

# EarthSky's 2017 meteor shower guide

By [Bruce McClure](#) and [Deborah Byrd](#) in Astronomy Essentials | Space | **December 1, 2017**

A highlight of the meteor-watching year is just ahead. The Geminid meteor shower rivals the August Perseids and, in 2017, has little to no interference from the moon.



Composite image of 2015 Perseid meteor shower, taken over 3 nights by Scott MacNeill at [Frosty Drew Observatory](#), Charlestown, Rhode Island. He wrote: "Frosty Drew astronomers and volunteers refer to the Perseid shower as the 'anti-sleep-athon' and 2015 lived up to the name!"



Quadrantid meteor in 2016, caught just as the clouds were closing in, by Deb Kestler in Middletown, Rhode Island.

## January 3, 2018 before dawn, the Quadrantids

Although the Quadrantids can produce over 100 meteors per hour, the sharp peak of this shower tends to last only a few hours, and doesn't always come at an opportune time. And this year, the almost-full waning gibbous moon is sure to obscure this year's production. Even in a year when moonlight isn't a factor, you still have to be in the right spot on Earth to view this meteor shower in all its splendor. The radiant point is in the part of the sky that used to be considered the constellation Quadrans Muralis the Mural Quadrant. You'll find this radiant near the famous Big Dipper asterism ([chart here](#)), in the north-northeastern sky after midnight and highest up before dawn. Because the radiant is fairly far to the north on the sky's dome, meteor numbers will be greater at northerly latitudes in the Northern Hemisphere. *In 2018, watch in the wee hours – after midnight and before dawn – on January. Unfortunately, the [largest full moon of 2018](#) will obtrude on this year's Quadrantid meteor shower.*



Lyrid meteor on in 2014 by Simon Waldram in Fuerteventura, in the Canary Islands. He discovered it as he finished batch editing 320 photos to make a startrail image.

## April 22, 2017 before dawn, the Lyrids

The Lyrid meteor shower – April's shooting stars – lasts from about April 16 to 25. About 10 to 15 meteors per hour can be expected around the shower's peak on a dark, *moonless* night. Fortunately, in 2017, the thin waning crescent moon won't seriously conflict with the peak of the Lyrid meteor shower. In fact, the presence of the lunar crescent and the planet Venus shining together in the eastern predawn/dawn sky should be a fine way to cap the early morning meteor shower. The Lyrids are known for uncommon surges that can sometimes bring the rate up to 100 per hour. Those rare outbursts are not easy to predict, but they're one of the reasons the tantalizing Lyrids are worth checking out. The radiant for this shower is near the bright star Vega in the constellation Lyra ([chart here](#)), which rises in the northeast at about 10 p.m. on April evenings. *In 2017, the peak morning is April 22, with the crescent moon and Venus adorning the eastern sky as darkness gives way to dawn.*



Long meteor caught during the peak of the May, 2016 Eta Aquarid meteor shower, by Darla Young.

### **May 5 or 6, 2017 before dawn, the Eta Aquariids**

This meteor shower has a relatively broad maximum – meaning you can watch it the day before and after the predicted peak of May 6. This shower favors the Southern Hemisphere, and is often the Southern Hemisphere’s best meteor shower of the year. In 2017, the waxing gibbous moon shouldn’t be too much of a problem, as it will set before the prime-time viewing during the dark hour before dawn. The radiant is near the star Eta in the constellation Aquarius the Water Bearer ([click here for chart](#)). The radiant comes over the eastern horizon at about 4 a.m. local time; that is the time at all locations across the globe. For that reason, the hour or two before dawn tends to offer the most Eta Aquariid meteors, no matter where you are on Earth. At northerly latitudes – like those in the northern U.S. and Canada, or northern Europe, for example – the meteor numbers are typically lower for this shower. In the southern half of the U.S., 10 to 20 meteors per hour might be visible in a dark sky. Farther south – for example, at latitudes in the Southern Hemisphere – the meteor numbers may increase dramatically, with perhaps two to three times more Eta Aquarid meteors streaking the southern skies. For the most part, the Eta Aquariids are a predawn shower. *In 2017, the most meteors will probably rain down on the mornings of May 5 and 6, in the dark hours before dawn. But watch on May 7 as well! The broad peak to this shower means that some meteors may fly in the dark hour before dawn for a few days before and after the predicted optimal date.*



Delta Aquarid in 2014, from David S. Brown in southwest Wyoming.

