New Braunfels Astronomy Club

Larry's Celestial Calendar & Newsletter

by Eric Erickson

288th Edition

July 15 to August 19, 2021

Venus Dominates the Evening

Will the Perseids Produce?

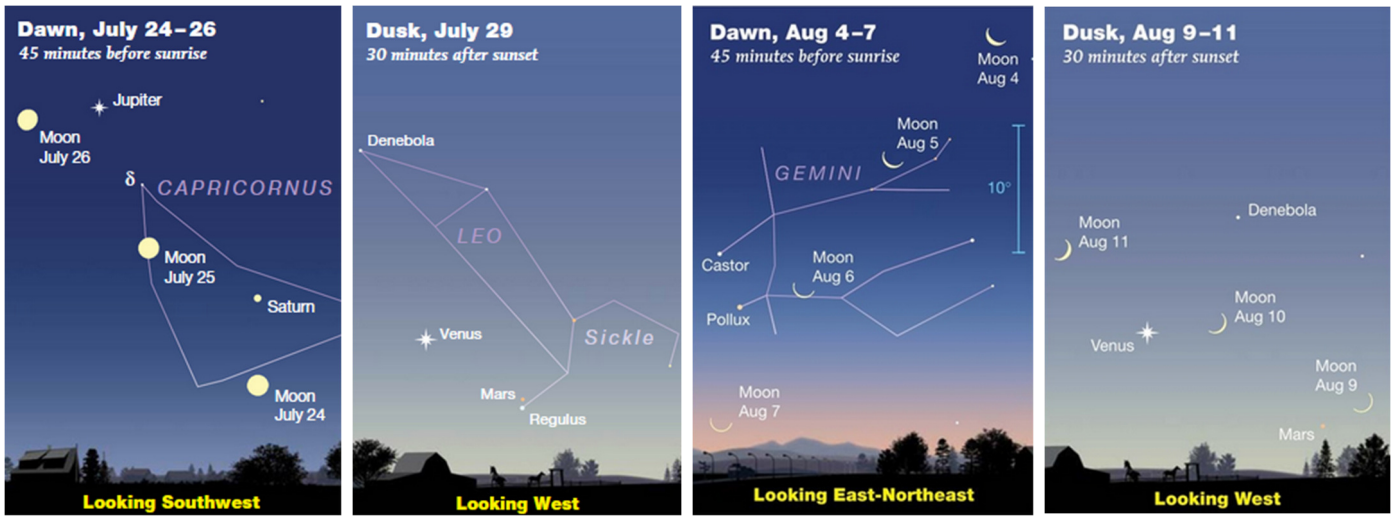
Mars Slowly Slips Away

The Moon and Celestial Mates Play

Jupiter and Saturn at Opposition and Beautiful

Highlight Calendar for Clear Skies

-From Sky and Telescope Magazine



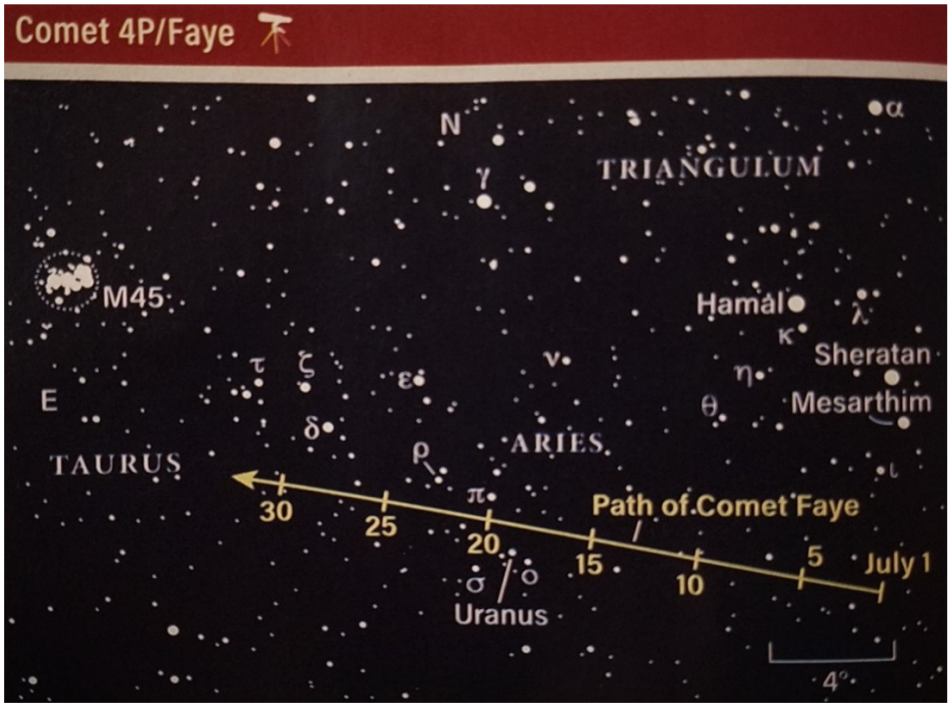
-From Sky and Telescope Magazine

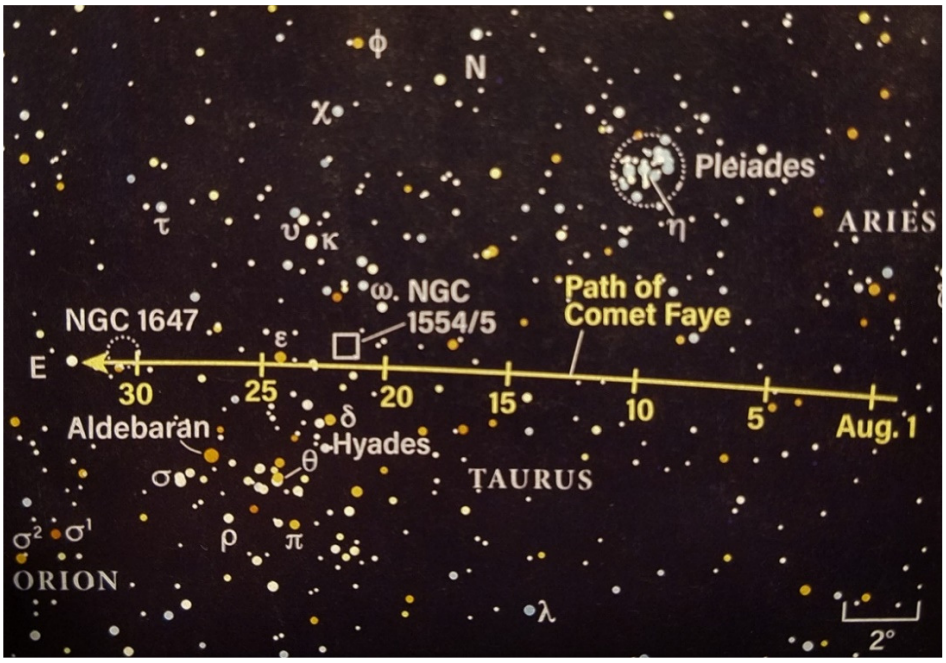
The Perseid Meteor Shower Peaks on August 11 late night into early morning August 12. The Moon will not interfere! Start looking late on the 11th and keep it up until you give it up.

Solar System Observing

- Mercury is low in the east-northeast morning sky, heading for superior conjunction with the Sun on August 1. After that it appears in the western evening sky but stays dim and low. On August 18th, Mercury and Mars are in a close conjunction just after sunset. Two dim planets in the Sun's glare. Use binoculars.
- Venus dominates the western evening sky after sunset at magnitude -3.9, 82% illuminated. It poses with a crescent Moon on the August 9th- 11th. Check it out on August 13th as the star β-Virginis gets close, making it appear Venus has a satellite. Use telescope or binoculars.
- 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 still visible in the western sky after sunset but getting less so. It teams up for a conjunction with dim Mercury on August 18.
- Jupiter rises in the evening around an hour after Saturn and reaches opposition on August 19th.
- Saturn rises an hour earlier than Jupiter and reaches opposition on August 2nd.
- Uranus rises after midnight. It is in southern Aries, best viewed in the pre-dawn sky.
- Neptune rises well after sunset and is in eastern Aquarius. It will be magnitude 7.7 by early August, bright enough for binoculars.
- 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. Look between 4-5 am in July, 3-4 am in August.

-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
07/15	22:03	W	17	NNE	Skims above Venus (near the horizon)
07/16	06:13	WNW	17	S	Skims by Saturn
07/16	21:15	WSW	29	NNE	Skims by Venus
08/06	20:57	NW	58	SE	Near Arcturus
08/08	20:59	WNW	14	S	Close to Venus
08/18	06:33	SSE	11	E	

My Observing Pick

The Clouds of Corona Australis, Sagittarius, Serpens Cauda and Ophiuchus

Cloudy with a chance of meatballs, it's a veritable monsoon of objects, both light and dark. This area of sky is littered with stuff! Binoculars or small telescope (3-4") will show the stand-outs but you will need at least 8" to see more subtle objects. 10" gets you into the heart and larger is just better. Many of these are challenging for observers with 10" scopes so don't fret if you cannot see some things.

