

November meteors: Taurids, Leonids and a surprise Monocerotids outburst

November 13 2019, by David Dickinson



Credit: Amazing Sky

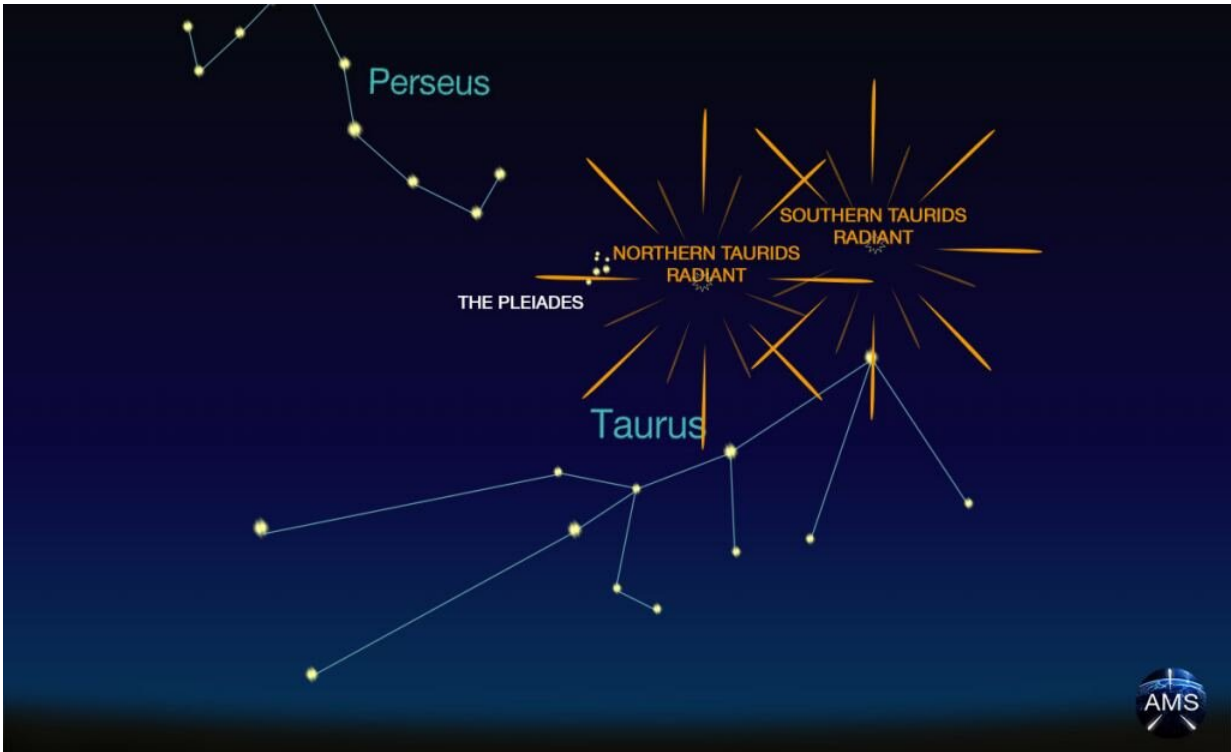
For the northern hemisphere observers, November is fireball season. This month, keep an eye out for two sure-fire annual meteor showers, and—just maybe—a wild card outburst from the obscure Alpha

Monocerotids worth watching out for.

First up is the November Taurids. This [shower](#) exhibits a broad peak, and actually has two closely spaced meteor shower radiants for the northern and southern Taurids. Radiating from the constellation of Taurus the Bull, the November Taurids peaked right around the morning of Tuesday November 12th, and are currently active this week. Though the brilliant moon just passed full on November 12th, the Taurids can definitely hold their own, as the shower is notorious for its enhanced number of fireballs.

Indeed, something is definitely up with this stream, as NASA's Meteoroid Environment Office—which calculates the final orbits and identity of meteors observed by its all-sky camera network—displayed a definite uptick in Taurid fireball activity in early November 2019. Trace a bright fireball back to the constellation of the Bull, and you've probably spotted a Taurid. The source for the Taurid fireballs is short period comet 2P/Encke, and possibly sub-fragment 2004 TG10.

