns to full visibility by 12:02 AM CDT.

Saturn – **Saturn** rises shortly after 10 PM local daylight time in early June, but your best views will come around the time it reaches opposition on June 27th, will remain visible all night at magnitude 0.0. **Saturn** lies among the background stars of **Sagittarius**, just above the **Teapot** asterism. On June 1st, the planet is 1.9° northwest of the 5th magnitude globular cluster **M 22**, and 3.2° south of the open cluster **M 25**. The **Lagoon** and **Trifid Nebulae (M 8 and M 20 respectively)** lie 7° west of **Saturn**. By month’s end, the planet’s westward motion brings it halfway between **M 25** and **M 8**. Unfortunately, a full **Moon** lies within 2° of the planet on the night of opposition. At opposition, the planet’s equatorial diameter extends 18.4” while the rings span 41.7” and tilt 26° to our line of sight. **Saturn**’s brightest moon, 8th magnitude **Titan**, shows up through any telescope and a 4-inch or larger instrument also reveals the moons **Tethys**, **Dione**, and **Rhea** closer to the planet.

Uranus – You will want to wait until late June to view **Uranus**. It then stands 20° high in the east as morning twilight begins. The planet resides in the southwest corner of **Aries**, 12° south of the magnitude 2.0 star **Hamal (Alpha Arietis)**. **Uranus** shines at magnitude 5.9. To identify the planet, point a telescope at your suspected target. Only **Uranus** will show a blue-green color on a disk that measures 3.4” across.

Neptune – **Neptune** rises around 2 AM local daylight time in early June, and two hours earlier by month’s end. Look for it in the southeast among the background stars of eastern **Aquarius** just before twilight. The planet glows at magnitude 7.9 and shows up just 1° west-southwest of magnitude 4.2 **Phi Aquarii**. A telescope reveals the planet’s 2.3” diameter disk and a subtle blue-gray color.

Pluto – On June 15th, Pluto will be at RA 19 28.1, Dec. -21 41, magnitude 14.2 and an angular size of 0.1”.

Sun – The **Sun** reaches the June solstice at 5:07 AM CDT on June 21st, officially starting **Summer** for the **Northern Hemisphere**.

Moon – The waning gibbous **Moon** is a little more than 3½° to the left or upper left of **Saturn** at dawn on June 1st, and 2½° above **Mars** at dawn on June 3rd. The very thin waxing lunar crescent is almost 8° to the left of **Mercury**, very low in the west-northwest a mere half-hour after sunset on June 14th. The next two evenings have the crescent **Moon** 7½° to the upper left of **Venus**. The waning gibbous **Moon** is less than 5° to the upper left of **Jupiter** at nightfall on June 23rd. The almost full **Moon** is only about 1° from **Saturn** at nightfall on June 27th. On the final **American** evening of June, **Mars** and the waning gibbous **Moon** rise at about 4½° apart.

Asteroids – Asteroid **Vesta** reaches opposition on June 19th and is not just visible all night long but is plainly visible with the naked eye at a reasonably dark location. This brightest of the asteroids reaches a peak magnitude of 5.3 this month, slightly brighter than it has been in decades or will be again until 2031. On June 15th or so, **Vesta** will be about ½° south of **M 23**.

Asteroid /dwarf planet **Ceres** is in **Leo**. To find **Ceres**, first locate the **Sickle** asterism in **Leo**. First magnitude **Regulus** marks the bottom of this asterism. The guide stars to **Ceres** lie a short distance north in the curved section of the **Sickle**. Pinpoint 2nd magnitude **Gamma Leonis** (a double star), and 3rd magnitude **Epsilon Leonis**, the **Sickle**’s endpoint. On June 3rd, **Ceres** passes within 0.1° of **Epsilon Leonis**; on June 15th **Ceres** will pass a 6th magnitude star; and on the 27th **Ceres** will pass less than ½° of **Gamma Leonis**.

Comets – Comet **PANSTARRS (C2016 M1)** is a 10th magnitude comet and will pass through the bottom of **Sagittarius**’ **Teapot** asterism in the second week of June. On the 9th and 10th, it slides about 40’ from 8th magnitude globular star cluster **M 54**. A few nights later, it passes twice as far from globular cluster **M 70**. You will want to observe between 2 and 3 AM, when **Sagittarius** climbs highest in the south. You will probably need a 6-inch or larger telescope and a dark site to see it. Crank the magnification up to 100x or so to pull it out of the background, and higher magnification to see any details.

Meteor Showers – June offers no major meteor showers but keep watch for the few minor ones. Perhaps the best minor shower comes from **Ophiuchus** and peaks on the morning of June 20th. The **Ophiuchids** could deliver up to 5 meteors per hour after the **First Quarter Moon** sets at about 1 AM local daylight time.

When to View the Planets:

Evening Sky

Mercury (northwest)
Venus (west)
Jupiter (south)
Saturn (southeast)

Midnight

Mars (southeast)
Jupiter (southwest)
Saturn (southeast)

Morning Sky

Mars (south)
Saturn (southwest)
Uranus (east)
Neptune (southeast)



DARK SKY VIEWING - PRIMARY ON JUNE 16TH, SECONDARY ON JUNE 9TH

Note: The secondary date is before the primary because on the secondary date the Moon is a waning gibbous a few days short of no Moon, while the primary is less than a day new. Any other Saturday during the month, the Moon is almost full.

