

New Braunfels Astronomy Club

Larry's Celestial Calendar & Newsletter

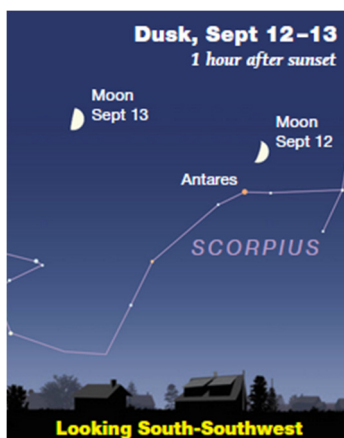
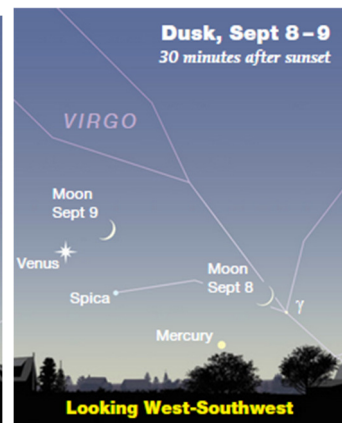
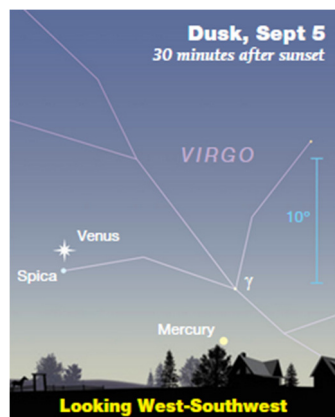
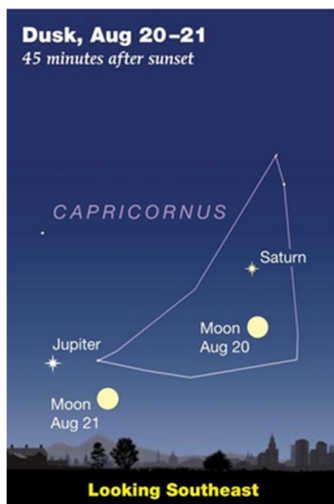
289th Edition

August 19 to September 16, 2021

Venus Dominates Summer Evenings
ISS photo op with M42 on 08/20??
Jupiter and Saturn at Opposition and Beautiful
Remember Comet 67P? It's here!
Europa Transits Jupiter on September 12th

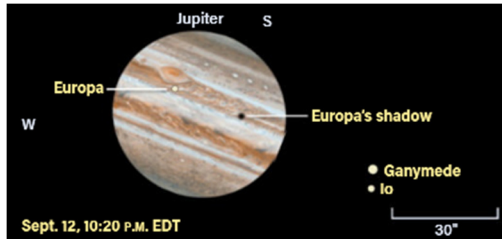
Highlight Calendar for Clear Skies

-From Sky and Telescope Magazine



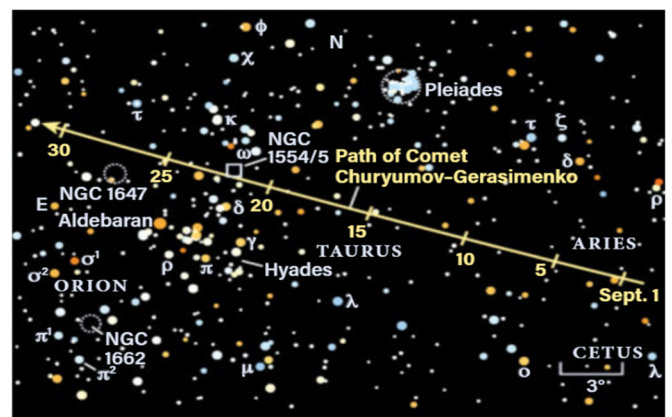
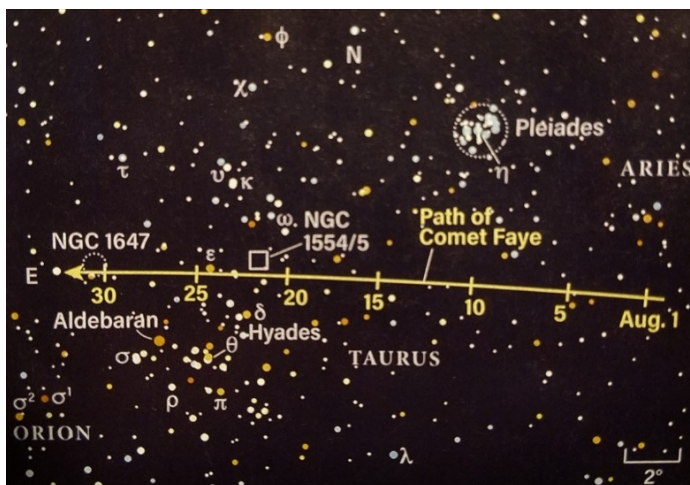
Solar System Observing

