

# THE GREAT OUTDOORS



## **Nature's Really Big Show**

*Tired of noisy fireworks? Well, the heavens have got a show for you– coming soon, to a dark sky near you!*

By J. Morton Galetto, CU Maurice River

With the Fourth of July behind us it's time for some silent fireworks. One of nature's best shows takes place between mid-July and late-August, as the earth passes through the debris of the comet Swift-Tuttle. This is the famed Perseid meteor shower.

Our newspaper used to be delivered at 4 a.m. Our carrier would creep silently into our yard's circle, even using only her parking lights on this evening to make her daily

drop. The dutiful Mrs. Storms stopped and rolled down her window to find my husband and four of our friends adjacent to our driveway's circle. We were lying in lounge chairs looking skyward, with beach towels covering our bodies to capture the dew.

"Well, I'm not surprised to find you out," she remarked. "In fact I almost expected it."

"Yes, it's been a good night. Seems like one of us is seeing one jettison across the sky every few minutes; you just missed a great one."

"I wish I could join you," Mrs. Storms lamented.

"You could make a wish on one; it's not too late. We'll be wrapping it up soon."

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The Perseid meteor shower is one of the summer's celestial highlights. For nighttime viewing, few if any things offer the drama of this annual show. Depending on the source you consult, the showers begin on the 17th of July and end on August 24 (Royal Greenwich Museums) or July 14th to September 1st, NASA. The beginning date is not as important as the peak, on which there is consensus – August 12th and 13th.

Keep in mind that conditions play a role in optimal viewing; see inset "How to Enjoy the Show."

The earliest documented sightings of the Perseid meteor shower show up in Chinese records from A.D. 36 when it was noted that "100 meteors were observed one morning."

It was amateur astronomer Lewis Swift who first spied an object in the constellation Camelopardalis from his property in Marathon, New York on July, 15, 1862. He assumed what he was viewing was Comet Schmidt, which had been discovered a few weeks earlier. Then three nights later Harvard University astronomer Horace Tuttle identified the same object, but it was not Schmidt but rather a newly identified comet, which ultimately bore both of its discoverers' names: Swift-Tuttle.

By July's end, the comet brightened and became visible without optics. Taking about 133 years to orbit the Sun, the National Aeronautics and Space Administration (NASA) noted of it, "Swift-Tuttle last reached perihelion (closest approach to the Sun) in 1992 and will return again in 2125." The comet is also known by astronomers as 109 P. The P identifies it as a "periodic comet,"

meaning it has an orbit that takes less than 200 years.



*Meteor showers get their names from the constellation from where their radiant is located. Perseids come from Perseus, hence the name Perseids. This is a 30 second exposure taken during the Perseid meteor shower 2021, Spruce Knob, West Virginia. Photo: NASA/Bill Ingalis.*

A number of astronomers have called out 109P as "The single most dangerous object known to humanity." (Astronomer Gerrit Verschuur) This is because 109 P orbits are drawing continually closer to earth. Meanwhile the elongated orbit melts ice and sends debris Earth's way. As it grows smaller its orbit will likely alter. Current calculations show us safe until about the year 4479, so I

suppose you can remove it from your *current* worry list.

In 1865 it was Italian astronomer Giovanni Schiaparelli who realized that Swift-Tuttle was the source of the Perseid meteor shower. As the comet rounds the Sun the heat causes a trail of dust to be left in its wake. This consists of sand and ice particles ejected from the comet. When the Earth passes through this debris trail these fragments collide with our atmosphere where they disintegrate and create fiery and colorful streaks in the sky, known as meteors, fireballs, or shooting stars. Astronomers classify them as fireballs if light emitted exceeds that of Venus' glow. When a meteoroid survives the trip through our atmosphere and hits the ground it is called a meteorite (NASA).

The fiery fragments we see are only sand-sized. They enter our atmosphere at about 37 miles per second, heating the air in front of them as they reach about 3,000 degrees Fahrenheit. By comparison a typical industrial glass furnace is usually 3000 to 3600 degrees Fahrenheit. This blaze becomes visible from the Earth's surface at about 60 miles above ground.

Mankind has always been captivated by the Perseids display. In modern times John

Denver was inspired in his iconic song Rocky Mountain High by the Perseids show described in this refrain: "I've seen it rainin' fire in the sky." He had viewed a brilliant meteor streak across the sky while camping in Colorado.

I believe the stanza that best captures the emotion of viewing an expansive meteor's tail is:

I've seen it rainin' fire in the sky  
Talk to God and listen to the casual reply  
Rocky Mountain high (Colorado)  
Rocky Mountain high (high in Colorado)

I hope you find a cloudless night and a dark sky to enjoy the show, and that you allow your experience to match Denver's heart-felt expressions. Oh, and don't forget to wish upon a shooting star. ■

***How to enjoy the show.***

*According to NASA "Approximately 30 meteor showers occur each year that are visible to observers on Earth. Some of these showers have been around longer than 100 years. The Perseid meteor shower, which occurs each year in August, was first observed about 2000 years ago and recorded in the Chinese annals." NASA*

The peak evenings are Monday, August 12<sup>th</sup> and Tuesday the 13<sup>th</sup>. You will want a dark sky and a cloudless, or nearly cloudless, evening. Optimal viewing times are from midnight to 4 a.m. The moon on these two dates rises at 1 p.m. and sets by 11:30 p.m. The moon is about half full,

and a new moon or set moon is important for observation of the meteors. The greatest rate of meteors will be between midnight and 3 a.m., and most will be best viewed straight overhead.

If these dates are cloudy or your schedule is problematic you can research days on either side of these dates for cloud cover and moon rise and set times.

You will also want a dark sky, especially north of your viewing area. Brightly lit areas drown out the night sky, so you want to avoid lighting north of you as well as close to you.

Dark skies are getting harder and harder to find, as people don't employ shielded lighting and folks continually add more illumination.

Along the Bayshore is a very promising location, as is Belleplain State Forest. I'd also suggest possibly Turkey Point, Hansey Creek, or East Point. Since it is camping season Belleplain should be open.

Further preparation should include long sleeves, pants, a towel for dew, or a blanket (if you're lucky and it's a cool evening), and lastly don't forget the bug repellent.

A folding lounge chair may help to keep you from getting a stiff neck.

Optics narrow your field of view and are not recommended for the meteors, but may allow you to watch a satellite or see the rings of Saturn (Mars and Jupiter appear around 2 a.m – mid August).

Lastly give your eyes about 30 minutes to achieve the best night vision.

*(scroll for sources)*

**Sources**

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The phone apps PLANETS can give you up to  
date information on celestial happenings.