

## The Partial Eclipse of the Sun (Oct. 23, 2014):

### A San Francisco Bay Area Viewer's Guide

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NOTE: Looking at the Sun is DANGEROUS to unprotected eyes; it's best to go to an eclipse viewing site with experts who have safe viewing instruments, buy special eclipse glasses, or prepare a way to *project* an image of the Sun.

#### What Is Happening?

An eclipse of the Sun happens when the Moon gets between the Sun and the Earth and covers up some or all of the Sun. Sometimes the Moon covers up *all* of the Sun (a total eclipse), but more often only *part* of the Sun is covered (a partial eclipse.)

This particular eclipse will *not be total* anywhere on Earth – even where the viewing is best, the Moon will still leave part of the Sun uncovered. In the U.S., different cities will see different amounts of coverage, but in no case is the eclipse enough to make the day look darker. Thus most people will not even notice that the eclipse is going on.

#### When Will the Eclipse Happen Here?

The eclipse officially begins at 1:52 pm PDT in the Bay Area, but nothing is really visible at this point. As the minutes go on, the Moon slides very slowly across the Sun, covering more and more of it. The eclipse will reach maximum (about 40% of the Sun's area covered) at 3:15 pm, so the best time to look will be between 3:00 and 3:30 pm. The eclipse ends at 4:32 pm.

You'll have to find a location where you can see the Sun in the afternoon sky and are not blocked by buildings or mountains in the southwesterly direction. (And remember, if it is cloudy or foggy, as it often is in some parts of the Bay Area, you may miss seeing the Sun altogether.)

#### Why Is It Dangerous to Watch?

Normally, our common sense protects us from looking directly at the Sun for more than a second or so. The Sun's visible (and invisible) rays can cause serious damage to the sensitive tissues of the eye, often without the person being immediately aware of it! But when the eclipse happens, astronomical enthusiasm can overwhelm common sense, and people (especially kids) can wind up staring at the Sun for too long. Thus, the best recommendation is not to look without protection.

#### How Can One Watch the Eclipse Safely?

The best way to see the eclipse is to project an image of the Sun (and not to look at the Sun directly.) One easy way is to make a pinhole projector: Take two pieces of cardboard or thick paper. Put a pinhole in one (taking care to make a clean hole). Then stand with your back to the Sun, and let the Sun's light fall through the hole and onto the other sheet. You'll get a small but distinct image of the Sun. (A way to get a sharper pinhole is to cut a square out of the middle of one cardboard, tape a sheet of aluminum foil over the hole and put the pinhole in the foil instead of paper.)

To look at the Sun directly, you need a good filter that can cut out not just light but also ultraviolet and infrared waves. Sunglasses, exposed film, and smoked glass are NOT OK! You can use special black or aluminized polymer filters/glasses available at many science or telescope stores or planetaria; but make sure you get them from a reliable source (such as the Exploratorium in San Francisco.)