- ✚ **Mercury** is low in the western evening sky and dim. Use binoculars.
- ✚ **Venus** dominates the western evening sky after sunset.
- ✚ **Earth** still spins, and we are still here to marvel at it all.
- ✚ **The Moon** pairs up with stars and planets as usual and looks great.
- ✚ **Mars** is in the Sun's glare.
- ✚ **Jupiter** is at opposition and a great evening target. On September 12th, 9:20 pm look for Europa and its shadow as it transits Jupiter.



- ✚ **Saturn** is at opposition, rising about an hour earlier than Jupiter. Beautiful!
- ✚ **Uranus** rises around 11pm, 10pm in early September, and is in southern Aries.
- ✚ **Neptune** reaches opposition on September 14th and a nice all-night target in eastern Aquarius
- ✚ **Comet(s)**
 - Comet 4P/Faye, another short period (7.5 year) visitor, glows at a paltry 10th magnitude. A 4" scope will just reveal it and larger ones should produce its little tail.
 - Identified in 1969, Comet 67P/Churyumov-Gerasimenko was examined seven years ago by the Rosetta spacecraft and Philae probe. Now it passes close enough to see with 8" and larger telescopes. Look for its telltale duck-shaped form.

-From Astronomy Magazine



The rubber duck-shaped Comet Churyumov-Gerasimenko travels through crowded Taurus this month. You'll need a larger telescope and a dark observing site to spot its glow.

