June Skies over the Pinnacles

June 2023
by Jeff Hutton

June's Four Principal Phases of the Moon

June 4	Full Moon	
June 10	Last Quarter	
June 18	New Moon	
June 26	First Quarter	

You want to be here.

Shadow of the Moon on the Earth during a total solar eclipse.

Yes, I'm an astronomy geek. I have been one for a half a century now. If there were no such things as eclipses I would feel just the same. The quiet thrill of being among the stars on a cool evening just can't be beat. That's enough. But our view of the Cosmos occasionally startles us and challenges our expectations of the 'normal' and transports us to a sort of alternative world. We are so used to sunny, bright days that a sudden extinguishing of the light of the sun on a clear sky is unthinkable. But it does happen. There's a real feeling of relief at the end of dark totality: when the light of the sun returns and all is restored. People applaud and cheer as if being released from scary experience.

Experiencing a total solar eclipse takes planning. The eclipse of next April 8 will happen because the Moons orbit causes the Moon's shadow to fall upon the surface of the Earth. The motions of Earth's turning on its axis, the Moon traveling on its orbit, even the motion of Earth traveling around the Sun cause the shadow to move across the earth at 1600 miles an hour. To see totality, you must be within a circle 300 miles wide during the eclipse.

The next total solar eclipse visible from North America is in 2045. I suspect this will be my last one.

I've been fortunate enough to see three total eclipses of the sun in my time on this planet. Just like riding on a roller coaster several times, no two rides are ever alike. So here are some things to know about experiencing total solar eclipses.

1. **Safety. Protect your eyes.** The ONLY time it is safe to look toward the Sun is during totality. That means the Moon is completely covering the bright surface of the sun, known as the photosphere. The corona is about as bright as the full Moon.
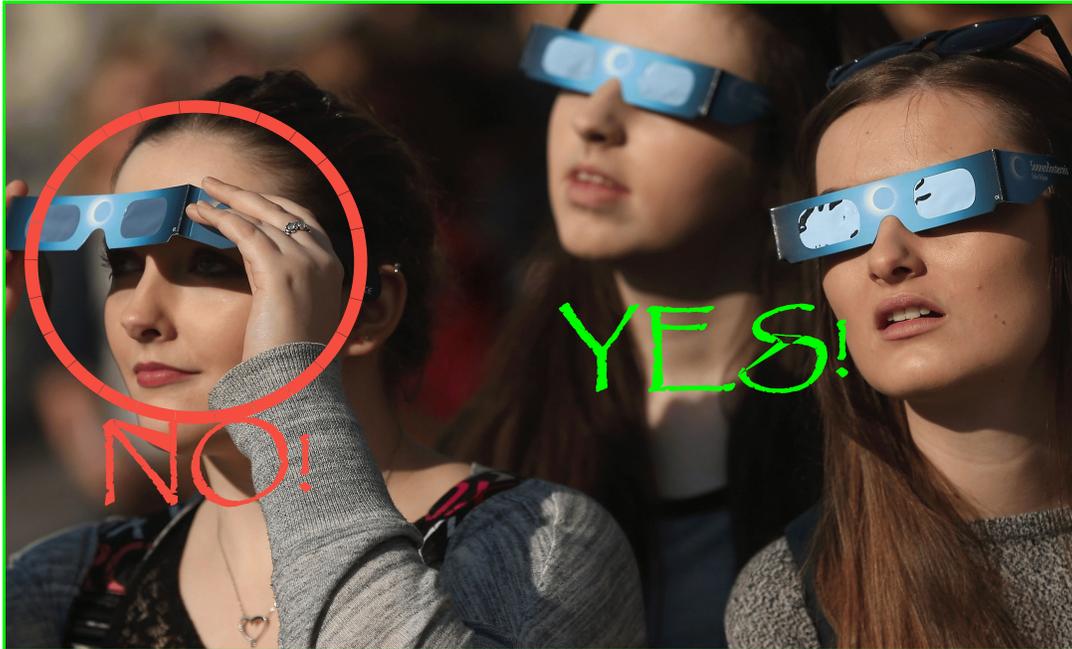

During totality, when the time the Moon completely covers the Sun's bright photosphere, you can look at the beautiful, pearly white corona. You won't forget the view.

