

New Braunfels Astronomy Club

Texas, USA

March 19th, 2020

Larry's Celestial Calendar & Newsletter

-by Eric Erickson

272nd Edition

Vernal Equinox

Zodiacal Light

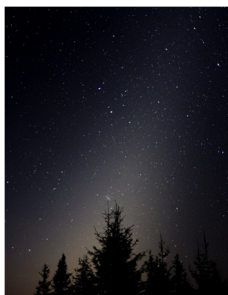
Comet PanSTARRS (C/2017 T2)

Venus Meets the Pleiades

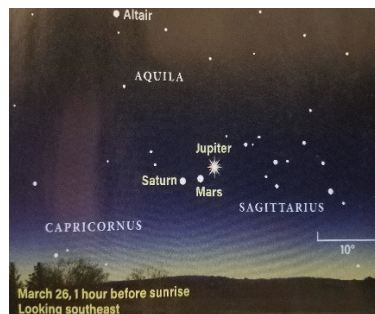
Perigee Full Moon

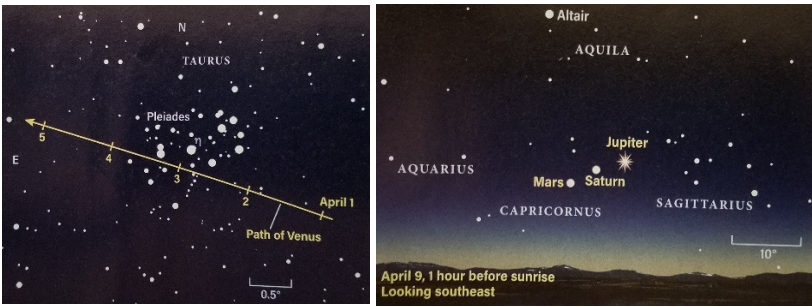
Observer's Highlight Calendar for Clear Skies

-From Astronomy Magazine

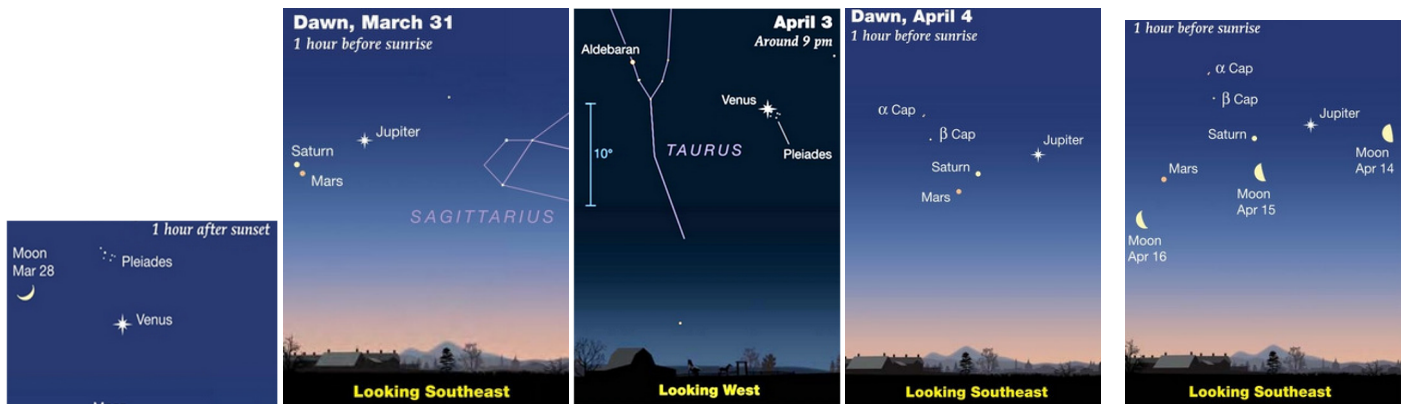


Zodiacal Light is visible throughout March, looking west





-From Sky and Telescope Magazine



Month Date Time/Direction Event

Mar	19	10:50 pm CDT	Vernal Equinox - Spring
Mar	24	4:28 am CDT	New Moon
Apr	1	5:21 am CDT	First Quarter Moon
Apr	3	Evening/W	Check out Venus and the Pleiades get cheek to cheek
Apr	7	9:35 pm CDT	Full Moon – this is a perigee Full Moon, closest for 2020
Apr	14	5:56 pm CDT	Last Quarter Moon