### **Late July 2017, before dawn, the Delta Aquariids**

Like the Eta Aquarids in May, the Delta Aquariid meteor shower in July favors the Southern Hemisphere and tropical latitudes in the Northern Hemisphere. But these meteors can be seen from around the world. The meteors appear to radiate from near the star [Skat or Delta](#) in the constellation Aquarius the Water Bearer. The maximum hourly rate can reach 15-20 meteors in a dark sky. The nominal peak is around July 27-30, but, unlike many meteor showers, the Delta Aquariids lack a very definite peak. Instead, these medium-speed meteors ramble along fairly steadily throughout late July and early August. An hour or two before dawn usually presents the most favorable view of the Delta Aquariids. *At the shower's peak in late July 2017, the rather faint Delta Aquariid meteors will not have to contend with moonlight, as the waxing crescent moon will set before the midnight hour. But by early August, the waxing gibbous moon will definitely intrude. Best seen in the wee hours before dawn in late July.*



Composite image of the 2015 Perseid shower at Mount Rainier National Park. Matt Dieterich, who composed it, calls it 'Skyfall.'

## Late evening to dawn on August 11, 12 and 13, 2017, the Perseids

The Perseid meteor shower is perhaps the most beloved meteor shower of the year for the Northern Hemisphere. It's a rich meteor shower, and it's steady. Will this shower be particularly spectacular in 2017? No. The meme going around about a "once in a lifetime" meteor shower on August 12, 2017 is false. [Read more about it here.](#) Perseid meteors radiate from a point in the constellation Perseus the Hero. As with all meteor shower radiant points, you don't need to know Perseus to watch the shower; instead, the meteors appear in all parts of the sky. They are typically fast and bright meteors. They frequently leave persistent trains. Perseid meteors tend to strengthen in number as late night deepens into midnight, and typically produce the most meteors in the wee hours before dawn. In 2017, however, the peak of this shower will have to contend with bright moonlight. The August 7 full moon is squarely in the way, and there's a waning (but still large) moon in the sky on the mornings of the shower's peak. *Predicted peak in 2017: the night of August 11-12 or night of August 12-13, from late night until dawn, under the glare of the waning gibbous moon. If you want to watch these meteors in 2017, try watching in late evening, before moonrise. This [custom sunrise/sunset calendar](#) can help; be sure to check the box for moonrise times.* You likely won't catch a magnificent display of Perseids this year, as in some years, but you might see some! If you do want to watch in moonlight (and some people do, and enjoy it very much), here are [six tips for minimizing the moon](#) and optimizing the Perseid meteor shower in 2017.



Draconids near Tucson, Arizona in 2013, by our friend [Sean Parker Photography](#).

## October 7 or 8, 2017, nightfall and evening, the Draconids

The radiant point for the Draconid meteor shower almost coincides with the head of the constellation Draco the Dragon in the northern sky. That's why the Draconids are best viewed from the Northern Hemisphere. The Draconid shower is a real oddity, in that the radiant point stands highest in the sky as darkness falls. That means that, unlike many meteor showers, more Draconids are likely to fly in the evening hours than in the

morning hours after midnight. This shower is usually a sleeper, producing only a handful of languid meteors per hour in most years. But watch out if the Dragon awakes! In rare instances, fiery Draco has been known to spew forth many hundreds of meteors in a single hour. *In 2017, watch the Draconid meteors at nightfall and early evening On October 7 and 8, before the bright waning gibbous moon rises into the sky at early-to-mid evening.*



Orionid meteor, with aurora, in 2013 by [Tommy Eliassen Photography](#) in Norway.

### **October 21, 2017 before dawn, the Orionids**

On a dark, moonless night, the Orionids exhibit a maximum of about 10 to 20 meteors per hour. Fortunately, in 2017, the young waxing crescent moon will set at early evening, to provide an inky dark sky for this early morning shower. More meteors tend to fly after midnight, and the Orionids are typically at their best in the wee hours before dawn. These fast-moving meteors occasionally leave persistent trains. They sometimes produce bright fireballs, so watch for them to flame in the sky. If you trace these meteors backward, they seem to come from the Club of the famous constellation Orion the Hunter. You might know Orion's bright, ruddy star Betelgeuse. The radiant is north of Betelgeuse. The Orionids have a broad and irregular peak that isn't easy to predict. *This year, 2017, presents a moonless sky for the Orionid meteor shower. The best viewing will probably be before dawn on October 21.*



In 2015, the Taurids put on a spectacular display of fireballs, which lasted many days. [Photographer Jeff Dai](#) captured this one over Yamdrok Lake in Tibet.

