

New Braunfels Astronomy Club

Texas, USA

August 16th, 2018

231st Meeting

Larry's

Celestial Calendar & Newsletter

August 16th, 2018 to September 20th, 2018 254th Edition

Lunar, Stellar, and Planetary Pairings
Venus, Mars, Jupiter, Saturn in the Evening
Mercury in the Morning
Comet 21P/Giacobini-Zinner

Observer's Highlight Calendar for Clear Skies

Month Date Time/Direction Event

Month	Date	Time/Direction	Event
Aug	18	2:49 am CDT	First Quarter Moon
Aug	20-23	Evening/south-southeast	Watch a fattening Moon slide past Saturn and then Mars
Aug	26	6:56 am CDT	Full Moon
Aug	26	Pre-dawn/east & west	The full Moon is setting, and Mercury is rising
Aug	31	Dusk/southwest	Brilliant Venus and Spica are about 1° apart
Sept	1	"	Venus & Spica, Jupiter, Saturn, and Mars in SW to SE
Sept	2	9:37pm CDT	Last Quarter Moon
Sept	8	Pre-dawn/east horizon	Mercury, Regulus, and a thin crescent Moon make a nice sight
Sept	9	1:01pm CDT	New Moon
Sept	13	Dusk/southwest	Jupiter, a waxing Moon, and α Librae form a triangle
Sept	15	Dusk/south	A waxing Moon is 8° above Antares, with Jupiter to the west and Saturn to the east
Sept	16	6:15pm CDT	First Quarter Moon
Sept	19	Dusk	A gibbous Moon is 4° above Mars

