

# A SUPERMOON AND A METEOR SHOWER: ASTRONOMICAL EVENTS THIS APRIL

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It never hurts to look up at the night sky. Stars explode, comets careen, cosmic miracles take place at an inconceivable scale far beyond our line of sight, and the only indication we get is the lightest of twinkles above our heads. Every once in a while, however, one of these phenomena deigns to enter our humble fields of vision. And while the Lyrids meteor shower is not the most exciting of them, it is among the first meteor showers of the year — and one of two reasons for us to keep our eyes trained towards the sky this month.

The showers can be seen at their peak tonight (as well as a few days before and after), but their glow might be dimmed by the other phenomenon of the month: a supermoon on April 26.

“What would have happened is that a comet would have broken up, probably centuries ago. We [the Earth] will be passing through the tail of the comet, or through what is left of it. This particular one is what we pass every year, around the third week of April,” explains Jayant Murthy, a scientist and professor at the Bengaluru-based Indian Institute of Astrophysics, over the phone. He adds, “The comet itself came by our solar system in the mid-1800s, and won’t be coming back for a while.”

Neeraj Ladia, head of education organisation SPACE Chennai, explains further: “When the debris is left in space, it has a fixed space in the sky. Due to the Earth’s revolution it will cross the debris that lies in the path of its orbit.” The parts of debris that encounter our atmosphere begin to burn, creating the spectacle of bright, streaking meteors.

Murthy adds that this particular shower does have a few bright fragments, and can be best viewed after midnight on a dark sky, ideally one not lit up by bright city lights. “It will be brightest between April 21 and 23. Look towards the Lyra constellation to spot it,” he suggests.

The constellation, which the meteor shower has been named after, is considered the radiant point of the shower, explains Ladia. In simple terms, as the Earth nears this debris, that constellation is the point from where the shower appears to begin, to us.

Ladia calls this radiant point a meteor shower’s “address in the sky”. Whichever constellation it seems to be coming from, he says, is what the meteor shower is named after: Lyrids for Lyra, Geminids for Gemini, Perseid for Perseus and so on.

How powerful a meteor shower is, depends on a number of factors, such as how numerous the debris is, the size of each individual particle, its luminosity, and its rate per hour. The standard for measuring that last factor, says Ladia, “is zhr or zenithal hourly rate: how many meteors can one person see per hour on a clear night. It is the measure of the quality of a meteor shower.”

Lyrids has a zhr of 15 to 20 on dark skies, adds Ladia: “It isn’t very good, it is considered a fairly normal zhr. Geminids [in December] on the other hand has almost 120 zhr. Perseid, which is coming in August, will have around 80 meteors per hour.”

He further adds that Lyrids might be even less bright this year, because of its close proximity to the supermoon. “There is already a gibbous moon in the sky, which will only set around 1 am or 2 am each night,” he states, adding that post-1 am is the best time to make an attempt if you live

close to dark skies.

The biggest danger of the meteor shower being drowned out by luminosity still stems from the supermoon, which also happens to be the first of its kind this year. Supermoons are generally the brightest and largest full moons of the year, and can occur two or three times a year if certain factors fall exactly into place.

Shweta Kulkarni, chief executive officer of Pune-based organisation Astron, which works to spread awareness of astronomy, explains the concept of a supermoon. “The lunar orbit around the Earth is elliptical. So the moon is sometimes very close to the Earth, and sometimes moves further away during its orbit. When it is very close to us and we happen to have a full moon at the same time, we call it a supermoon.”

For any satellite, the closest point of orbit to Earth is termed its perigee. According to NASA, both a new moon and a full moon can be termed a supermoon, as long as it is within 90% of perigee.

So what does this mean in visual terms? According to both Kulkarni and Ladia, it is difficult to gauge the difference between a usual full moon and a supermoon unless you put their photographs side by side.

“The difference in size is just about 10% to 14%, so there isn’t much to notice once it’s up in the sky,” adds Ladia, “You can tell it most drastically when the moon is still rising. Closer to the horizon, with buildings, trees or other structures for reference, it can look amazing.” Space Chennai is organising a photography contest, as well as a Facebook Live on April 26. “Anyone can join in and enjoy it,” adds Ladia.

So you can keep your cameras and telephoto lenses ready, or you can just sit back and watch the sky and all its miracles, letting it provide some of the succour we so desperately need.

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