

“Lovely Leonids”

By David Wittman, CPRC Community Observatory

Every November 17, the Earth passes through the orbit of comet Tempel-Tuttle. Although the comet itself is nowhere nearby, bits of comet debris are always drifting along the orbit. When Earth moves through the debris field, the result is a beautiful meteor shower. Each meteor (commonly known as a "shooting star") is typically no bigger than a grain of sand, but due to its high speed with respect to Earth (tens of miles per second), it generates a streak of light in the sky before burning up. Only in rare cases is a meteor large enough to avoid burning up entirely, thus hitting the ground, but it does happen.

On a typical night without a shower, you might see a couple meteors per hour if you pay close attention to a dark sky. These "background" meteors come from all different directions. But when Earth passes through a debris field, it sweeps up many meteors coming from the same direction. You probably learned in art class that parallel lines, from the viewer's perspective, converge to a "vanishing point" in the distance. The same goes for our view of the meteors: they appear to radiate from a point in the sky, which is the direction of their orbit. This point is in the constellation Leo for the November 17 meteor shower, which is therefore named the Leonid meteor shower.

The best-known meteor shower is probably the Perseids, radiating from the constellation Perseus with peak activity on August 9-14. The Perseids are reliable, but the Leonids can be spectacular. In 1999, 2001, and 2002, there were up to 3,000 Leonids per hour, rising to the level of a "meteor storm." The most spectacular meteor storm in history was provided by the Leonids in 1833, with at least 100,000 meteors per hour!

The intensity of the shower or storm depends on how thick the debris field is that year, which in turn depends on details of debris-shedding by the comet. Predictions are not yet an exact science, but they are usually a good indication, and experts predict that this will be a good year, with about 500 meteors per hour. This year will also feature no moonlight to interfere with meteor viewing, as the new Moon occurs on the 16th.

The best viewing will be in the pre-dawn of the 18th, as the Earth rotates you directly into the path of the comet debris. But don't be discouraged if you are not a morning person! With a peak of 500 meteors per hour, you may still be treated to many fine meteors even at off-peak times. Leo rises at about midnight, so for evening viewing, the meteors will be coming from the east.

To learn more about meteors or anything else in the sky, we invite you to visit the Cameron Park Rotary Club Community Observatory, open 7:30-9:30pm on any clear weekend evening. Go to www.communityobservatory.com for directions and more information.