The Night Sky

Saturn Returns to the Evening Sky

After a long tenure in the evening sky, Mars finally exits during the first few days of June as it moves behind the sun from our vantage point. Mars has been visible during the night-time hours for nearly two years. The reason why Mars stays visible for such a long time is due its orbit being in close proximity to the earth's orbit. Since Mars is the next farthest planet from the sun in the solar system, it tends to keep relative pace with the earth as we both orbit sun. Whereas earth orbits around 30 km/s (kilometers/second) or 48 miles/s, Mars orbits with a slightly slower speed of 24 km/s (39 miles/s).

Throughout the evening hours, Jupiter dominates in the sky, shining high in the south at the beginning of the month and doesn't set until about 3 a.m. EDT. By the end of June, Jupiter resides high in the southwest at nightfall, setting around 1 a.m. Jupiter remains about 11 degrees to the northeast (upper left) of the bright star Spica in Virgo.

The ringed-planet Saturn reaches opposition (the point on the sky opposite to that of the sun) on the night of June 14th. On this day it rises at sunset and sets at sunrise the next morning. As a result of this, Saturn will be visible all night long throughout the month. Saturn is at its closest to us for the year, hence is at its brightest. The rings are nearly at their maximum tilt (26.5 degrees) as viewed from earth, giving Saturn even greater brilliance. However, Saturn is nearly twice as far from the sun as Jupiter, so Saturn cannot match Jupiter's brilliance. Unfortunately for this year, and for the next several years, Saturn remains as far south as it can get on the sky as viewed from northern latitudes, residing in the southeastern portion of the constellation of Ophiuchus between Scorpius and Sagittarius.

The next planet to rise at night is brilliant Venus, which doesn't appear until 1 hour and 45 minutes before sunrise. Venus is at greatest elongation (46 degrees west of the sun) on June 3rd. Over the course of the month, Venus's slowly increases in altitude with respect to the sun. As a result, by the end of the month, Venus rises some 2 hours before the sun. Venus dims a bit throughout June as its disk shrinks in size as viewed from the earth. For those of you with a telescope, planet Uranus can be spotted less than 2-degrees north-northwest (upper left) of Venus on the mornings of June 2nd and 3rd. Uranus however is 10,000 times fainter than Venus which makes for an interesting contrast between one of our closest planets to earth to a planet on the outskirts of the solar system. Mercury remains lost to the glare of the sun throughout most of the month.

The sun arrives at the summer solstice at 12:24 a.m. EDT on June 21st, marking the beginning of summer in the northern hemisphere. The summer solstice is the northern-most point the sun gets in the sky. The moon reaches full phase at 9:10 a.m. EDT on June 9th. As such, the nearly full moon pairs with Saturn as they rise in the southwest on the evenings of June 8th and 9th. Many Native Americans called the full moon of June as the Full Strawberry Moon, since strawberries are typically harvested during this month.

The ETSU Powell Observatory open houses are on hiatus until September. Later this summer, the 2017-2018 schedule for our Astronomy open houses can be found on the web at http://www.etsu.edu/cas/physics/observatory/default.php.

This month's Night Sky was written by Dr. Donald G. Luttermoser, Chair of the Department of Physics and Astronomy at ETSU. He can be reached at lutter@mail.etsu.edu. Any students wishing to pursue a career in Physics or Astronomy are encouraged to contact him at this email address. Astronomy-related information for the public, including a link to the ETSU Powell Observatory, can be found at http://www.etsu.edu/cas/physics/ by selecting the Public Outreach pull down menu at the top of this web page.