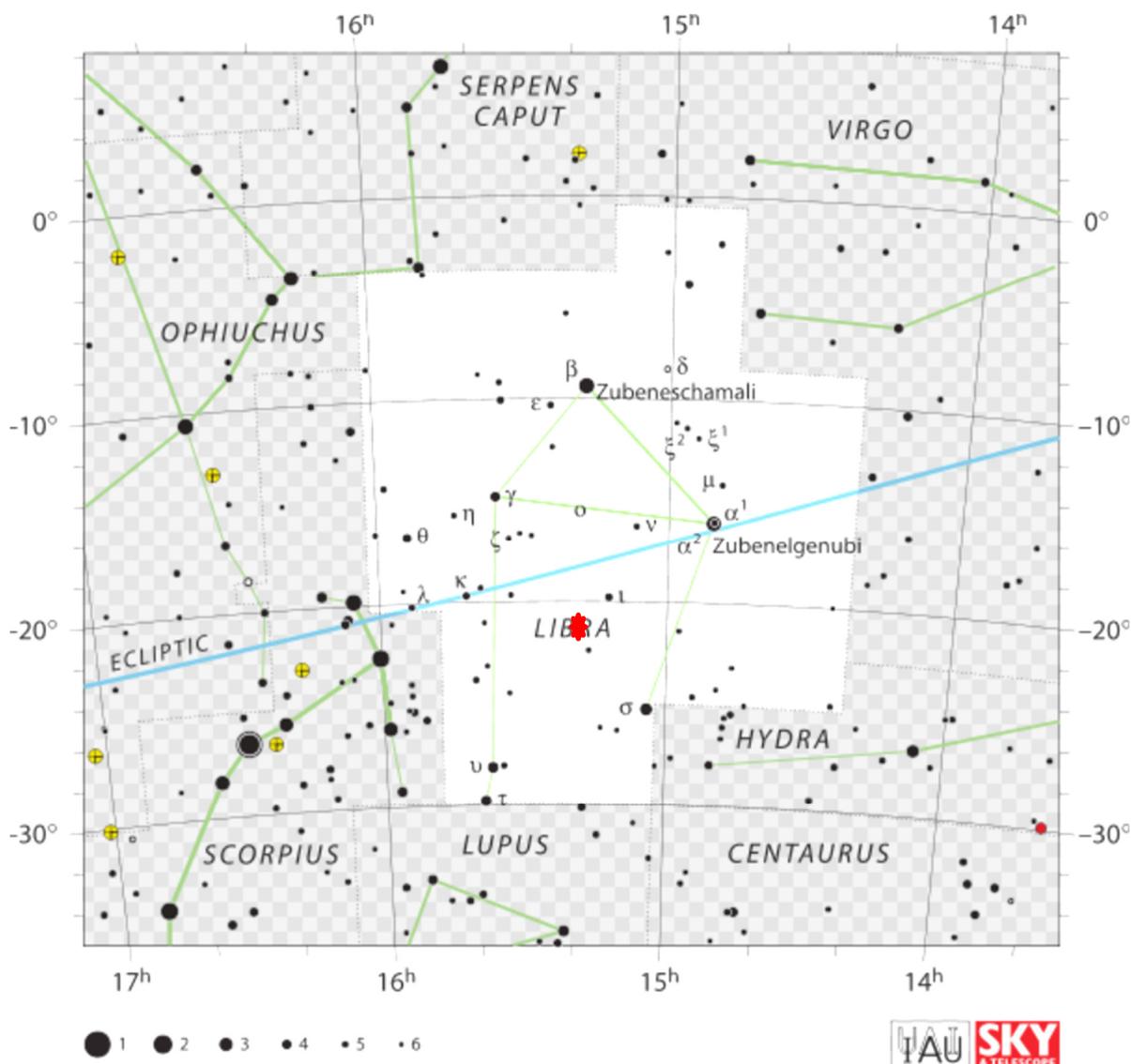
Solar System Roundup

- ✚ **Mercury** becomes visible after August 20th in the per-dawn eastern sky, visible until September 10th. It reaches superior conjunction with the Sun on September 20th.
- ✚ **Venus** is brilliant in the western sky before and after sunset.
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe.
- ✚ **The Moon** slides through the southern/western constellations and makes a few nice parings with Saturn, Jupiter, Mars, and Mercury
- ✚ **Mars** is still brilliant but fading as it heads away from Earth
- ✚ **Asteroid(s)** Vesta slides into Sagittarius in early September, heading toward M8
- ✚ **Jupiter** is a beauty! Catch it.
- ✚ **Saturn** is gorgeous in the eyepiece
- ✚ **Uranus** rises after midnight, magnitude 5.8, and is in Aries. Look for it's blue-green hue
- ✚ **Neptune** rises around 10pm, magnitude 7.8, and is in Aquarius
- ✚ **Comet(s)** 21P/Giacobini-Zinner is a short period (6.6 year) comet, is in Camelopardalis, and will be in Auriga in early September. Might reach magnitude 6. It gets close to the open clusters M36, M37, and M38 from September 7-11
- ✚ **Convenient ISS Viewing for New Braunfels (works for Canyon Lake too)**

Date	Start Time	Start Loc	Altitude	Travel
08/25	06:11:04	S	Along horizon	ENE
08/27	06:02:24	S	15° - 39°	ENE
08/29	05:56:04	SW	40° - 58°	NE
08/30	06:39:05	WNW	6° - 12°	NE
09/14	06:31:23	NNW	Along horizon	E
09/16	06:23:09	NW	1° - 36°	SE
09/18	06:16:29	NW	17° - 69°	SE
09/19	20:21:27	SSW	0° - 26°	ENE

My Observing Pick: Libra

Libra is a zodiacal constellation, just west of Scorpius. Libra is Latin for *weighing scales* and has been called a *balance* and the *Claws of the Scorpion* by Babylonians. The balance designation might come from the Sun entering Libra during the autumnal equinox, but that does not happen today. Ptolemy included Libra in his catalog of 48 asterisms. It gained constellation status in ancient Rome, representing scales held by Astraea, the goddess of justice.



Name	Object Type	Location	Description
NGC 5897	Cluster	Just SE of iota (l) Librae. See red spot in chart.	Loose globular cluster
Alpha (α) Librae	Multiple star	See chart	Mag 2.7 primary and mag 5.2 secondary, both blue-white

Air – Good for Life – Bad for Astronomy

by Eric Erickson

I don't think about it. I go about my daily activities and just don't notice. I breathe.

I hear you saying to yourself, so...? It's normal that we breathe without noticing, of course until we struggle to catch our breath while racing up Enchanted Rock.

Our life giving and sustaining atmosphere (for those organism's dependent on oxygen) is composed of 78% nitrogen and 21% oxygen, with the remaining 1% mostly argon. I love my air, especially hill country air. Have you ever noticed how the air in different parts of the country has its own aroma? Mixed hardwood forests of the north have a different aroma from our juniper and oak forests, and from the piney east Texas forests. Sorry, I digress.

Our atmosphere is our life and our protector from the dangerous radiation beyond it. It provided for countless generations of human existence, and the eventual development of astronomy. Those first astronomers certainly noticed that nearly all stars twinkled at times, and a few didn't twinkle. They were not aware of it right away, but they were distinguishing twinkling stars from non-twinkling planets. The Babylonians figured it out in the second millennium BCE.

Twinkling, caused by our atmosphere, did not hinder early astronomer's observations.

Then came the telescope.

For a while, telescope optics were not good enough to be bothered much by atmospheric conditions, but as telescope design improved and their size increased, our air became apparent. It started to create havoc with telescopic images. How does it do this, and can anything be done about it?

Think of our atmosphere as a very, very thin fluid. Like a fluid, air will move around, depending on conditions, except air is much more sensitive to slight changes, especially changes of temperature. Air responds to temperature changes by moving, instability in the form of ripples, breezes, gusts, and rotation. This is most apparent in the Troposphere, from sea level to 10 kilometers (32,808 feet) and causes instability of magnified (telescopic) images. The image pops in and out of focus and even dances around (twinkling stars). The affect is unfortunately increased in larger telescopes.

The first solution was to build telescopes at high altitudes, up to 18,000 feet, to avoid as much atmospheric instability as possible. It helps a lot, but altitudes above 16,000 feet present challenges for humans as the air is thin and it's really COLD!

The next solution is called adaptive optics. These telescopes generally use a many segmented primary mirror, where each mirror segment is computer controlled, and is instantly adjusted (deformed) to compensate for atmospheric fluctuations. It works!

The best solution is putting telescopes above our atmosphere, in space. Way more expensive but no interference by atmosphere.

Opportunities for NBAC Reach out

- New Braunfels and Guadalupe Master Naturalists

The New Braunfels and Guadalupe Master naturalists do not have any lectures on the night sky. Astronomy is in their curriculum, but they have no one to present. They are looking for someone to present a 45-minute talk + 15 minute Q&A at one of their monthly meetings.

New Braunfels: lindheimermn@gmail.com

Guadalupe: txmn.org/guadalupe/

Coming up: OUR 232nd ASTRONOMY CLUB MEETING

Thursday, **September 20th**, 2018, 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

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