

# New Braunfels Astronomy Club

Texas, USA

May 16<sup>th</sup>, 2019

239<sup>th</sup> Meeting

Larry's

## Celestial Calendar & Newsletter

May 16<sup>th</sup> to June 20<sup>th</sup>, 2019 262<sup>nd</sup> Edition

**The Moon Dances with Planets and Stars**  
**Mars and M35 get Close in Gemini May 19<sup>th</sup>**  
**Asteroid Ceres at Opposition May 28<sup>th</sup>**  
**Jupiter at Opposition June 10<sup>th</sup>**  
**Mercury and Mars get Close June 18<sup>th</sup>**

### Observer's Highlight Calendar for Clear Skies

Month Date Time/Direction Event

Month	Date	Time/Direction	Event
May	18	4:11 pm CDT	Full Moon
May	19	After sunset/WNW	Mars and M35 are close. Use binoculars or telescope
May	20-23	Around 4 am CDT/SSW	A big Moon shares the sky with Jupiter, Antares, and Saturn
May	26	11:34 am CDT	Last Quarter Moon
May	28	6 pm CDT	Asteroid Ceres is at opposition. It's in Ophiuchus, heading east into Scorpius. On the 28/29 <sup>th</sup> it will be about 1/2° NE of Chi (χ) Ophiuchi. You will have to stay up late to get a glimpse.
June	3	5:02 am CDT	New Moon
June	5	Dusk/SW - S	A waxing Crescent Moon, Mars, and Mercury form a lineup in Gemini
June	10	10 am CDT	Jupiter is at opposition - will be a great target for the next month or so...
June	15-16	Dusk/SE	Watch a big waxing Moon dance with Antares and Jupiter
June	17	3:31 am CDT	Full Moon
June	16	Pre-dawn/S	Asteroid Ceres is about 1° north of Beta (β) Scorpii
June	18	Dusk/WNW/Near horizon	Mercury and Mars are almost kissing cousins
June	18	Near midnight/SSE	A big Moon and Saturn get close

# Solar System Roundup

- ✚ **Mercury** is an evening “star”, after passing through Superior Conjunction on May 21<sup>st</sup>.
- ✚ **Venus** is a morning “star”, and brilliant of course, but low for telescopic observation
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe
- ✚ **The Moon** dances with Saturn, Jupiter, Aldebaran, Regulus and Antares
- ✚ **Mars** is in the west-northwest, sets early
- ✚ **Jupiter** is visible in pre-dawn hours until its June 10<sup>th</sup> opposition, when it emerges triumphantly in the east at sunset. It is a very good target
- ✚ **Saturn** is visible in the early morning in May but starts evening appearances in June
- ✚ **Uranus** is not a good target now
- ✚ **Neptune** is not a good target now
- ✚ **Comet(s)**
  - C/2017 M4 (ATLAS) at 13<sup>th</sup> magnitude is a challenge, in Lupus
- ✚ **ISS Viewing for New Braunfels (works for Canyon Lake too). After 5 am and before midnight. From Heavens Above.**

Date	Start Time	Start Loc	Max Alt °	Travel Toward
05/17	21:12	SW	42	NE along horizon
05/18	21:58	W	25	NE along horizon
05/19	06:06	NW	29	SSE along horizon
05/19	21:06	SW	51	NE
05/20	05:15	NW	68	SE
06/09	21:03	NW	68	SE
06/11	21:00	WNW	19	SSE along horizon

## My Observing Pick: Jupiter

King of the castle, king of the planets, Jupiter is a spectacular object to study. This June 10<sup>th</sup> Jupiter rises with the sunset and shines at a bright magnitude -2.6. It will be an amazing target, even with binoculars.

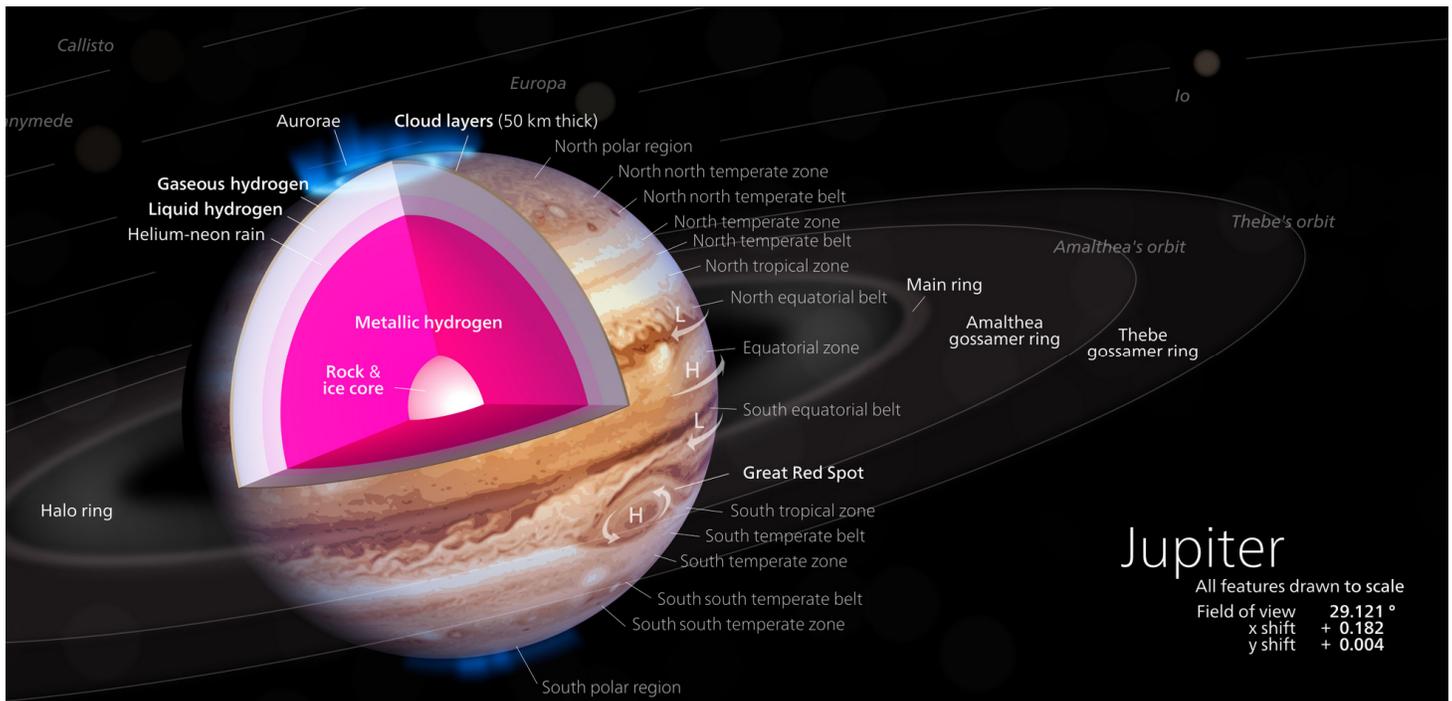
Fifth planet from our Sun and largest, Jupiter has been credited with helping shape our Solar System. Theory is it started life as a marauding wanderer, moving into the inner Solar System and disrupting any existing planets. After spending time closer to the Sun, it wandered out to where it currently resides. The remnants of planets it disrupted then formed Mercury, Venus, and Earth. That’s kind of wild. Would like to see a video of that in ultra-fast forward.

