

New Braunfels Astronomy Club

Larry's Celestial Calendar & Newsletter by Eric Erickson

287th Edition

Mars & Venus Together in the Evening

Mars Photobombs M44

Jupiter and Saturn in the Morning...and Evening too

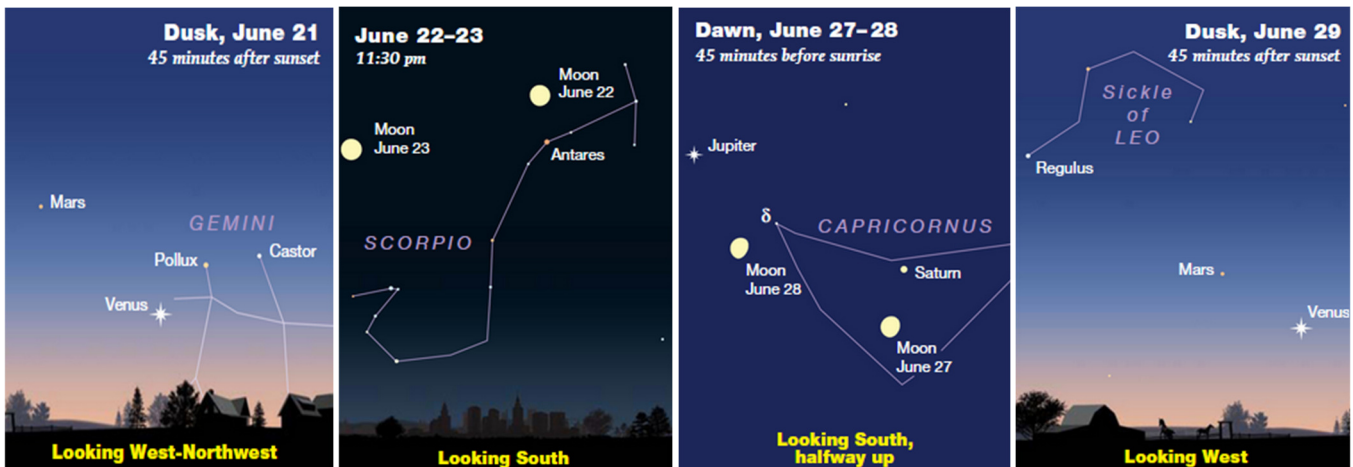
The Moon and Celestial Mates

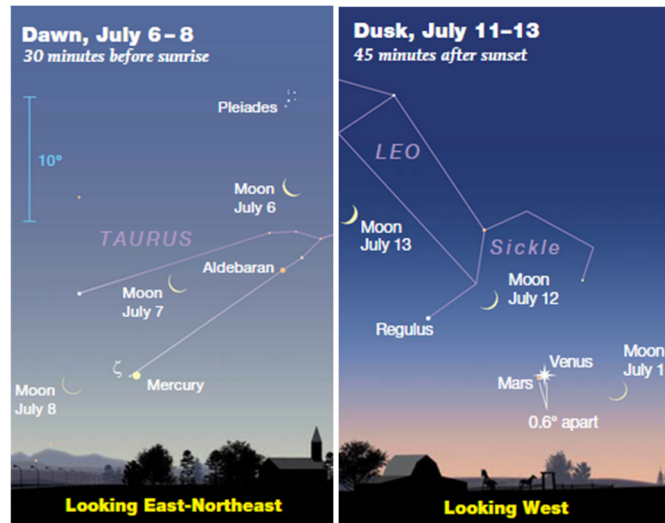
Summer Solstice 06/20/21 10:32 pm CDT

Summertime...Summertime

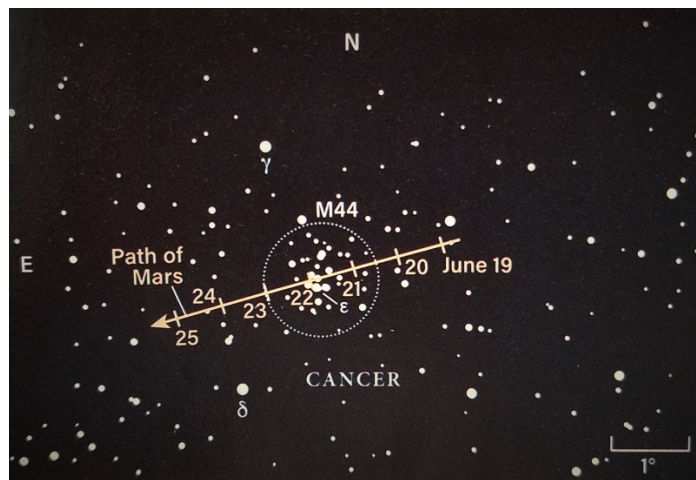
Highlight Calendar for Clear Skies

-From Sky and Telescope Magazine





From Astronomy Magazine

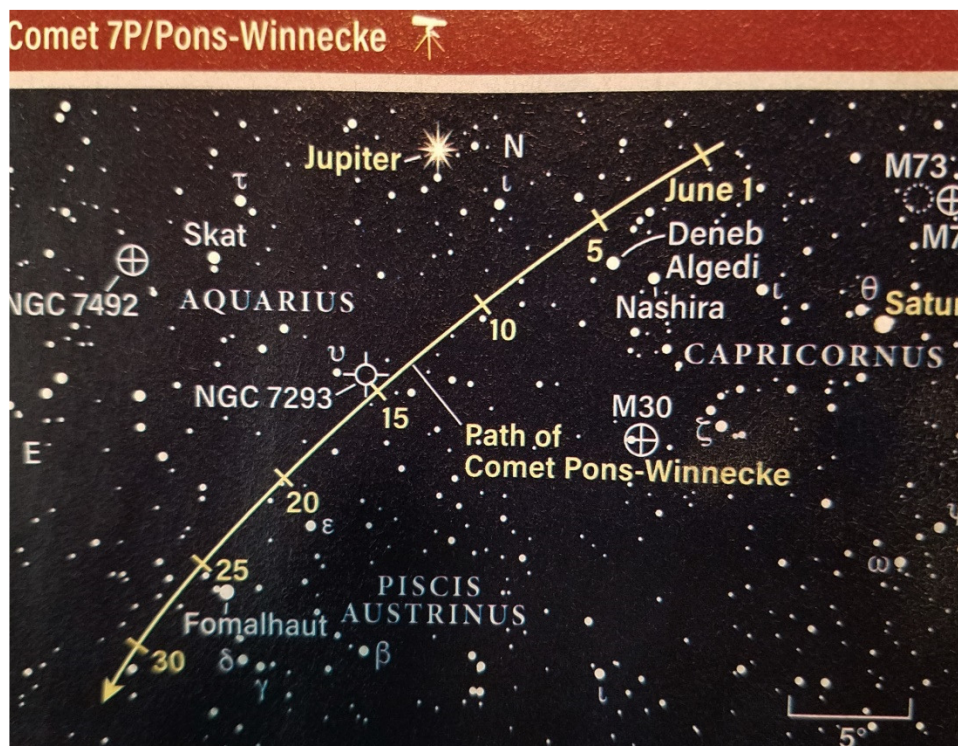


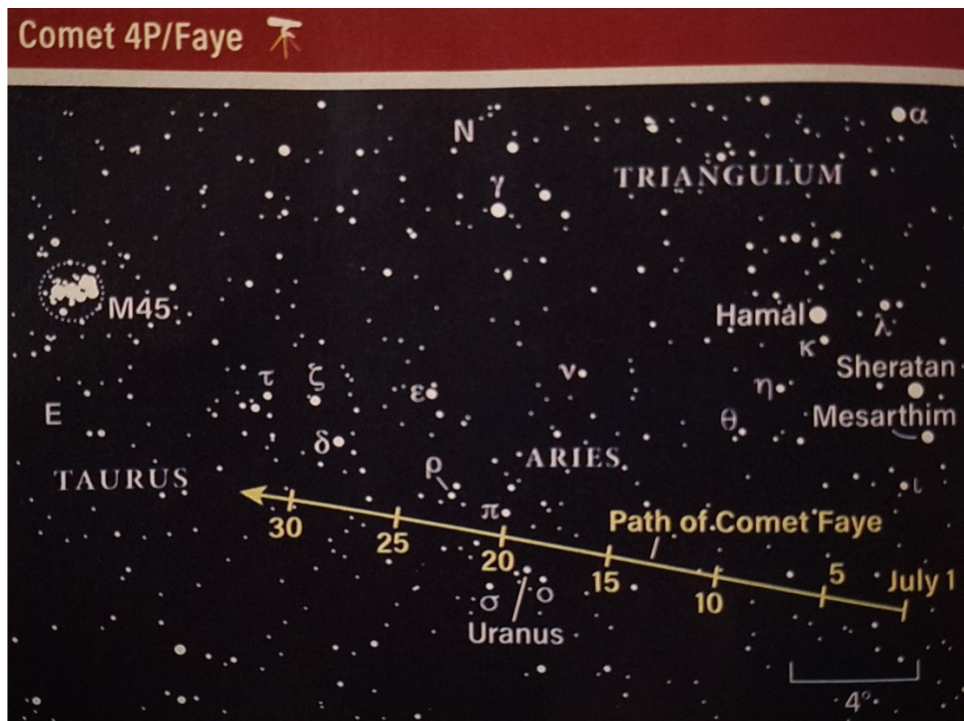
Solar System Observing

- ✚ **Mercury** reached inferior conjunction with the Sun on June 10th, and is too faint and low to observe until the end of June. It becomes a Morning planet and by June 30th it can be seen east of Aldebaran in Taurus. Look around 5 am. It dims to magnitude 0.5 as it reaches greatest western elongation on July 4th. It improves to magnitude 1 in the days following.
