The Night Sky

Venus and Mars Sinking in the Evening Sky

Over the month of July, you will note the Evening Star, Venus, sink lower and lower towards the western horizon as it approaches its conjunction with the Sun on August 13th. As such, this will be the last full month to appreciate our nearest planetary neighbor in the evening sky this year. On the first day of the month, Venus and Mars are separated by only 3½ degrees on the sky! Unfortunately, the Red Planet, Mars, is vastly fainter than brilliant Venus, so you might not notice this conjunction unless you look for it. On July 10th, Mars has a close conjunction with Regulus, the brightest star in Leo. For this conjunction, the two objects are similar in brightness.

As we say our "goodbyes" to Venus, observe the Evening Stars through a telescope, if you have one, as often as possible. As the planet sinks towards the Sun, you will note the apparent size of Venus get larger and larger, and the phase become more crescent shaped. This is due to the fact that the solar conjunction of Venus in August is an inferior conjunction, when the planet passes between our star and Earth. Note, however, that this alignment is not exact, instead, Venus will pass to the south of the Sun.

On the evenings of July 18th through the 20th, a very nice grouping of celestial objects will be putting on a show low above the western horizon ½-hour after the Sun sets. The innermost planet Mercury makes a summertime evening appearance above the western horizon, with brighter Venus left of Mercury, and Mars to the upper left of Venus. On the 18th, see if you can spot a very thin waxing crescent Moon to the lower right of Mercury. You'll need an unobstructed western horizon and binoculars will help you spot the Moon. On the next day, the crescent Moon will be much easier to spot to the upper left of Mercury. Finally, on the 20th, the Moon will be well above Venus and just to the right of Mars.

We have one more evening treat for the month of July, on the evening of the 28th, Regulus and Mercury have a very close conjunction, only 1/6th of a degree apart! Mercury will be the brighter of the two. This will be a tough conjunction to spot with the naked-eye, since the pair will only be 6 degrees above the western horizon 30 minutes after sunset in the bright evening twilight. Again, an unobstructed western horizon and a pair of binoculars are a must to spot this conjunction.

Our next planet to catch is Saturn, the ringed-planet. At the beginning of July, Saturn rises in the southeast a little before midnight. On July 7th, a waning gibbous Moon sits just to the lower left of Saturn.

Our last planet to spot is the King of the Planets, mighty Jupiter! You'll have to get up a few hours before sunrise to view this bright celestial object. On the mornings of July 11th and 12th, watch the waning crescent Moon approach Jupiter in the eastern sky. By the morning of the 12th, the Moon will have passed Jupiter, but still be relatively close to this luminous planet.

July's Full Moon will occur at 7:39 a.m. EDT on July 3rd. That is 1.5 days prior to the Moon being at perigee, so it's not quite a `supermoon', but it will appear bigger and brighter than normal, similar to what we had in June. However, the next two months, August and September, will have `supermoons'! More on this in next month's Night Sky article. Native Americans often referred to July's full Moon the Full Buck Moon since July is normally the month when the new antlers of buck deer push out of their foreheads.

The Earth is at aphelion, farthest from the Sun for the year at 10:58 a.m. EDT on July 6th. This may seem strange to you, with the Earth being farther from the Sun during the summer in the northern hemisphere. The seasons, however, are not dictated by the Earth's distance from the Sun, but instead, they are due to the tilt of the Earth's spin axis (23.5 degrees) with respect to its planetary orbit. In the northern hemisphere summer, the Earth's north pole points closer to the Sun. This results in the Sun sitting higher in the sky in the northern hemisphere throughout the day and staying above the horizon for a longer period of time compared to the other seasons. These are the two main conditions that produce warmer temperatures during the summer.

The ETSU Powell Observatory open houses are on hiatus until September. Later this summer, the 2023-2024 schedule for our Astronomy open houses can be found on the web at https://www.etsu.edu/cas/physics/observatory/starparty.php.

The ETSU Planetarium Shows are also on hiatus during the summer months. Please check the Planetarium web page at https://www.etsu.edu/cas/physics/outreach/planetarium.php for further information

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