

Planetary Wonderings

August Focus: Perseid Meteor Shower and Near Earth Objects

By Mary-Frances Bartels, NASA Solar System Ambassador

For Northern Hemisphere observers, August is usually regarded as "meteor month" with one of the best displays of the year reaching its peak near midmonth. That display is, of course, the annual Perseid Meteor Shower beloved by everyone from meteor enthusiasts to summer campers. This year's peak night will coincide with a new moon, meaning that skies will be dark and meteors plentiful.

What is a meteor shower? Comets supply fragments that become most meteor showers. As a comet orbits the Sun, it releases an icy, dusty debris stream along its orbit. If Earth travels through this stream, we will see a meteor shower. Comet Swift-Tuttle provides the material for the Perseids. Depending on where Earth and the stream meet, meteors appear to fall from a particular place in the sky, maybe within the neighborhood of a constellation.

Meteor showers are named after the constellation from which meteors appear to originate, a spot in the sky astronomers call the radiant. For instance, the radiant for the Leonid meteor shower is located in the constellation Leo. The Perseid meteor shower is so named because meteors appear to fall from a point in the constellation Perseus.

This year's peak, showing the greatest number of meteors, is expected Sunday morning (August 12), late Sunday night and Monday morning (August 13) before dawn. But you'll see some Perseids Saturday (August 11) before dawn, too. Early in the evening one may see a few of the long, slow, and colorful earth-grazers near the northeast horizon. The rate of meteors falling will increase throughout the evening until the crescendo before dawn when one may see one or two meteors per minute.

Let us now move from meteor showers to special comets and asteroids known as Near-Earth Objects (NEOs). These particular comets and asteroids have been nudged by the gravity of nearby planets into orbits that allow them to enter the Earth's neighborhood. NEOs are comprised of two major groups --- Near-Earth Comets and Near-Earth Asteroids. The George E. Brown, Jr. Near-Earth Object Survey Act (2005), directed NASA to detect, track, catalogue, and characterize the physical characteristics of larger NEOs.

Potentially Hazardous Asteroids are a subgroup of NEAs and occasionally make it to the mainstream media. They have the potential to come fairly close to the Earth. This potential does *not* mean a PHA *will* impact the Earth. It only means a possibility exists for such a threat. Two scales measure impact risk associated with PHAs --- the detailed Palermo Technical Impact Hazard Scale and the more familiar Torino Impact Hazard Scale. While there are now 876 known PHAs, none are deemed a real danger to the Earth.

Orbit@Home is a distributed computing project, similar to SETI@Home, which allows the public to help monitor the impact hazard posed by Near-Earth objects. (This mention does **not** constitute endorsement of Orbit@Home. While it appears legitimate, it is **not** mentioned on NASA's NEO homepage. That said, this project was very recently selected for funding by NASA.)

Resource of the Month: Back in April I mentioned the *What's Up* website that gives details for viewing the night sky for each day of the year. It only gives information for nights up to the current date. To get the same information that includes all the dates

in the current week see <http://www.universetoday.com/category/whats-up/> . Only want highlights for the coming month? One website to check out is Space.Com's Nightsky website at http://www.space.com/spacewatch/sky_calendar.html .

Activity of the Month: Enjoy the Persied meteor shower!

Suggestions, questions, and comments about "Planetary Wonderings" are welcomed and may be directed to stargazer @ keeplookinup.net (remove spaces). Past columns may be found at www.keeplookingup.net (click on "Planetary Wonderings" on the right side of opening screen).

Remember to *keep looking up!*

Sources:

- <http://neo.jpl.nasa.gov/neo/groups.html> Near Earth Objects
- <http://stardate.org/nightsky/meteors/>
- <http://www.earthsky.org/radioshows/51468/the-2007-peak-of-the-perseid-meteor-showe>
- http://science.nasa.gov/headlines/y2007/11jul_greatperseids.htm?list116241