2. **Planning is key.** If anyone tells you that the view of a total solar eclipse outside of the traveling shadow of the Moon is just as good as seeing totality, just smile and walk away.

We are approaching the time when the sun is at maximum magnetic activity. Remember the recent alerts about seeing the Northern Lights? That's a result of an active Sun. Another effect is on the solar corona, the part of the sun's atmosphere that you see during totality, should be particularly big.

Compare the image of the 2023 eclipse to this one I took in 2017 (red border), when the sun was not very active.
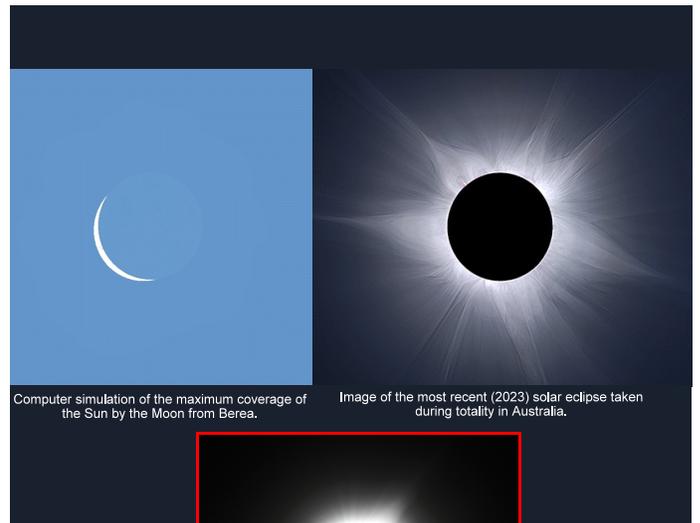
Computer simulation of the maximum coverage of the Sun by the Moon from Berea.

Image of the most recent (2023) solar eclipse taken during totality in Australia.
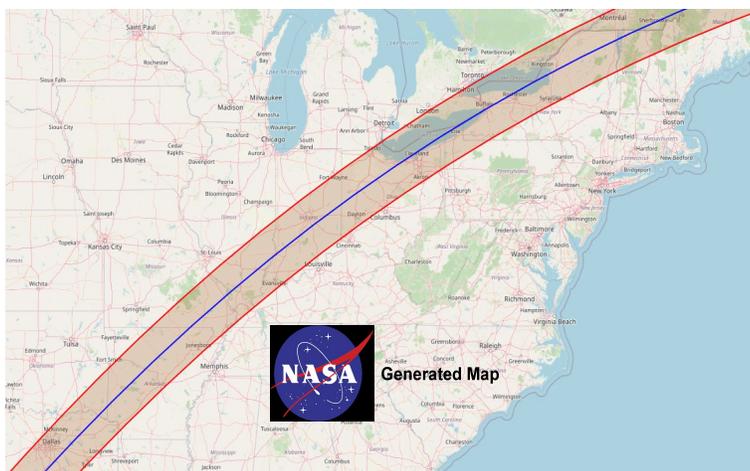
NASA Generated Map

You can use this QR code to view a NASA generated interactive map to plan your unforgettable eclipse experience.

I'll be sharing more eclipse advice in future monthly installments in "Skies overthe Pinnacles".

Attractions in June

Astronomers use a measuring scale of **angular distance** to show the apparent distance that separates two objects in the sky. A trip all the way around the sky would take 360 degrees. Here's a handy guide to estimate **angular distance** that you can use when you're out under the stars.
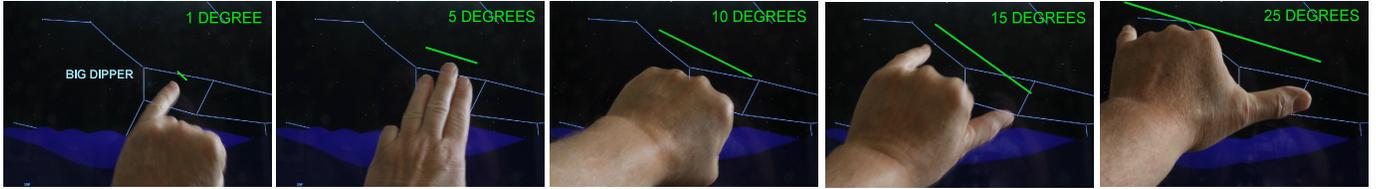

For instance, when you hold your hand all the way out and hold three fingers out, like the scout's salute in panel 2, your fingers create an **angular distance** of 5 degrees**,** about the width of the bowl of the Big Dipper. When I talk about the distance between, say, the Moon and a star or planet, I'll say that they are separated by a certain number of degrees. Sky and Telescope magazine is my source of most of the following information.