- ✚ **Venus** continues to be a brilliant evening planet, paring up with Mars. On July 11-13 it gets as close as 0.6° from Mars, with a pretty crescent Moon along for the ride.
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe.
- ✚ **The Moon** pairs up with stars and planets as usual and looks great on July 11-13 as it joins Mars and Venus.
- ✚ **Mars** is still visible in the western sky after sunset. On June 20-23 it photobombs M44, the Beehive, the Manger, the Praesepe cluster in Cancer – photo opp., maybe.

- ✚ **Jupiter** rises around midnight on July 1, around 10 pm mid-month. Getting good.
- ✚ **Saturn** rises an hour earlier than Jupiter and will be a good nighttime target by mid-July
- ✚ **Uranus** is in southern Aries, in the pre-dawn sky.
- ✚ **Neptune** is in northeastern Aquarius, a late-night riser, best for viewing by 2am.
- ✚ **Comet(s)**
 - Short-period comet 7P/Pons-Winnecke is up late-night into pre-dawn. It is magnitude 11.5, so it's dim. It will be travelling southeast through Capricornus, Aquarius, and Piscis Austrinus.
 - Comet 4P/Faye, another short period (7.5 year) visitor, glows at a paltry 10th magnitude. A 4" scope will reveal it and larger ones should produce its little tail. You'll need to stay up late to catch it.

-From Astronomy Magazine





✚ ISS viewing for New Braunfels (works for Canyon Lake too).

-From [Heavens Above](#)

Date	Start Time	Start Loc	Max Alt °	End Loc	Note
06/22	05:39	SSW	27	NE	
06/24	05:42	SW	68	NE	
07/12	06:03	NNW	25	ESE	Skirts above Mercury, then Rigel in Orion
07/12	22:42	WSW	33	NE	Goes through the Big Dipper's cup
07/13	21:55	SW	66	NE	
07/14	06:05	NW	84	SE	
07/14	21:07	SW	58	NE	
07/15	05:17	NW	46	SE	
07/15	21:56	WSW	19	NNE	Skirts above Venus