Next up are the Leonids. A mild-mannered shower in most years, the Leonids are prone to great 'meteor storms' around once every 33 years. The last such outburst occurred centered around 1999. We watched the 1998 Leonids while deployed to Kuwait, with a zenithal hourly rate approaching 1,000 (definitely meteor storm territory) near sunrise. And though 2019 isn't a 'storm year,' it's always worth keeping an eye out for this shower, just in case. We passed the mid-point between Leonid storms in 2015, and if the late 1990s were any indication, we can expect enhanced rates leading up through the late 2020s. The Leonids radiate from the backwards question mark asterism of the Sickle, which rides highest near local dawn for mid-northern latitudes in the mid-November sky. In 2019, the peak of the Leonids is set for November 17th at 23:00 Universal Time (UT), favoring central Asia with an expected zenithal hourly rate of 15 meteors per hour.



Shower radiants for the Northern and Southern Taurids. Credit: The American Meteor Society

Keep in mind that the zenithal hourly rate is the optimal number of meteors you would expect to see if the shower radiant was located directly overhead at the zenith, under perfect dark sky conditions at the shower's maximum. Most observers will see considerably less. The moon will be at two days prior to the last quarter phase for the peak of the 2019 Leonids.

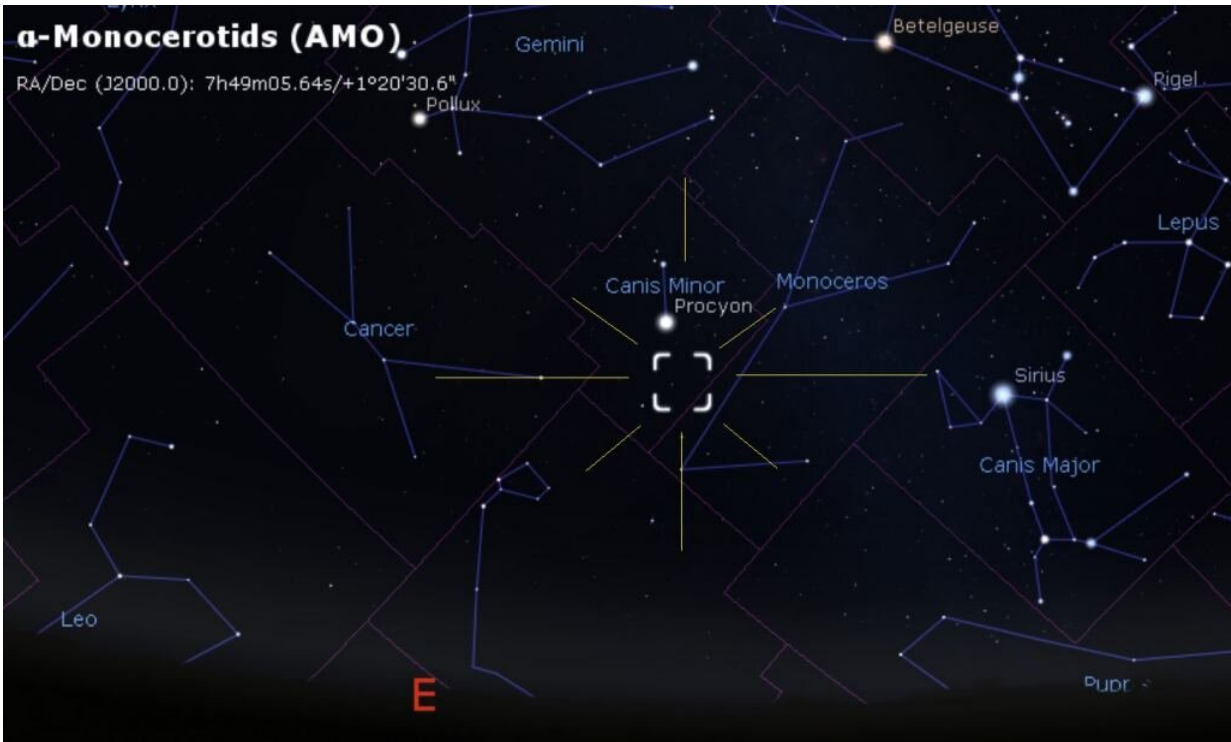
The source of the November Leonids is Comet 55P/Tempel-Tuttle.

