The Night Sky

Two Supermoons to Occur This Month

Whenever a full moon takes place within approximately 24 hours of the moon being at perigee (i.e., closest point to earth in its orbit), the full moon is said to be a supermoon. During these "supermoon" phases, the moon appears brighter and larger than it usually does at non-supermoon full moons. This first month of 2018, the moon will be at full phase on both January 1st (9:25 p.m. EST, 3½ hours after perigee) and again on January 31st (8:26 a.m. EST, a little over 24 hours after perigee). Also, if a month has two full moons occurring, the second full moon is called a "blue moon." As such the January 31st full moon will be both a supermoon and a blue moon. Note that the "blue" in the title "blue moon" does not mean that the moon appears "blue" in the sky. There are a few different ideas as to the origin of this "blue moon" designation. If you are interested, browse the web to find the various origin stories to this term. On top of all of this, a lunar eclipse will also take place on January 31st – unfortunately the residents in Tennessee will only see the beginning of a partial lunar eclipse just as the moon is setting the morning of the 31st.

During the month of January 2018, no bright planets will be visible in the evening sky. We will have to wait until the early morning to catch a glimpse of the naked-eye planets. However, what an exciting month this will be for these planets! First, on the morning of January 6th, Jupiter and Mars will appear very close to each other on the sky, only being a third of a degree apart! Start looking for this pair about two hours prior to sunrise hanging low in the south-southeastern sky. Use a pair of binoculars to get a good look of this very close conjunction. Jupiter will be the brighter of the two hanging just to the right of Mars. Also, looking some 2-degrees to the planets' upper right, you should also be able to spot the 2nd-magnitude star alpha Librae, which is the brightest star in the constellation of Libra. After this date, these two planets grow farther apart from each other. By the end of the month, Jupiter rises as early as 1:30 a.m., and Mars at about 2:30 a.m. EST.

One week after this close conjunction of Jupiter and Mars, Saturn and Mercury undergo a close conjunction, being only a little over half of a degree apart the morning of January 13th. Unfortunately this tight pair will be very low above the southeast horizon ½ hour before sunrise – make sure you find a location with nothing blocking that part of the sky. Mercury will be the brighter of the two, sitting just below fainter Saturn. A waning crescent moon will also be visible just to the upper right of this planetary pair. Note that Mercury will be at greatest elongation, 23-degrees west of the Sun on the morning of New Year's Day. As the first two weeks of January pass, watch Saturn and Mercury get closer and closer together in the sky. Unfortunately it will be difficult spotting Saturn during the first part of the month due to the bright morning twilight. On the day of closest approach, use binoculars to spot this close pair of planets. Mercury will only be visible in the morning sky for a few days after this close conjunction. Saturn however rises earlier and earlier as the month progresses, rising some two hours before the sun at the end of the month.

Venus will not be visible all month since it is at superior conjunction with the sun (i.e., back side of the sun) on January 9th. Venus will return to the evening sky next month.

The earth is at perihelion, the closest to the sun in space, at 12:34 a.m. EST on January 3rd. At this time, we will be 91,401,983 miles from our star, which is 3.1 million miles closer than when it is at its farthest distance on July 6th (at 12:46 p.m. EDT) 2018. On the night of January 4—5, the waning gibbous moon passes just to south of Regulus, the brightest star in the constellation of Leo.

The next free public astronomy open house at the ETSU Powell Observatory will occur on Saturday, February 24th from 8 to 10 p.m. At these open houses, the public can view objects in the sky through telescopes and hear talks by faculty of the Physics and Astronomy Department. Note that the open houses are cancelled if the sky is cloudy. Make sure you dress warmly since you will be standing outside to look through our telescopes. Further information about these open houses and directions to the observatory can be found on the web at http://www.etsu.edu/cas/physics/observatory/default.aspx.

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.