The Night Sky

Close Encounter with the Red Planet

In May we saw the "king of the planets," Jupiter, at opposition. Then in June, the ringed planet, Saturn, was at opposition. For the 3rd month in a row another planet reaches opposition this upcoming month. The red planet Mars will be at opposition in late July, and this opposition will be one of the closest oppositions Mars can achieve. This mid-summer month of July 2018 will be the month of the bright evening planets.

Starting at dusk and for a few hours after sunset, brilliant Venus dominate the western sky shining brightly in the constellation of Leo. On July 9th, Venus will be located about 1 degree of arc to the upper right of Leo's brightest star, Regulus. Nearly one week later, a waxing lunar crescent lies less than 2 degrees to the lower right of Venus. During the first half of July, the innermost planet Mercury can be spotted low above the western horizon 45 minutes after sunset. A thin crescent moon lies just above Mercury on the evening of July 14th. This close conjunction will make it easier to spot Mercury in the bright evening twilight.

Throughout the evening, bright Jupiter dominates in the southern sky. Jupiter currently lies in the constellation of Libra. One may notice a fainter star just to left of Jupiter. This star is Alpha Librae. On the night of July 20th, the 49th anniversary of the Apollo 11 moon landing, a waxing gibbous moon can be seen just to the north of this pair.

Saturn, after just being at opposition on June 27th, will be visible all night during the month of July. The ringed planet resides in Sagittarius, just north of the "teapot's lid" of this constellation. Saturn will be the brightest celestial object low in the south-southeastern sky one hour after sunset. If you have a clear dark sky, look in the direction of Saturn with binoculars. You may spot a fuzzy glow near the planet. This glow is a stellar nursery called the Lagoon Nebula. As you gaze upon this glow, keep in mind that you are looking at a region of space where new stars are forming.

And now for the "guest-of-honor" of the month, the red planet Mars! Mars begins the month rising two hours after sunset shining brightly, low in the southeast. On July 1st, Mars nearly matches Jupiter in brightness. As the distance between earth and Mars decreases throughout the month, Mars continues to increase in brightness, surpassing the brightness of Jupiter. Seeing this bright red dot on the sky will be truly inspirational. Mars reaches its point on the sky opposite to the sun on the night of July 26-27. On these dates, Mars rises at sunset and sets at sunrise the following morning. Since the earth is at aphelion (farthest point in its orbit about the sun) on July 6th, and Mars reaches perihelion (closest to the sun) on September 16th, this Mars opposition is one of the closest possible to planet earth – Mars hasn't been this close to earth since 2003! Mars and earth reaches their smallest separation in their respective orbits on the night of July 30-31. Unfortunately this close opposition is unfavorable for us living in the northern hemisphere – Mars is about as far south as it can get as it moves about the ecliptic on the sky. Mars will get no higher than 29 degrees above the southern horizon for this opposition.

The moon will be at full phase at 4:22 p.m. EDT on July 27th, a half a day later than the time Mars is at opposition. As such, Mars and the moon will be near each other on this date, Mars just hanging to the lower right of the full moon. The moon will undergo a total lunar eclipse at this time. Unfortunately the moon would not have risen yet, so we won't be able to observe this lunar eclipse. However Europe will be in for a grand spectacle as brilliant Mars shines as the moon darkens.

The ETSU Powell Observatory open houses are on hiatus until September. Later this summer, the 2018-2019 schedule for our Astronomy open houses can be found on the web at http://www.etsu.edu/cas/physics/observatory/default.aspx .

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