-From Sky and Telescope Magazine

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

Faster, faster…the lights are turning red!

This short, suggestive, and excited plea from the Eagle's *Life in the Fast Lane* is also an apt description of how space and everything in it acts. The farther out we look, the faster things are speeding away from us, red-shifted. In this article I'll look at what it means to be red-shifted and blue-shifted. These terms sound so…esoteric.

Red and blue shifts are also called doppler effects so let's take a look at what doppler effects are before diving into the red and blue.

In 1842 an Austrian physicist named Christian Doppler first hypothesized how light wavelength (color) might appear to change for stars moving toward or away from us. A first test of this hypothesis, done by Buys Ballot in 1845, used sound waves as a surrogate. He confirmed the sound from an object such as a train speeding toward an observer *appears* to increase in pitch as it approaches. Then, as the train passes and moves away its sound *appears* to go down in pitch. This phenomenon was named Doppler shift or effect.

This effect occurs with anything emitting waves and in motion, or even if it is still and the observer is moving. The faster the motion (of the object or observer) the more pronounced the effect. If the observer is on/in the object or both are stationary or moving in parallel paths, there is no effect. Motion toward or away causes the waves emitted to get compressed or stretched out for the observer. Compressed sound waves produce a higher pitch and stretched out sound waves produce a lower pitch.

The same goes for light. Remember, Doppler's hypothesis was about light waves being compressed or stretched out for stars moving toward or away from us. Daylight (the Sun's light) is composed of numerous wavelengths that can be separated or spread out into a rainbow of wavelengths (colors). The visible wavelengths go from RED – long, to BLUE – short.

On to the fast lane. In the early 20th century several astronomers (Keeler, Slipher, Campbell, Hubble, and Humason) observed that light wavelengths for some "spiral nebulae" appeared stretched out.

They discovered the redshift, meaning these galaxies were moving away from us – their light wavelengths (colors) were doppler shifted to longer (redder) appearing wavelengths. Like that train moving away. It seems nearly all galaxies are moving away from us, but a few, like the Andromeda galaxy (M31) are heading toward us. Galaxies and stars moving toward us are blue shifted (their light is compressed into shorter wavelengths).

The farther out we look, the faster galaxies are moving away (larger redshift). Some are moving at an appreciable fraction of the speed of light! Faster, faster.