Next up is a complete wildcard meteor shower that may or may not perform in 2019: the Alpha Monocerotids. This elusive shower hails

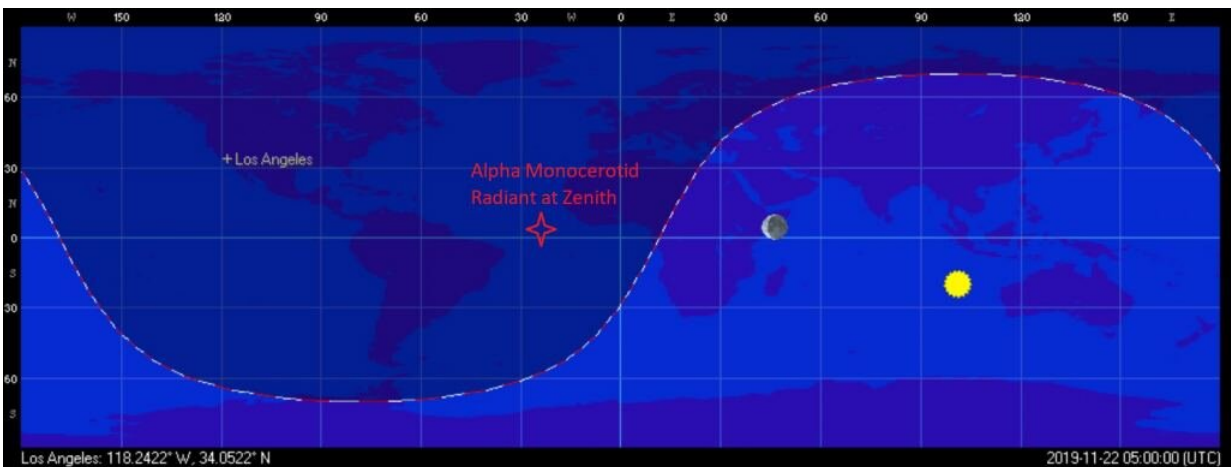
from the rambling constellation of Monoceros the Unicorn, (or do you say Narwhal?) with a radiant near +0.4th magnitude Procyon, actually just across the border near Monoceros in the constellation Canis Minor (actually, the shower should be known as the Canis Minorids.).



They're out there: the Leonids and how their orbits intersect the path of the Earth. Credit: The International Meteor Organization



The radiant for the Alpha Monocerotids, near local midnight. Credit: Stellarium



The circumstances for the 2019 Alpha Monocerotids on the morning of November 22nd at 5:00 UT, showing the position of the Sun, Moon, shower

radiant and the shadow of the Earth. Credit: Created by the author using Orbitron

On most years, the zenithal hourly rate for the Alpha Monocerotids barely scrapes above the maximum for sporadic meteors at a measly five per hour, but there has been a precedent for an enhanced show. In 1995, observers witnessed a brief outburst topping 400 meteors per hour from the Alpha Monocerotids. Outbursts also occurred on the mid-decadal years 1935 and 1985. However, an expected 2015 storm never came to pass. A paper by NASA researcher and SETI scientist Peter Jenniskens notes the possibility that 2019 may be just such a 'storm year.'

In 2019, the Alpha Monocerotids are expected to peak on the morning of November 22 at around 5:00 UT, favoring European longitudes with a swift peak of perhaps 30 to 40 minutes in duration. North Americans should also be vigilant on the morning of Friday November 22 if skies are clear; meteor showers don't read predictions, and often show up early (or late). The moon is also just four days prior to the new phase, another plus. The exact source of the Alpha Monocerotids is a mystery, though it was once thought to be Comet C/1943 W1 van Gent-Peltier-Daimaca.

This month, keep a sharp eye out for [meteors](#) piercing the November sky. You may just spy a once in a lifetime outburst for the history books.

Source Universe Today

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