Mythology:

Lupus – The Wolf

The ancient Greeks called this constellation Therium, representing an unspecified wild animal, while the Romans called it Bestia, The Beast. It was visualized as impaled on a long pole called a thyrsus, held by the adjoining constellation of Centaurus, The Centaur. Consequently, the constellation of the centaur and the animal were usually regarded as a combined figure.



According to the historian George Michanowsky in his book *The Once and Future Star*, the Babylonians knew this constellation as UR-IDIM, meaning “wild dog”.

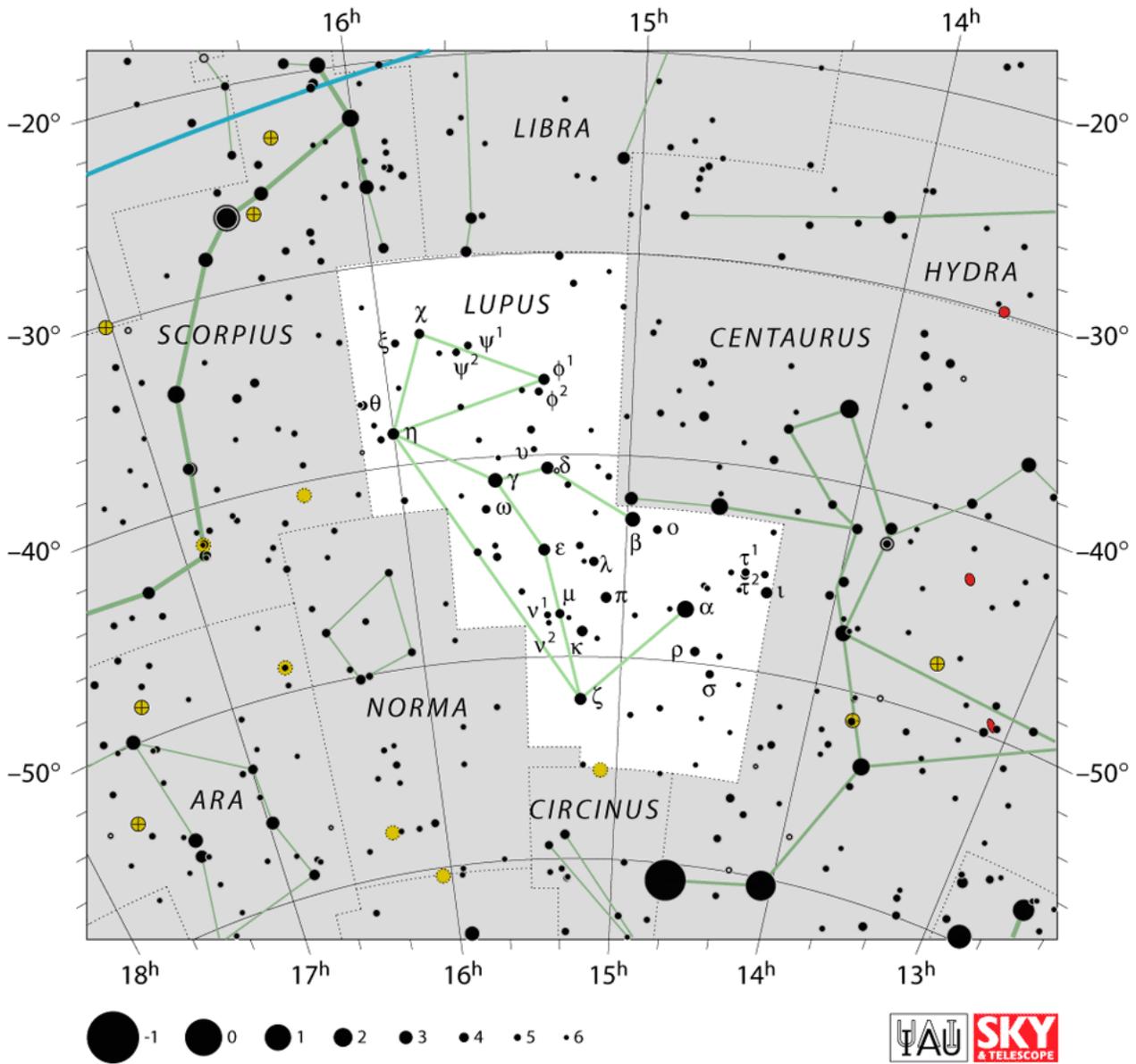
Eratosthenes said that the centaur was holding the animal toward the altar (the constellation Ara) as though about to sacrifice it. Hyginus referred to the animal as simply “a victim”, while Germanicus Caesar said that the centaur was either carrying game from the woods or was bringing a gift to the altar. The identification of this constellation with a wolf seems to have started in renaissance times.

One is tempted to recall the story of Lycaon, king of the Arcadians, who served the flesh of his own son to Zeus and was punished by being turned into a wolf (see the legend of Boötes). But that story has no connection to this constellation, which seems to have been overlooked by the mythologists. The fact that it is an imported constellation probably explains why the Greeks had no myth for it. the alter (the constellation Ara). Eratosthenes says that this is a sign of Chiron’s virtue.

Look for Lupus near Scorpio.



Facing southwest at dusk / Key West in late September



The End

