

New Braunfels Astronomy Club

Texas, USA

November 15th, 2018

234th Meeting

Larry's

Celestial Calendar & Newsletter

November 15th, 2018 to December 20th, 2018 257th Edition

Mars Going...
Leonid Meteor Shower
Geminid Meteor Shower
NO MEETING IN DECEMBER!

Observer's Highlight Calendar for Clear Skies

Month Date Time/Direction Event

Month	Date	Time/Direction	Event
Nov	15	8:54 am CST	First Quarter Moon
Nov	15	Dusk/S	A just past First Quarter Moon and Mars are close
Nov	17-18	All night to morning/E	The Leonid Meteor Shower peaks
Nov	22	11:39 pm CST	Full Moon
Nov	23	Early evening/ENE	A just past Full Moon rises with Taurus and is close to the Hyades star cluster
Nov	29	Pre-sunrise/S-high	A pre-last Quarter Moon and Regulus are close
Nov	29	6:19 pm CST	Last Quarter Moon
Dec	3	Pre-sunrise/SE	A crescent Moon, Venus, and Spica make a pretty triangle
Dec	7	1:20 am CST	New Moon
Dec	8 & 9	Dusk/SW	A Crescent Moon pairs up with Saturn near the horizon
Dec	13-14	All night to morning/S-high	The Geminid Meteor Shower peaks
Dec	14	Evening/S	A waning Moon and Mars are close
Dec	15	Dawn/SE	Venus, Mercury, and Jupiter line up in conjunction
Dec	15	5:49 am	First quarter Moon

Solar System Roundup

- ✚ **Mercury** is in the Sun's glare until December 6th and is well positioned by the 15th as it is in conjunction with Jupiter and Venus that morning
- ✚ **Venus** is a morning rising earlier each day and brilliant of course. It shares the early morning sky with Mercury and Jupiter on December 15th.
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe
- ✚ **The Moon** pairs up with Venus, Mars, and the Hyades star cluster.
- ✚ **Mars** is still brilliant but fading as it heads away from Earth
- ✚ **Asteroid(s)**
 - Juno is in Eridanus, heading southwest and is at opposition mid-November. In December Juno swings to the north, still in Eridanus
- ✚ **Jupiter** is going, going, gone
- ✚ **Saturn** is above the Sagittarius Teapot and on its way out so get a good look
- ✚ **Uranus** is highest in late evening, magnitude 5.7, and is in Aries
- ✚ **Neptune** rises around 8pm, mag 7.8, in Aquarius
- ✚ **Comet(s)**
 - 38P/Stephan-Oterma is a periodic (37.96 years), 10th magnitude comet currently in Gemini, heading northeast and is about 5° south of β (Pollux) on November 15th
 - 64P/Swift-Gehrels is a 10th magnitude comet and is in Andromeda, heading east. It is just north-northeast of β Andromedae
 - 46P/Wirtanen is coming into view in Fornax, heading northeast and could make magnitude 7 or brighter. It will skim the western edge of Eridanus in early December and be in Taurus by December 13th. On December 16-18 46P will slide to the east of the Pleiades (M45), getting within 5°, a binocular field.
- ✚ **Convenient (after 7am and before midnight) ISS Viewing for New Braunfels (works for Canyon Lake too)**

Date	Start Time	Start Loc	Max Alt °	Travel
11/21	18:35	SSW	41	ENE
11/22	19:20	WSW	25	NE
11/23	18:27	SW	55	NE
11/25	18:20	WSW	20	NNE
12/12	18:05	NNW	18	ESE
12/13	18:49	NW	67	SE
12/14	17:56:08	NW	48	SE
12/15	18:41	NW	21	SSE

The Golden Apples of the Sun

In Ray Bradbury's short story from 1953, a manned rocket travels close to the Sun and gathers some of the Sun's essence. Based on the story's text the astronauts appear to be traveling in a giant refrigerator, keeping them cool. They grab some of the Sun in a bucket, close the bucket lid, stow it on board, and head "north", away from the Sun. To Earth I presume.

That was their target, and by 1953 standards it was an achievement way beyond technology of the day. However, they would have needed to penetrate to the core to capture the Sun's essence. Outside the core are swarming, seething rivers and tsunamis of photons and plasma. That would certainly be interesting and valuable to collect, but to me it's not the golden apple. Grabbing some fusing hydrogen and helium, now that's the ticket. There is no technology known able to achieve this. Some day.

Back to reality, the Parker Solar Probe (PSP) was successfully launched on August 12th and is making its way to the Sun. What's so special about PSP? It's going to do what Ray Bradbury's spaceship did, except it won't be manned or use a bucket. It will use instruments to measure what's going on 3.8 million miles above the Sun's surface. By contrast, Mercury gets 29 million miles from the Sun. It will be traveling in the Sun's atmosphere, the lower corona, with temperatures of 2500 degrees F and intense radiation. PSP will get closer to the Sun than any other probe so far. Unlike the giant refrigerator in Bradbury's story, PSP's instruments will be protected by a 4.5-inch-thick shield made of carbon-carbon composite. This shield will face the Sun continuously. All the instruments on board are located well back and in the central portion of the shield's shadow. This placement also protects them from radiation. Without the shield...toast in 30 seconds or so.

With so many other probes already sent to and studying the Sun, this seems like overkill, just collecting data to have more data. Well, you can't have too much data, but that's not the reason for sending PSP. As we learn more about our closest star's behavior we understand more about risk to life on earth. Our Sun is a life provider, but it can also be disruptive. As we understand and tally the risk to our civilization posed by a severe Solar Flare, or Coronal Mass Ejection, protecting our satellites and electrical grid becomes vitally important. PSP's data about magnetic field dynamics, energy flow, solar wind, and mechanisms of transport for energetic particles will add to our ability to predict significant solar events...and prepare.

Opportunities for NBAC Outreach

- New Braunfels and Guadalupe Master Naturalists

New Braunfels: lindheimermn@gmail.com Guadalupe: txmn.org/guadalupe/

Coming up: **OUR 235th** ASTRONOMY CLUB MEETING

Thursday, **January 17th**, 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.astronomynbtx.org

Eric Erickson ewandnl@yahoo.com