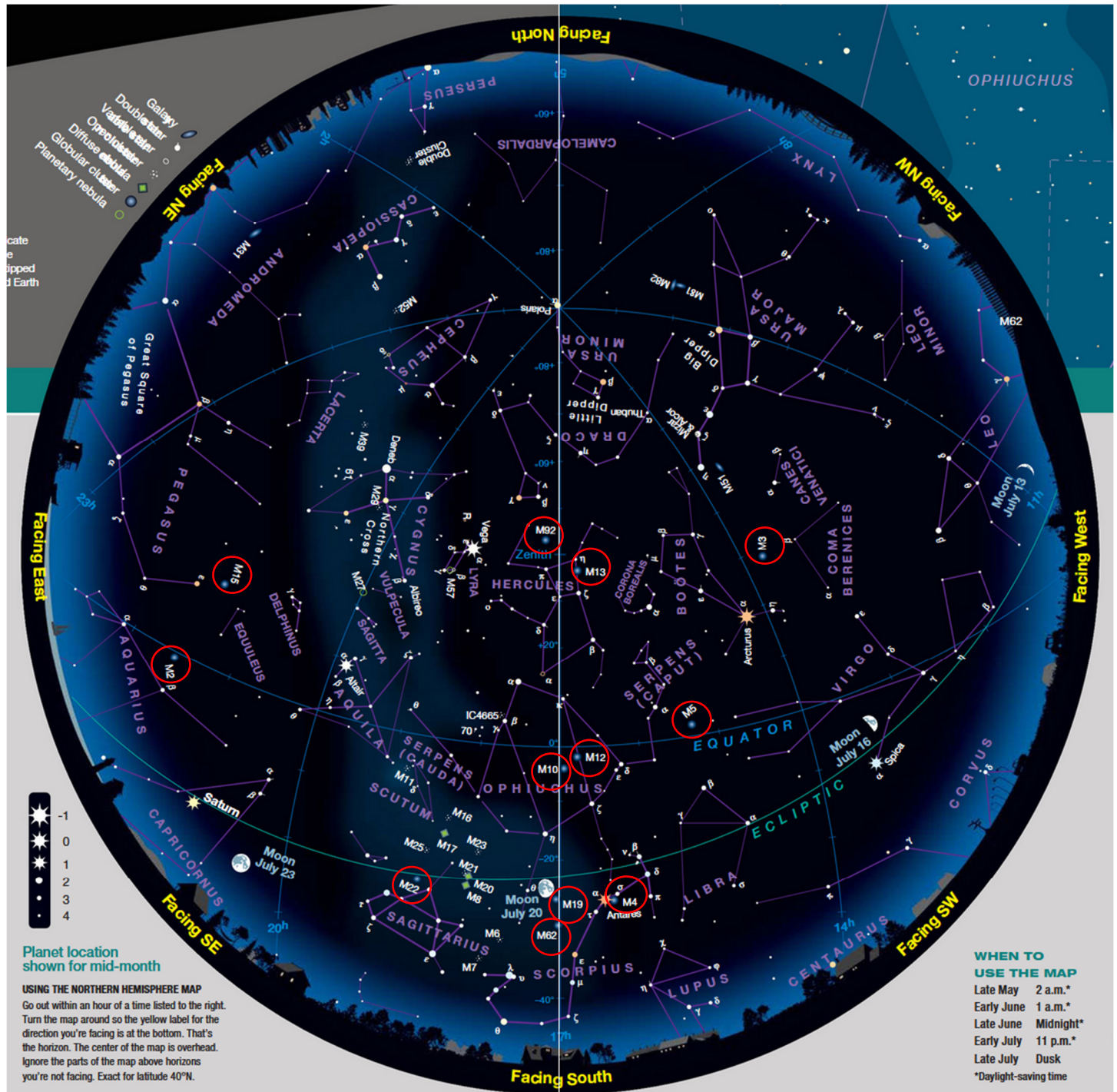
My Observing Pick: The Globulars of Summer

There's a lot going on in the celestial sphere with summer coming and it's a good time to check out the numerous globular clusters so well positioned.

Globular clusters are satellites of the Milky Way, elders in the galactic organizational hierarchy. No one really knows how they formed, but they contain mostly aging stars. Their configuration as spherical collections of hundreds of thousands to millions of stars makes for interesting gravitational dynamics. Planetary systems are challenged to form, then stay together due to the proximity of so many stars. The nighttime sky would be ridiculous with

bright stars. A “dark sky friends” organization would be an oxymoron...no IDA there. Globulars are easy to see even in small scopes and binoculars. I have borrowed Sky & Telescope’s July sky map to show just how numerous they are. Just go out and look. I have circled a bunch in red and they represent just the brightest ones.

-From Sky and Telescope Magazine



Imagining Imaging: Platform for club imagers...images and imagers needed!

New Horizons' New Horizons

It's been almost six years since the New Horizons spacecraft snapped a ton of photos of Pluto and Charon as it whizzed by. At that time, it was entering the inner edge of our solar system's Kuiper Belt, a vast doughnut shaped ring of cometary objects and dwarf planets. Pluto is now considered a Kuiper Belt Object (KBO), a dwarf planet, and the first Kuiper Belt Object found.

Four years later, on New Year's Day 2019, New Horizons made history by encountering the KBO 486958 *Arrokoth* (formerly Ultima Thule), snapping some photos and taking spectrophotometric measurements. *Arrokoth* is a word from the extinct *Powhatan* language, tidewater region of Virginia. It means "cloud". We have learned *Arrokoth* is a contact binary object, where two objects have fused together after bumping into each other. It has one large and one small lobe. It is made up of frozen volatiles (ices) of methanol, hydrogen cyanide, other organic compounds, and water ice. This is the most distant object an Earthly spacecraft has explored and pictured.

