STAR TRAK for August 2012

August 6 2012

The annual Perseid meteor shower, which will peak on Aug. 11-12, is one of the most popular every year because it happens on warm summer nights, when gazing at the starry sky is always enjoyable. In a clear, dark sky there may be as many as 60 bright meteors per hour, some with smoke trails that last several seconds after the meteor has vanished. Start observing around midnight local daylight time. A crescent moon will rise around 1 a.m., but it won't have much effect.

The Perseids will be visible for most of August, though there will be fewer meteors to see the further from the peak date you watch. If the peak is hidden by clouds, for example, try looking for meteors again as soon as the night sky is clear. To minimize the effect of local light pollution, which can obscure as many as half of the meteors, try to avoid artificial lights. Face east if you have a clear view in that direction, and look about half way up the sky from the horizon. You won't need binoculars or a telescope because the meteors move much too fast for those. The chances of seeing a fireball will be greatest near dawn, when Earth will be moving head on into the meteor stream.

The Perseids may appear anywhere in the sky, but they will seem to originate from a point called the radiant in the constellation Perseus, which gives the meteors their name. The higher the radiant is above the northeastern horizon, the more meteors will be visible. Perseus is just north of the W-shaped constellation Cassiopeia in the Milky Way, with the bright star Capella and the Pleiades star cluster below it. Meteors near the radiant will have short trails because we see them nearly end on, while those far from the radiant will look longer because they are seen

from the side.

A computer simulation of meteors streaking from the Perseid shower's radiant can be seen at www.shadowandsubstance.com/ .

Most meteor showers happen when Earth crosses the orbit of a comet; the Perseids come from Comet Swift Tuttle. The meteors are caused by particles released from the comet's nucleus and left behind in space. As Earth plows through this stream of debris, ranging in size from sand grains to pebbles, each particle slams into our atmosphere at a speed of more than 50 kilometers per second and burns up almost instantly from friction with air molecules. The resulting heat momentarily creates a streak of glowing air that we see as a meteor (sometimes called a "shooting star" or "falling star"). All of this happens about 50 miles above the ground, regardless of how close some meteors may appear.

More information about the Perseids and other meteor showers is available at www.skyandtelescope.com/observing/objects/meteors.

Planets

At the beginning of August, Saturn and Mars will be low in the west-southwest an hour after sunset, along with the bright star Spica. The two planets will gradually approach each other as the days pass, and on Aug. 7 the three objects will form an equilateral triangle. Golden-yellow Saturn will be distinct from red-orange Mars, while blue-white Spica will contrast with both planets. Mars will pass between Saturn and Spica on Aug. 13 and 14, with the three forming a nearly straight line. On Aug. 21, they will make another equilateral triangle with Mars on the opposite side. The trio will set within two hours after the sun. On Aug. 5-6, NASA's Curiosity rover is scheduled to touch down on the surface of Mars.

Saturn's rings will be tilted 14 degrees to our line of sight in mid-August. Any telescope will show Saturn's biggest moon, Titan, which will be south of the planet on Aug. 8 and 24, and north of it on Aug. 16.

Jupiter will rise around 2 a.m. local time in early August just north of the bright orange star Aldebaran in the constellation Taurus the Bull. The planet will slowly cross Taurus during August, rising shortly before midnight by the end of the month. When it is reasonably high above the eastern horizon in early morning twilight, it will be a splendid sight in a telescope.

Even brighter than Jupiter will be Venus when it rises more than three hours before the sun and dominates the morning sky. The brilliant planet will reach its greatest elongation from the sun on Aug. 15, a fine time for viewing it with a telescope.

Mercury will be far to the lower left (north) of Venus and difficult to find until it gets higher. On Aug. 16, the planet will appear 10 degrees above the eastern horizon a half hour before sunrise.

Light pollution

If you look at the constellation Cassiopeia on a clear summer night, and you can't see the Milky Way sprawling high across the sky from the northern to the southern horizon, then your sky has significant light pollution, which is the case for about two thirds of the world's population. See www.darksky.org/ for information on this dimming of the night sky caused by excessive artificial lighting, much of which is wasted.

Moon phases

The moon will be full on Aug. 1, at third quarter on Aug. 9, new on Aug. 17, at first quarter on Aug. 24 and full again (a "blue moon") on Aug. 31.

Provided by Indiana University