myradar

What to look for during the eclipse

Print this out, and keep it with you during the eclipse.

During Partiality

Ambient Lighting

You won't notice any darkening of the landscape until about 70-80 percent of the sun is blocked. Then it will look noticeably dimmer.

The landscape will resemble an old western-style movie, akin to a sepia filter on your phone. You may feel a general sense of unease or foreboding. At 80 percent, it might feel a bit ominous.

Temperature

The temperature will steadily drop as solar radiation decreases. If the air is dry, it will probably fall by 8 to 12 degrees. If humid, the air will probably cool by 5 to 8 degrees.

Clouds

With the reduction of incoming solar radiation, fairweather cumulus clouds (the ones that look like cotton balls) will fizzle. Some may disappear entirely.

This will not affect wispy cirrus ice clouds high aloft. Mid-level clouds will be affected minimally.

Animals

Crickets will start chirping about 10 to 15 minutes before totality.

Shadows

Ordinarily, the sun spans about a half degree's width in the sky. Because of that, light striking Earth's surface at any given location comes from different edges of the solar disk; the slightly different angles result in fuzzy, misaligned and partially-overlapping shadows.

But during a solar eclipse, the sun's apparent size shrinks, meaning shadows are cast from a smaller source. Resultantly, shadows sharpen, since the rays of light – and therefore shadows – are more aligned.

You might also notice small sickle-shaped projections of the partially-eclipsed sun in the shadows of leaves and trees; each small gap or opening acts as miniature "pinhole projector."

Less than 90 seconds before totality

Shadow Bands

The moon will be nearly covering the sun, and the sun will appear to shrink to a point source of light. This means that the last rays of sunlight we get are collimated, or aligned.

However, atmospheric turbulence (air pockets, differences in temperature, etc), can bend, or refract, parallel rays at slightly different angles. The then-misaligned rays will create a bizarre interference pattern on the ground within about 90 seconds, and especially 60 seconds, before and after totality.

It will be reminiscent of the shadowy wavelets seen on the bottom of swimming pools. Bring something white to place on the ground to look for them.

The Umbra

About 90 seconds before totality, the southwest sky will appear a little bit purple or dusky, but the rest of the sky will look normal.

That's the edge of the umbra, or the darkest part of the moon's shadow, arriving. It will be sweeping in at about 1,600 mph in Texas, and 3,000 mph by the time it reaches northern Maine.

Then, within about 45 of totality, the sky will abruptly darken faster than you can possibly imagine. Pretend the universe is on a dimmer. Eventually, the sky will plunge into a deep shade of royal blue that you may not have seen before. It's difficult to describe.

Wind

The winds will suddenly slacken slightly or abate entirely. The rapidly-cooled air within the path of the moon’s shadow will begin to sink, suppressing the breeze. You might notice a subtle change in wind direction as well.

Bailey’s Beads

With your glasses still on, be on the lookout for Bailey's Beads – the final pinpricks of sunlight shining through the valleys of the moon. They'll last about 15 seconds before totality arrives.

Diamond Ring

Right before totality, the slits of light that make up Bailey's Beads will converge into a single individual searing beam of light – the diamond. With the faint outline of the remainder of the moon backlit by the sun, the ring may be visible. That will make a diamond ring in photographs. Note that you still have to have glasses on at this point. A few locations will see a "double diamond."

Complete Totality

Totality will be an overwhelming experience. Appreciate the rarity of standing in the moon's shadow in a perfect alignment of the solar system.

On average, any location only experiences a total solar eclipse once every 375 years. It is safe to directly view the eclipse without glasses only when the moon is fully blocking the sun during totality.

The Corona

When the moon fully blocks the sun, you'll be able to see the sun's atmosphere – the corona. It spreads millions of miles into space and is 2 million degrees. It glows a ghostly white, and resembles the hairs of an angel.

Those lines you'll see represent plasma tracing and contorted by the magnetic field of the sun. Because of increased solar activity, the corona will appear to have many "prominences." You might also see coronal loops, “helmet streamers,” and a concentration of “polar plumes” near the top and bottom of the sun.

This eclipse’s corona will be extra dynamic, since we’re at the peak of an 11-year “solar cycle” with the most complex magnetic field on the sun. That’s why lots of appendages are likely.

The 360° Sunrise

The moon's shadow will only be between 100 and 120 miles wide depending on where in the United States you are.

With the shadow directly overhead, it will be dark at your location – but all around you on the horizon, you'll see the light of distant towns that are outside the moon's shadow experiencing daylight. That will make the entire horizon appear to glow a peachy hue reminiscent of sunrise.