Solar System Roundup

- ✚ **Mercury** is a morning “star”
- ✚ **Venus** is an evening “star” and dances with the Moon and the Pleiades on April 3rd
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe
- ✚ **The Moon** dances with Venus in the evening, Jupiter, Mars, and Saturn in the morning.
- ✚ **Mars** is a morning “star”, and is joined by the Moon, Jupiter, and Saturn in the SE
- ✚ **Jupiter** is visible in the SE - early morning hours before sunrise
- ✚ **Saturn** is visible in the SE - early morning hours before sunrise
- ✚ **Uranus** is in Aries, in the west at nightfall and not a good target
- ✚ **Neptune** is in conjunction with the Sun
- ✚ **Comet(s)**
 - PANSTARRS (C/2017 T2) is around magnitude 9-10 and should be visible in 4” or larger scopes. It’s moving from Cassiopeia northeast into Camelopardalis. On April 6th it will be about 5° northwest of IC 342.
- ✚ **Satellite viewing for New Braunfels (works for Canyon Lake too). After 5 am and before midnight.**
 - From [Heavens Above](#).

Satellite	Date	Start Time	Start Loc	Max Alt °	Travel Toward	Note
ISS	03/21	20:42	W	11	NNW	Along the horizon
“	04/06	21:02	NW	55	SE	Heads toward the Moon
“	04/08	21:04	NW	33	SSE	Passes Venus and Sirius
“	04/09	20:17	NW	71	SE	
“	04/11	20:18	WNW	17	S	Low above the horizon
HST	03/21	06:33	W – high	65	E	Visibility starts in Virgo
“	03/22	06:22:17	W- high	70	E	“
“	03/28	06:57:21	W	27	SE	Passes south of Jupiter
“	04/08	20:22	W	49	E	Passes just north of Sirius
“	04/14	20:59	W	48	SE	Passes through Orion’s belt
“	04/15	20:49	W	41	SE	Passes south of M42
“	04/16	20:38	W	34	SE	Passes just south of Rigel