June 1 As darkness falls, check out the planet Venus and the twin stars, Pollux and Castor forming up to make a neat, horizontal line. Fainter red planet Mars, in the constellation Cancer, glows to the upper left.
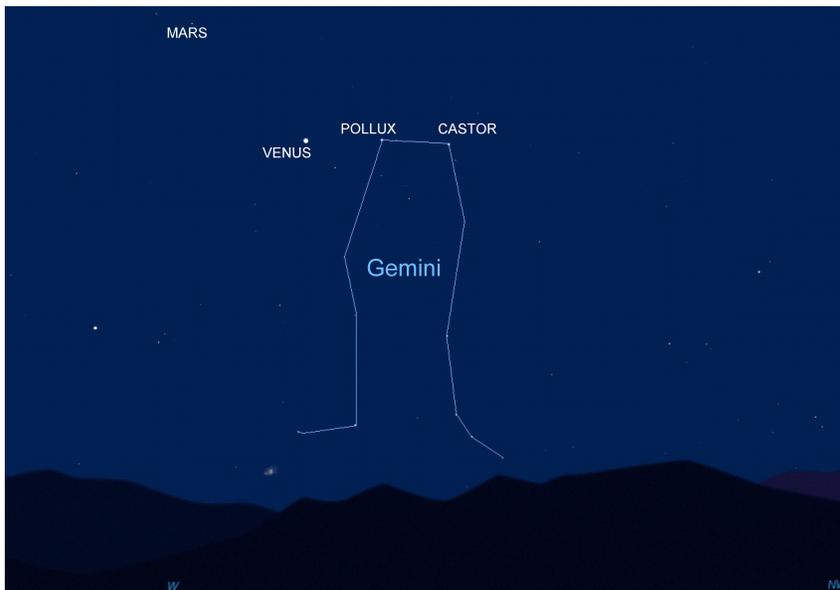
June 1-2 Speaking of Mars, dig out your binoculars and check out the company the red planet is keeping these nights. That family of stars you see around Mars is called Praesepe which is Latin for "manger" or "crib". The thousand stars in this cluster is also called "The Beehive" because it resembles a swarm of bees. It's one of the closest star clusters to earth and is said to be one of the first studies by Galileo with his new telescope. Of course, Mars isn't among these stars, it just appears in front of the buzzing bees!
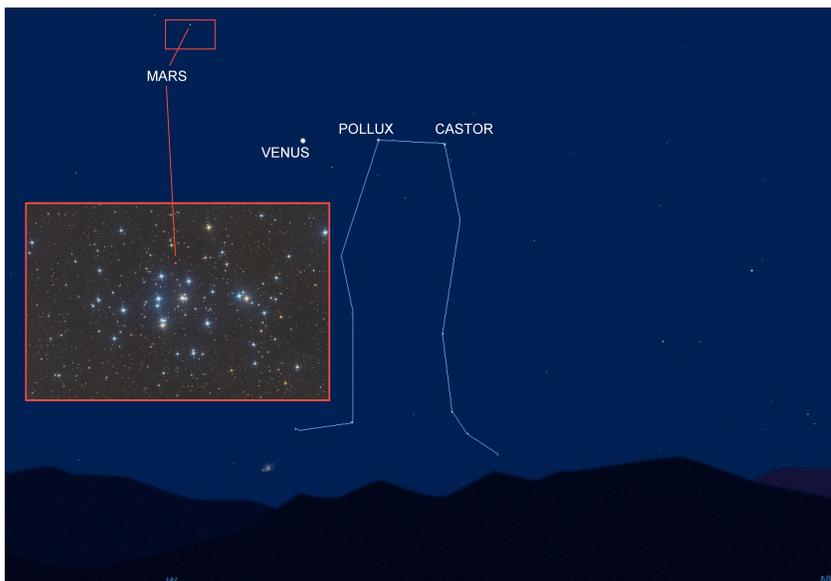
June 13 The stars of the Beehive have a busy social calendar this month.   As the earth's trip around the Sun brings this starry family lower toward the western horizon, the planet Venus now takes up temporary residence in front of this star cluster!