### **Late night November 4 until dawn November 5, 2017, the South Taurids**

In 2017, the almost-full moon will intrude on the expected peak night of the South Taurid shower. The meteoroid streams that feed the South (and North) Taurids are very spread out and diffuse. That means the Taurids are extremely long-lasting (September 25 to November 25) but usually don't offer more than about 7 meteors per hour. That is true even on the South Taurids' peak night. The Taurids are, however, well known for having a high percentage of *fireballs*, or exceptionally bright meteors. Plus, the other Taurid shower – the North Taurids – always adds a few more meteors to the mix during the South Taurids' peak night. *Peak viewing for a few hours, centered around 1 a.m. local time on November 5, but in 2017, the almost-full moon will obtrude on this year's South Taurid meteor shower. Will someone catch a Taurid fireball in the glaring moonlight? Time will tell!*

### **Late night November 11 until dawn November 12, 2017, the North Taurids**

Like the South Taurids, the North Taurids meteor shower is long-lasting (October 12 – December 2) but modest, and the peak number is forecast at about 7 meteors per hour. In 2017, the waning crescent moon marginally disturbs this shower in the wee morning hours on November 12. [Click here](#) to find out when the moon rises in your sky, and watch these meteors in the late night hours before moonrise. The North and South Taurids combine, however, to provide a nice sprinkling of meteors throughout October and November. Typically, you see the maximum numbers at around midnight, when Taurus the Bull is highest in the sky. Taurid meteors tend to be slow-moving, but sometimes very bright. *In 2017, watch from late night November 11 till dawn November 12. Fortunately, the waning crescent moon shouldn't seriously jeopardize your enjoyment of this year's 2017 North Taurid shower.*



James Younger sent in this photo during the 2015 peak of the Leonid meteor shower. It's a meteor over the San Juan Islands in the Pacific Northwest.

### **November 17 or 18, 2017, before dawn, the Leonids**

Fortunately, in 2017, there is no moon to light up the peak night of the Leonid shower! Radiating from the constellation Leo the Lion, the famous Leonid meteor shower has produced some of the greatest meteor storms in history – at least one in living memory, 1966 – with rates as high as thousands of meteors per *minute* during a span of 15 minutes on the morning of November 17, 1966. Indeed, on that beautiful night in 1966, the meteors did, briefly, fall like rain. Some who witnessed the 1966 Leonid meteor storm said they felt as if they needed to grip the ground, so strong was the impression of Earth plowing along through space, fording the meteoroid stream. The meteors, after all, were all streaming from a single point in the sky – the radiant point – in this case in the constellation Leo the Lion. Leonid meteor storms sometimes recur in cycles of 33 to 34 years, but the Leonids around the turn of the century – while wonderful for many observers – did not match the shower of 1966. And, in most years, the Lion whimpers rather than roars, producing a maximum of perhaps 10-15 meteors per hour on a dark night. Like many meteor showers, the Leonids ordinarily pick up steam after midnight and display the greatest meteor numbers just before dawn. *In 2017, the Leonids are expected to fall most abundantly before dawn November 17 or 18, with no moon to ruin the show.*



Cynthia Haithcock in Troy, North Carolina caught this Gemini in 2015. Looks like a bright one!

**December 13-14, 2017, mid-evening until dawn, Geminids**

Radiating from near the bright stars Castor and Pollux in the constellation Gemini the Twins, the Geminid meteor shower is one of the finest meteors showers visible in either the Northern or the Southern Hemisphere. In 2017, the light from the slender waning crescent moon won't be much to worry about. The meteors are plentiful, rivaling the August Perseids. They are often bold, white and bright. On a dark night, you can often catch 50 or more meteors per hour. The greatest number of meteors fall in the wee hours after midnight, centered around 2 a.m. local time (the time on your clock no matter where you are on Earth), when the radiant point is highest in the sky. *In 2017, watch the usually reliable and prolific Geminid meteor shower from mid-evening December 13 until dawn December 14.*

**A word about moonlight.** In 2017, moonlight will pose no problem for the January Quadrantids, July Delta Aquariids, October Orionids and November Leonids. The moon will pose no serious interference with the April Lyrids, May Eta Aquariids and December Geminids. There will be some moon-free time for watching the August Perseids in the evening sky. On the other hand, an almost-full moon falls on the peak night of the

November South Taurids. Our [almanac page](#) provides links for access to the moonrise and moonset times in your sky.