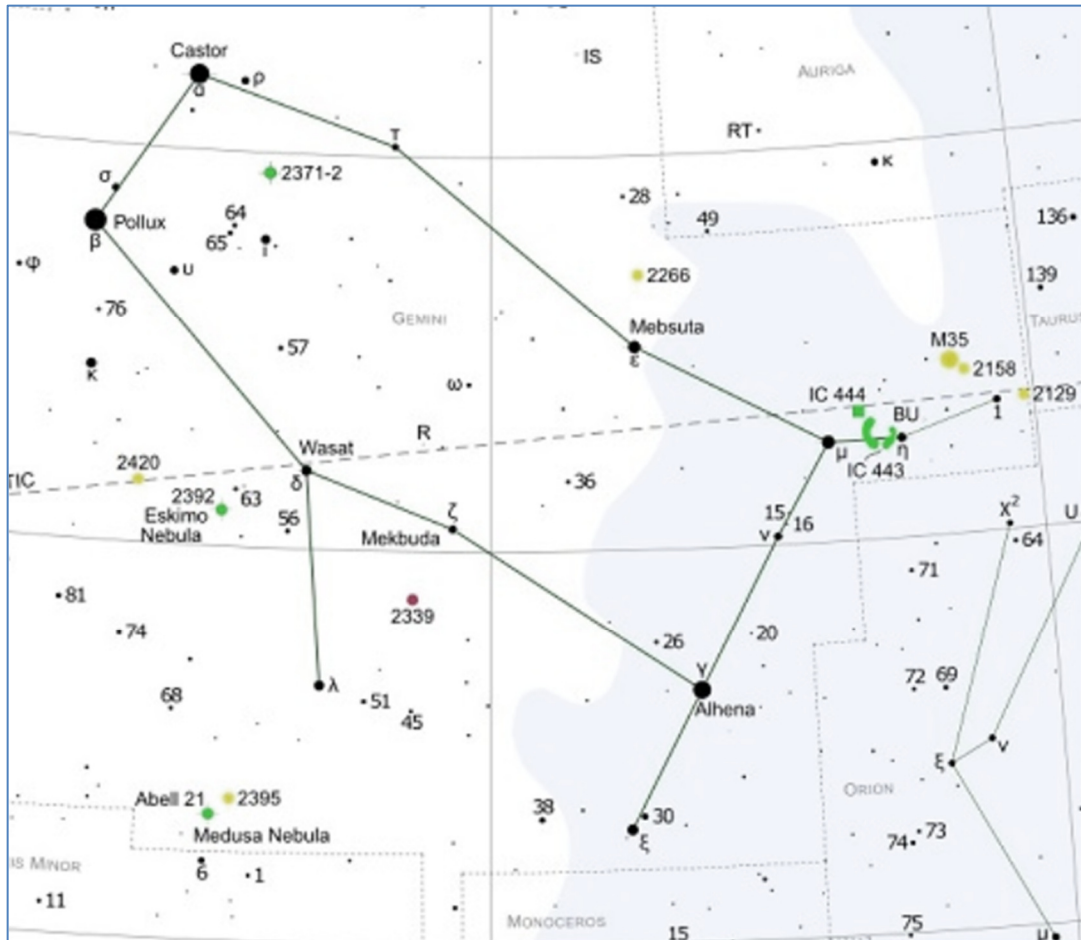
My Observing Pick: Gemini

Twins can be trouble. Gemini is Latin but the story is Greek, or Babylonian. It’s all about twins. It’s definitely about seduction by gods, deceit, adultery. The usual stuff.

Castor and Pollux are the leads, given a place in the heavens for all time, except they will part ways over time, maybe each becoming a member of other constellations. Don’t wait for it.

Castor is a sextuple star system with three visible components, (A, B, and C). Each is itself a double star but not visually observable. A and B are close, but C is 1 arcminute away from the AB pair and considerably dimmer.

Gemini has some fun objects to observe and photograph. M35 is a rich open cluster, NGC 2392 is a planetary nebula aka the Eskimo Nebula. Check out the chart below.



- freestarcharts.com

Red is the Color of Carbon

Stars!

Carbon is essential for life on Earth and it takes numerous forms but when a star gets really old and runs out of gas, carbon shows up. Stars begin their lives by fusing hydrogen nuclei and the good news is there's lots of hydrogen to fuse. Fast forward many billions of years and the hydrogen party is about over but now there's a bunch of helium, the byproduct of hydrogen fusion. Helium works too, but it takes more energy. Thanks to gravity the helium rich star's core gets squeezed as the outward force of hydrogen fusion wanes. This gravity squeeze produces enough energy to get helium fusing and our star parties on.

The helium party however produces a bunch of oxygen and carbon and the carbon can get swept up into our star's atmosphere. Over time the atmospheric carbon accumulates, and along with the star's lower atmospheric temperature make for a nice red star, redder than typical red giant stars. Surrounding dust also helps diffuse light to make this star appear very red. We call them carbon stars and they're beautiful.

But there's more.

We know about red dwarf stars and what makes them tick, but dwarf carbon stars didn't exist, couldn't exist. That changed in the mid-1970s. Until then carbon stars were all thought to be giants. Astronomers in Arizona studied what they thought was a normal red giant carbon star in the constellation Taurus. Its name, a pretty inauspicious G77-61. Astronomers were studying this star to better understand carbon stars but noticed something peculiar. It was close, only 255 light years away, but it was very dim. So, they thought it had to be a red dwarf star. But its spectrum was different from red dwarf stars and more like red giant carbon stars.

When the astronomers mentioned this anomaly to other astronomers they were dismissed, told to go back and get their measurements right. You see, red dwarf stars fuse hydrogen into helium and have little carbon so this cannot be a dwarf carbon star...unless... Unless there's another culprit in this little caper, and it appears there is a suspect. A white dwarf.

Many stars are born in pairs, so the theory of dwarf carbon star formation starts with two stars, one a brilliant blue star a few times the mass of our Sun, and a red dwarf. The blue star evolves like our Sun but faster, eventually running out of hydrogen, then fusing helium into oxygen and carbon. This star sheds mass, including carbon as it goes through typical gravity vs. fusion gyrations. Some carbon gets captured by the red dwarf and over time (billions of years) the red dwarf becomes carbon loaded.

It's a dwarf carbon star now!

Eric Erickson

Coming up: **OUR 248th** ASTRONOMY CLUB MEETING

April 16th 2020, from 7 – 9:00 p.m., ZOOM meeting – Invite to come

astronomyntx.org

 *Astronomy Friends New Braunfels*

Mick Homer mhomer2012@yahoo.com

New Braunfels Astronomy Club Meeting

Date:

Agenda

- Open meeting and introduce new members
- Interesting observations, experiences
- Show and tell
- What's in our sky this month? [Newsletter and Abrams Sky Calendars](#)
- What's going on – events, outreach
- Main feature(s)
- Open for discussion
- Feedback and close the meeting