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

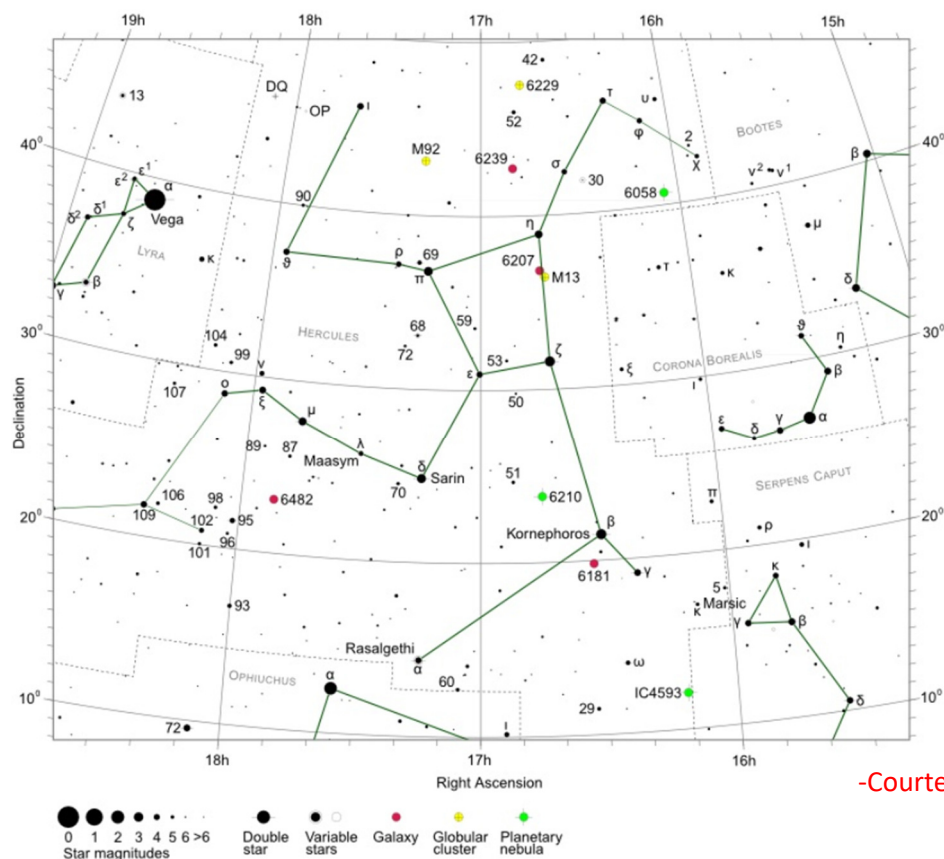
-From Heavens Above

Date	Start Time	Start Loc	Max Alt °	End Loc	Note
08/20	06:33	SSW	42	NE	Cuts through Orion's sword and belt – M42 photo opp?
08/22	06:36	WSW	43	NE	
09/10	06:12	NNW	22	ESE	Slips just east and south of the Big Dipper bowl
09/12	06:15	NW	79	SE	
09/15	20:31	SW	80	NE	

My Observing Pick

Hercules – the Strong Man

A favorite of Greek and Roman lore, son of the god of gods Zeus and mortal beauty Alcmene Hercules was a *demigod*. Hercules was a strong man-god who took no nonsense from anyone. He even beat up on two giants, Albion and Bergion, well, after praying on his knee to his father Zeus. After this Hercules became known as the kneeling one and the constellation depicts this. Hercules was one of Ptolemy's original 48 constellations and is one of the official 88 constellations today. Best known for M13, the beautiful globular cluster, Hercules is also home to M92, a pretty globular in its own right. See the map below to find other objects of interest.



-Courtesy freestarcharts.com

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

Planets Everywhere!

In the movie 2001: A Space Odyssey Dr. Dave Bowman gasps “my God, it’s full of stars!” as he gets pulled into the Monolith orbiting Jupiter.

The mantra of astronomy and our existence...it’s all about stars because without stars there is no light. That’s true and I’m glad we’re here because of stars, especially the Sun. Another mantra in astronomy has been that stars and their planets by in large stay in their home galaxies. That paradigm is changing.

In recent years astronomers have discovered isolated intergalactic stars, not gravity bound to a galaxy. That’s news for sure but I had wondered for years if our universe might be littered with interstellar and intergalactic planets too. Why not? They could be out there, but we just can’t see them.

Well, my wondering is over, at least regarding interstellar planets.

A dozen interstellar objects have been observed so far, including the luckily caught solar system interloper’s ‘Oumuamua, in 2017 and 2I/Borisov in 2019. We still do not have sensitive enough equipment to find extra solar planets that are not orbiting a star. Astronomers have found some independent planets so far using what’s called microlensing of a background star’s image when a planet moves in front, due to the planet’s mass. That will change this decade as two new observatories in the works go live. They will be sensitive enough to spot planets sailing through interstellar space.

On a mountain in Chile the Vera C. Rubin Observatory is expected to begin operations in 2023. Its mirror is big at 8.4m (330.7 inches) and has a 3200-megapixel camera to boot! That’s right, 3.2 gigapixels, the biggest digital camera in the world and will survey the entire sky every three nights. It will be used in three optical configurations depending on the study task. They are M1 (8.4m f/1.18), M2 (3.4m f/1.00), and M3 (5.0m f/0.83). That’s some fast optics!

The Nancy Grace Roman Space Telescope will be even higher up, in outer space at what’s termed the Sun-Earth L2 orbit (a Lagrange point, where gravity balances between the Sun and Earth, maintaining a relatively stable position for the satellite). It’s also a great spot for reducing observing constraints – the Earth will mostly be out of the way. This roughly Hubble sized telescope (2.4m or 94.5 inches) is designed as a three mirror anastigmat with a very wide well corrected view. Among its objectives is to look for exoplanets.

Will they find more “independent” planets? Astronomers are confident they will find many, possibly a bucket load in each field. If they do, this might result in a modification of how we think of dark matter. We’ll see.

Without a star to orbit, planets much smaller than Jupiter will be eternally frozen, and they all will be dark.

-Eric Erickson