June 17 If you find yourself up before sunrise, peek outside toward the east and be treated to a pretty lineup starting with the star cluster, The Pleiades and the Moon and planet Jupiter at upper right.

June 21 If you're an optimist, today has the longest period of sunlight of the whole year. If you're a pessimist, the daylight part of our days start getting shorter starting tomorrow. Happy Summer Solstice!
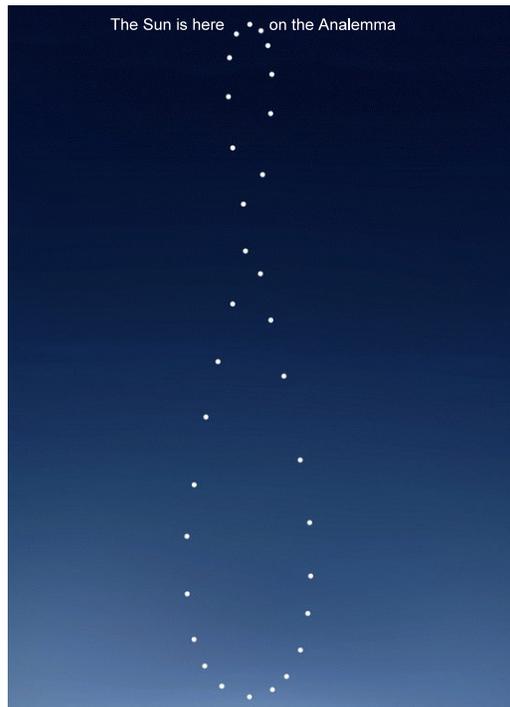
June 22 If you've ever had a house cat you probably know how they love to collect their toys and keep them close. Tonight's showing of the constellation, Leo, the Lion, seems to be doing just that with the Moon, Mars and Venus in the western sky just after dark.
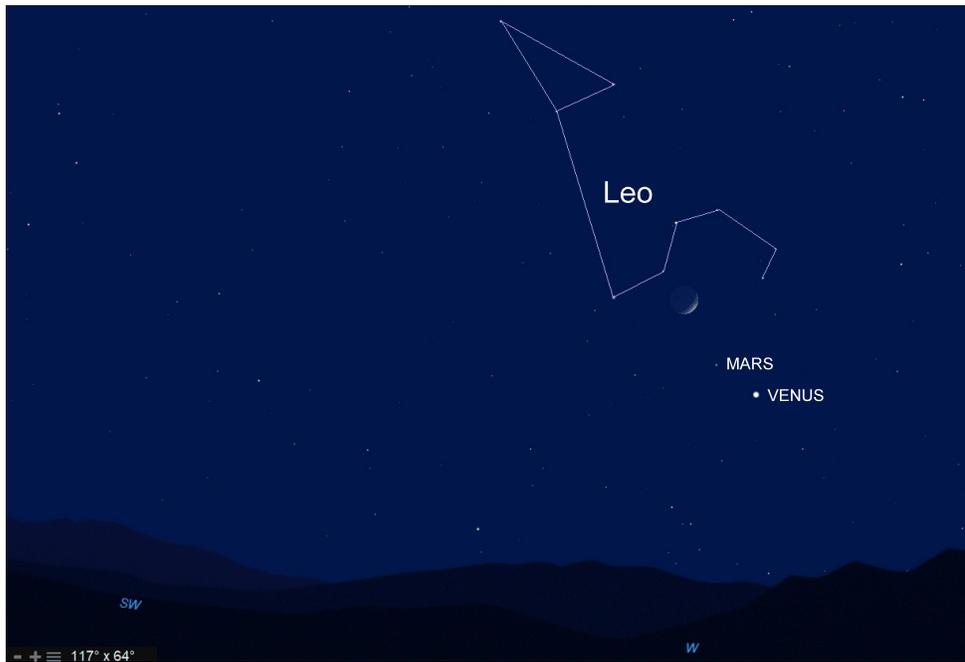
June 28 Ever wonder if Mars and Venus would ever get together? (They make such a lovely pair!) Well tonight's the night. Look for them together in the western sky at dusk. Mars isn't nearly as bright as Venus so you'll have to wait a while after you first spy Venus.

Skies Above the Pinnacles

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