Now it is three years later, and New Horizons continues to press on. On April 17th New Horizons became the fifth spacecraft to reach 50 AU (astronomical units) distance from our Sun. That's 50x the Earth-Sun distance or 50 x 93,000,000 miles. Only Pioneers 10 and 11, and Voyagers 1 and 2 have gone this far. So, in commemoration of this milestone, New Horizons took a snapshot of Voyager 1's position in space. They are way too separated to see Voyager 1, but it's out there!

More recently something funny has turned up, and it might turn the cosmology and astrophysics world on its head. Then again, it might be nothing.

As part of New Horizons' mission, using its Long Range Reconnaissance Imager (LORRI) camera it measures the *cosmic optical background*. Comparing its results with that predicted by existing data it seems there is more light than there should be. Twice as much! This is after subtracting all known and predicted sources of visible light including stars, galaxies (even those too faint for the camera to resolve), and dust scattered Milky Way starlight (from galactic cirrus). This is big, too big to ignore. Now what? I guess report it and see what happens.

This finding was reported in the January 10th *Astrophysical Journal* and at the 237th meeting of the American Astronomical Society. The Earth didn't stop turning, and fortunately, no one's head exploded.

Cosmologists find this intriguing and are looking at possible explanations for this anomaly. Maybe the team underestimated the how scattered Milky Way light contributes to the optical background. They might be missing free-roaming stars, undiscovered black holes, faint galaxies.

Or, maybe it has something to do with dark matter, eh? Maybe they are detecting swarms of axions, the hypothetical dark matter particle.

Maybe not.

Eric Erickson

Addendum – ASTRONOMY NIGHT RETURNS

Steve Ellery, Ron Frisk, Susan Bogle, Roxanna Dean, and I met with Rachel Keeler, the new director of TPML. We discussed planning and actions needed for the expected re-boot of Astronomy Night.

- Steve Ellery has produced the schedule.
- Steve Ellery, Larry Wells, and I have evaluated the observatory and determined needed maintenance/repair.

On a sad note, Susan Bogle announced she is retiring from Astronomy Nights. She has been such an organizational force, as well as doing a lot of the grunt work (really, hauling that 11" Celestron up to the observatory, opening the shutter, setting up, stringing the rope lights), and such a promoter for this monthly event! Susan was the ringleader!

Notes from Rachel Keeler:

Astronomy Nights 2021-2022 (no longer called Star Parties)

- 20-30 minute intro/etiquette in library meeting room then head up the hill for viewing.
- Expectation to group is that they should use facilities inside the building before heading up. Library staff will lock up building after everyone heads up. Emergency bathroom exceptions can be made, of course.
- There will be a backup program prepared in advance by the NBAC in case of bad weather. In this case, the program will last around an hour and be held entirely in the library's meeting rooms.

Library staff responsible for:

- Opening and closing of the library building for program.
- Setting up chairs and AV equipment in library meeting room for program. Cleaning up the room after participants head up the hill.
- Available for last-minute needs such as extension cords, chairs, etc.
- Testing of flashlights ahead of program. Taking out the flashlights for the program and storing them afterwards.
- Publicizing Astronomy Nights on library calendars, web, social media, newsletter, and any other outlets we communicate with such as Mycanyonlake.com and the ISD newsletters. Featuring Astronomy Night on library's marquee.
- Creating Astronomy Night bookmarks to be displayed at library and handed out at programs.
- Effective and timely communication with NBAC point person.

NBAC members responsible for:

- Communicating with library staff on the day of the program to discuss weather and any impacts that might have. The NBAC will make the call as to if it's a good night for viewing or if we should run the inside program instead.
- Setting up and then taking down the rope lights. (To be stored in observatory.)
- Setting up and then taking down the chairs up the hill. (To be stored in observatory.)
- Ensuring enough club members are present each program to run the equipment and arriving ahead enough to have time to set up and calibrate equipment.
- Providing intro session at start of each Astronomy Night.
- Providing presentation in case of bad weather.
- Being present with the equipment during the program to assist the public while viewing.
- Publicizing Astronomy Nights (website, social media, in Eric's newspaper column...)
- Communication with library point person ahead of each Astronomy Night to discuss "highlights" or something noteworthy that we can include in our library newsletter and publicity.
- Effective and timely communication with library point person.

Other things we discussed:

- The possibility of keeping the equipment up in the observatory instead of carrying back and forth.
- Someone from NBAC doing an inventory of the boxes in the Astronomy closet here at the library – lenses, etc.
- The possibility of doing a raffle/giveaway of some telescopes. I will put the Friends in touch with NBAC to coordinate.
- NBAC doing Lunch and Learn sessions here at the library.