Jupiter's mass is 2.5 times the mass of all the other Solar System planets combined but only .001 times the Sun's mass. Its core is thought to be a dense mixture of elements...or ice and rock, take your pick. Yet the core is surrounded by liquid metallic hydrogen, esoteric. How can rock and ice stand up to this pressure? Its atmosphere is composed of a hydrogen/helium upper atmosphere mixed with ammonium hydrosulfide clouds, trace amounts of phosphorus and sulfur, then layers of liquid hydrogen – helium – neon.

Jupiter's upper atmosphere is sectioned into multiple bands by contraflowing and variable speed jet streams. Lighter bands are called zones and darker bands called belts. In larger telescopes these bands are obvious and wonderful to observe and explore as they are ever-changing.

Jupiter's Great Red Spot is an anticyclonic storm, larger than our Earth, and visible in your telescopes.

Babylonian, Roman, Greek, Chinese, Vietnamese, Korean, Japanese, Hindu, Germanic, and Turkish mythology all had a prominent place for Jupiter.



Name	Object Type	Mag	Location/Information	Description
Jupiter	Planet	Var	Variable – along the ecliptic	Largest planet with visible bands of clouds, and spots

*Galactic Cirrus.* Dust clouds in space.

Notable astronomers such as William Herschel, Father Johann Hagen, and Baron Renaud de Terwangne described or sketched areas within their eyepiece view that appeared slightly brighter. They didn't know what it was, but they knew they saw it. Galactic cirrus formations were not characterized until the mid-1980s, with IRAS (Infrared Astronomical Satellite). They are collections of dust particles. Some of the dust absorbs light, obscures our view and emits infrared light. I'm going to focus on the dust that can be seen via reflected visible light, and it can be observed, even with relatively modest size telescopes.

Galactic cirrus dust is essentially leftovers from the making and breaking of all the stuff (stars, galaxies, planets, etc.) in our universe. Its presence became a nuisance once astronomical photography was established, presenting as cloudy or brighter areas on photographic plates. It was thought to be defective emulsions or unseen atmospheric clouds.

IRAS was essential in our understanding that this dust is pervasive, concentrated around and in between galaxies. That's a lot of dust. Due to its concentration around galaxies, galactic cirrus has been shown to affect the color rendition in photos of those galaxies with the most dust around them. This certainly creates challenges for accurately rendering them.

What about observing galactic cirrus? It is so very dim and thin, what's the attraction? Just as with all dim, extended objects it's the hunt and the A-ha! moment when you spot it. As I said above, galactic cirrus is within reach of modest size telescopes but the catch...isn't there always a catch...it is best seen with fast optics. If you read last weeks column I talked about the fast optics of Dragonfly. The smaller the f/number, the faster. For example, f/2.8 is faster than f/4. Faster means more light.

Quality fast scopes (f/2.8 to f/3) are more time consuming to produce and therefore expensive. An 8" to 10" reflector with a speed of f/4 or 4.5 can be just enough to allow spotting galactic cirrus. A low power (25-50x), very wide angle (100 degree) eyepiece is helpful. A clear, dark, moonless night sky is essential. They will still be tricky even if you know where to look.

Where to look? Start by looking around M51 in Canes Venatici. Look for large arcs and areas of faint, wispy nebulosity. Galactic cirrus!

## Coming up: **OUR 240<sup>th</sup>** ASTRONOMY CLUB MEETING

Thursday, **June 20<sup>th</sup>**, 2019, from 7 – 9:00 p.m., held in the conference room of TJ's restaurant on Loop Road (337). Have dinner, snack, dessert, and/or a beverage if you like. The New Braunfels Astronomy Club can be reached at [www.astronomyntx.org](http://www.astronomyntx.org)

Eric Erickson [ewandnl@yahoo.com](mailto:ewandnl@yahoo.com)