

November's supermoon will be bigger than it has been since 1948

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November's full moon is special. Not only is it a supermoon — which appears larger than a "regular" full moon — it will be the closest such moon to Earth since January 1948. We won't see the full moon this close again until Nov. 25, 2034, according to NASA.

In the middle of November, we savor the splendor of a full moon. With any luck, this awe-inspiring moon will lure people outside to breathe the crisp air of the autumnal night sky, spark people to hold hands and spur interest in relishing the heavens.

The moon officially becomes full on Monday at 8:52 a.m. — it won't be visible on the East Coast at the exact moment of fullness, but it will on the West Coast.

Since the moon's orbit around Earth is an elliptical shape, there are times when our lunar companion is closest to Earth. This is called perigee. This month, the perigee occurs Nov. 14 at about 6 a.m. — within two hours of the moon becoming officially full — making this fun event an extra-super, perigee full moon.

Astrologer Richard Nolle defined a supermoon in 1979, but the term has really taken off in the past few years. Sometimes it seems as if every moon is a supermoon. Nolle said that a supermoon is a new or full moon that occurs when the moon is within 90 percent of its closest approach to Earth in a given orbit.

The distance between Earth and the moon can range from 221,208 miles at its closest possible point to 252,898 miles at its farthest. That's a difference of nearly 32,000 miles. This month, it gets close at 221,524 miles between Earth and the moon — just 316 miles from its nearest possible location.

The supermoon isn't just a fun sight for photographers and skywatchers — it has an actual impact on the coastline. Every year from November through February, the highest tides — called "king tides" — sweep onto the shores during full moons. This is due to the combination of gravity from the moon and sun being the closest to Earth as



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they will be all year. The tides get even higher during "supermoons" simply because the moon is closer to Earth.

On Sunday afternoon, the nearly-full moon rises at 4:43 p.m. in Washington, while the sun sets at 4:55 p.m. The following morning, the moon sets at 6:36 a.m. — so if you scoot out of bed around 5 a.m., you'll see the moon low in the western sky plump and full. The full moon rises Monday evening at 5:30 p.m., so look for it close to the eastern horizon.

For any location in the United States or abroad, the Naval Observatory <u>provides rise and set times</u> for the moon and sun.

In October, <u>NASA said</u> that "the perigee full moon can be as much as 14 percent larger and 30 percent brighter than an apogee full moon." The NASA team goes on to explain, "Hanging high overhead with no reference points to provide a sense of scale, one full moon looks much like any other."

In other words, for the human eye, it is difficult to perceive the difference between a supermoon and any other.

The next perigee full moon occurs Dec. 14 — the third such moon in an October-November-December lunar trifecta. After that, there will be a perigee full moon on Jan. 1-2, 2018 — when the moon and the Earth will be 221,559 miles apart.