The Night Sky

Total Lunar Eclipsed Supermoon in September

On the evening of September 27th from 10:11 p.m. to 11:23 p.m. EDT, the moon will undergo a total lunar eclipse. This lunar eclipse is unusual in that it is the *biggest* eclipsed moon you will ever see! This year's closest lunar perigee (i.e., closest point to the earth in the moon's orbit) occurs just 59 minutes before mid-eclipse. When a full moon occurs within a day of the perigee point of its orbit, the moon is often referred to as a *supermoon* since it is larger and brighter than normal. In addition, the full moon nearest to the autumnal equinox is called the Harvest Moon. As such, this upcoming month of September will have a total eclipsed, harvest, supermoon! If we have a clear night on the 27th, one will first notice the moon entering the darkest part of the earth's shadow, the umbra, at 9:07 p.m. The moon will be at mid-eclipse at 10:48 p.m., and then finally leave the umbra at 12:27 a.m. on September 28th. Let's keep our fingers crossed that we get a clear night for this event.

With Jupiter and Venus having left the evening sky, only two planets will be visible during the evening hours this upcoming month. Assuming you have a clear western horizon, planet Mercury may be glimpsed in the bright twilight just above the western horizon one-half hour after sunset during the first few days of the month. If you're unable to spot it, binoculars may help you see it. For the rest of the month, only Saturn will be visible in the southwest during the evening hours. Saturn is just west of Beta Scorpii and a little brighter than the red supergiant star Antares which lies to the left (eastward) of Saturn. It is interesting to compare the colors of our furthest, naked-eye planet, and this star. Saturn has a yellowish tint while Antares definitely appears reddish.

One will then have to wait until the early morning hours to spot the other bright planets in the solar system. The planet Venus, having just passed between the earth and the sun in August, climbs noticeably higher before dawn each week in September. This planet rises less than 2 hours before the sun at the beginning of the month, then by the end of the month, it rises nearly 3½ hours before the sun. Venus shines at its brightest during this early morning apparition from September 14th through 24th.

The next planet to rise before the sun is Mars, which will appear much fainter than Venus due to it being on the far side of the sun. Mars rises about the same time as Venus at the beginning of September, but by the end of the month, Mars rises about one-half hour after Venus. Mars will make a close passage to Leo's brightest star, Regulus, before dawn on September 25th, when these two celestial objects will be less than one degree apart from each other. Jupiter is the last of our planetary trio in the morning sky to rise, coming up less than one-half hour before the sun on September 1st, but more than 2 hours before the sun on September 30th. The last week of the month will show a lovely grouping of these 3 planets in the morning twilight.

The sun will move from the northern hemisphere sky into the southern hemisphere sky on September 23rd. It will be on the autumnal equinox, the point on the sky where the ecliptic (i.e., the sun's path on the sky) intersects the celestial equator with the sun moving southward at 4:21 a.m. on this date. This marks the beginning of autumn in the northern hemisphere and spring in the southern hemisphere.

The first free public astronomy open house at the ETSU Powell Observatory of this season will occur on Saturday, September 19th 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. 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.php .

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