**Most important: a dark sky.** Here's the first thing – the main thing – you need to know to become as proficient as the experts at watching meteors. That is, to watch meteors, you need a dark sky. It's possible to catch a meteor or two or even more from the suburbs. But, to experience a true meteor shower – where you might see several meteor each minute – avoid city lights.

**Know your dates and times.** You also need to be looking on the right date, at the right time of night. Meteor showers occur over a range of dates, because they stem from Earth's own movement through space. As we orbit the sun, we cross "meteor streams." These streams of icy particles in space come from comets moving in orbit around the sun. Comets are fragile icy bodies that litter their orbits with debris. When this cometary debris enters our atmosphere, it vaporizes due to friction with the air. If moonlight or city lights don't obscure the view, we on Earth see the falling, vaporizing particles as meteors. The Lyrids take place between about April 16 and 25. The peak morning in 2016 should be April 21, but you might catch Lyrid meteors on the nights around that date as well.

**Where to go to watch a meteor shower.** You can comfortably watch meteors from many places, assuming you have a dark sky: a rural back yard or deck, the hood of your car, the side of a road. State parks and national parks are good bets, but be sure they have a wide open viewing area, like a field; you don't want to be stuck in the midst of a forest on meteor night. An EarthSky friend and veteran meteor-watcher and astrophotographer [Sergio Garcia Rill also offers this specific advice](#):

... you might want to give it a try but don't know where to go. Well, in planning my night photoshoots I use a variety of apps and web pages to know how dark the sky is in a certain location, the weather forecast, and how the night sky will look. Here's the link to [Dark Sky Finder](#). It's a website that shows the light pollution in and around cities in North America which has been fundamental for finding dark sites to setup shots. [Dark Sky finder also has an app](#) for iPhone and iPad which as of this writing is only 99 cents so you might want to look into that as well. For people not in North America, the [Blue Marble Navigator](#) might be able to help to see how bright are the lights near you.

The other tool I can suggest is the [Clear Sky Chart](#). I've learned the hard way that, now matter how perfectly dark the sky is at your location, it won't matter if there's a layer of clouds between you and the stars. This page is a little hard to read, but it shows a time chart, with each column being an hour, and each row being one of the conditions like cloud coverage and darkness. Alternatively, you could try to see the regular weather forecast at the weather channel or your favorite weather app.

**What to bring with you.** You don't need special equipment to watch a meteor shower. If you want to bring along equipment to make yourself more comfortable, consider a blanket or reclining lawn chair, a thermos with a hot drink, binoculars for gazing at the stars. Be sure to dress warmly enough, even in spring or summer, especially in the hours before dawn. Binoculars are fun to have, too. You won't need them for watching the meteor shower, but, especially if you have a dark sky, you might not be able to resist pointing them at the starry sky.

**Are the predictions reliable?** Although astronomers have tried to publish exact predictions in recent years, meteor showers remain notoriously unpredictable. Your best bet is to go outside at the times we suggest, and plan to spend at least an hour, if not a whole night, reclining comfortably while looking up at the sky. Also remember that meteor showers typically don't just happen on one night. They span a range of dates. So the morning before or after a shower's peak might be good, too.

**Remember** ... meteor showers are like fishing. You go, you enjoy nature ... and sometimes you catch something.

Peak dates are derived from data published in the *Observer's Handbook* by the Royal Astronomical Society of Canada and Guy Ottewell's *Astronomical Calendar*.



This Geminid meteor is seen coming straight from its radiant point, which is near the two brightest stars in Gemini, Castor and Pollux. Photo taken on the night of December 12-13, 2012 by EarthSky Facebook friend Mike O'Neal in Oklahoma. He said the 2012 Geminid meteor shower was one of the best meteor shows he's ever seen.

Bottom line: Look here for information about all the major meteor showers between now and the year's end. There are some good ones!