

### Offered Title: Full Moon Fever?

I borrow the title of Tom Petty's 1989 solo album to ask, are you ready for tonight's Total Lunar Eclipse? A full moon evokes prickly feeling and awe, what weird things might happen tonight?

Well, one will be a total eclipse. That event produces a sense of wonder. Adding to the weirdness, this full moon will be a "supermoon". Will it be a blood moon too? Finally, our January full moon is called a wolf moon. All the media is hyping this event, hence my pick of 'Full Moon Fever?' for the title. Here are some bits of information that might be helpful.

Eclipse. An eclipse occurs when one body (Earth or Moon) is lined up between the Sun and the other body. The in-between body throws a shadow, falling on the other body. So, for us a solar eclipse occurs when the Moon gets between us (Earth) and the Sun. A lunar eclipse occurs when we (Earth) get between the Sun and the Moon. There are two different eclipse scenarios, partial and total, depending on the alignment and/or distance between the Moon and Earth. If the Moon and Earth are not lined up just right a partial eclipse will occur. A special case occurs for solar eclipses when the Moon is lined up but far enough from Earth, so it does not completely cover the Sun. This is called an annular eclipse; a brilliant ring (annulus) of sunlight surrounds the Moon's disk.

Supermoon. This is a relatively recent (1979) astrological term used to describe some full moons. Astrologer Richard Nolle came up with this term and defined it as a full moon occurring when it is within 90% of perigee. From my explanation about the solar annular eclipse you might have guessed the Moon's distance from Earth isn't constant. The Moon's orbit is elliptical, so it has a perigee (closest to Earth) and apogee (farthest from Earth). Sometimes (3-4 times per year) a full moon will also be at or near perigee, making it appear up to 14% larger than if it were at apogee. Is this super? A rising full moon always looks super to me.

Blood Moon. Our Earth's atmosphere causes sunset's colors, predominantly variations of yellow, orange, and red. This phenomenon is due to what we call Rayleigh scattering. Lord Rayleigh, through painstaking study and experiment, determined that molecules of air and water vapor in our atmosphere scatter short wavelength light (violet-blue-green) easily. So, at sunset we see the light that does not get scattered so much – red, orange, and yellow. This is also why many total lunar eclipses show a reddish Moon. Sunlight is refracted by Earth's atmosphere and reddens the shadow.

Wolf Moon. January's full moon. Packs of hungry wolves howling outside Indian villages in deep winter.

### What's in the Sky?

Jan 20; Total Lunar Eclipse; Starting after 9:00 pm, with totality at 10:41 pm

Jan 22; pre-dawn; southeast; Venus and Jupiter make a brilliant pair