

## Total Solar Eclipse Tips

One of nature's most amazing spectacles will cut a path across the U.S. in 2017. Words can't really describe this event but you must make plans to witness it. There is an abundance of info on the internet to help you prepare; see references later. These notes are not meant to be exhaustive but rather to collect some of my thoughts. This total solar eclipse will be my fourth one! Along the way, I learned some stuff. So herewith...



Diamond Ring Effect

**Location...** Even though the eclipse goes from Oregon to South Carolina, you need to be somewhere inside the path, which is about 70 miles wide. If you are outside this band, even by a mile, you will NOT experience totality, only a partial eclipse. This is akin to kissing your sister! If you plan to travel to a particular location for the eclipse, you need to secure lodging now! In fact, many of the most popular locations are completely sold out already. So don't wait any longer. You could also join a special eclipse tour although they tend to be quite expensive.

**Watch the weather & Stay Flexible...** Weather predictions at a specific location on eclipse day are tricky. Don't get too tied up in predictions of cloud cover you'll see for that date. Many don't distinguish between "few" (one-eighth to two-eighths of the sky covered), or "broken" (five-eighths to seven-eighths) clouds and overcast.

Unless you are certain your location will be clear on eclipse day, don't do anything that would be hard to undo in a short time. If it's cloudy six hours, three hours, or even one hour before the eclipse starts, you're going to want to move to a different location. Think of the time you would have saved if you had waited to set up. The earlier you make your decision to move, the better. Think of the traffic on eclipse day!

**Don't plan anything funky...** Totality will be the shortest 2 ½ minutes of your life. All your attention should be on the Sun. Anything else is a waste. Be considerate of those around you. Example: no music.

**Pee before things get going...** Not polite perhaps, but trust me, you'll thank me. Don't wait until 10 minutes before totality to start searching for a bathroom. Too much is happening then. Make a preemptive strike 45 minutes prior. Below is the bathroom line in Libya!



**Notice it getting cooler?...** A camera or cell phone that takes movies will let you record the temperature drop. Here's a suggestion: Point your camera at a digital thermometer and a watch, both of which you previously attached to a white piece of cardboard or foam core. Start recording video 15 or so minutes before totality and keep shooting until 15 minutes afterward. The results may surprise you.

**Watch for the Moon's shadow...** If your viewing location is at a high elevation, or even on top of a good-sized hill, you may see the Moon's shadow approaching. This sighting isn't easy because the shadow is moving at more than 1,000 mph. Another way to spot the shadow is as it covers thin cirrus clouds if any are above your site. Again, you'll be surprised how fast the shadow moves.

**View the 360° sunset...** During totality, take just a few seconds to tear your eyes away from the sky and scan the horizon. You'll see sunset colors all around you because, in effect, those locations are where sunset (or sunrise) is happening. Also note the visible stars.

**Get a filter now...** Cardboard "eclipse" glasses with lenses of optical Mylar cost about \$2. Such a device — it's not a toy — will let you safely look directly at the Sun. It



filters out most of the light, all of the dangerous infrared (heat) and ultraviolet radiation, which tans our skin.

**Buy one well in advance,** and you can look at the Sun anytime. Sometimes you can see a sunspot or two. That's cool because to be visible to our eyes, such a spot has to be larger than Earth. Another safe solar filter is a #14 welder's glass. Note: filters must be

used at all times EXCEPT during the “totality” phase when you will use your naked eyes. Repeat: you use your naked eyes during totality; you would see nothing through a filter during totality.

**No filter? You can still watch...**Except during totality, we never look at the Sun. But what if you’ve forgotten a filter? You can still watch by making a pinhole camera. It can be as simple as two pieces of paper with a



tiny hole in one of them. (Try to make the hole as round as you can, perhaps with a pin or a sharp pencil.) Line up the two pieces with the Sun so the one with the hole is closest to it. The

pinhole will produce a tiny image, which you’ll want to have land on the other piece of paper. Moving the two pieces farther apart will enlarge the Sun’s image but will also lessen its brightness. A kitchen colander works too!

**Bring a chair & sunscreen...**You’ll likely be at your viewing site several hours before the eclipse starts. You don’t really want to stand that whole time, do you? You may want to bring an umbrella for shade.

**Take lots of pictures...**Before and after totality, be sure to record your viewing site and the people who you shared this great event with.

**The time will zoom by...**See the attached article by Norm Sperling in which he tries to convey how quickly totality seems to pass.

**Bring snacks and drinks...**You’re probably going to get hungry waiting for the eclipse to start. Consider bringing something to eat and drink. August is hot and a cooler with ice-cold drinks is a great idea.

**Almost no one you meet will have seen totality...**If you’re planning an event or even a family gathering related to the eclipse, consider this: Statistically, almost 100 percent of the people you encounter — to a high degree of accuracy — will never have experienced darkness at noon. You will be the expert.

**During totality, no distractions!...**The 2017 eclipse will be a fabulous social affair. Totality itself, however, is a time that you should mentally shed your surroundings and focus solely on the sublime celestial dance above you. You’ll have plenty of time for conversations afterward.



**Schedule an after-eclipse party or meal...**Once the eclipse winds down, you’ll be on an emotional high for hours, and so will everyone else. What a great time to get together with family and friends and just chat. Or, if you’re like me, take a secondary position and just listen to others talking about what they’ve just seen.

**Record your memories...**Sometime shortly after the eclipse, when the event is still fresh in your mind, take some time to write, voice-record, or make a video of your memories, thoughts, and impressions. A decade from now, such a chronicle will help you relive this fantastic event. Have friends join in, too. Stick a video camera in their faces and capture 30 seconds from each of them. You’ll smile each time you watch it.

**Don’t photograph the eclipse...**This tip — specifically directed at first-time eclipse viewers — may sound



strange because it’s coming to you from a photographer. But I can’t tell how many people have told me, “I spent so much time trying to

center the image and get the right exposures that I hardly looked at the eclipse at all.” How sad is that? I am guilty of this too. And here’s another point: No picture will capture what your eyes will reveal. Only a very tiny number of photographers have ever come close. And — no offense meant — but you, with your point-and-shoot camera or cell phone, are not one of them.

**DO NOT PHOTOGRAPH THE ECLIPSE!!!**...I'll state this again. Why would you even consider looking down and fiddling with a camera when you could be looking up at all that heavenly glory? This eclipse will — at



maximum — last 162 seconds. That's it. If your camera isn't doing what you think it should, you're going to lose valuable time adjusting it. There will be plenty of photos from imagers who have viewed a dozen of these events. So just watch. Watch your first eclipse with your mouth agape, where your only distraction is occasionally wiping tears of joy from your eyes. You will not be disappointed.

### References:

[www.greatamericaneclipse.com](http://www.greatamericaneclipse.com) (very good site)

[www.eclipse2017.org](http://www.eclipse2017.org) (another great site)

[www.mreclipse.com](http://www.mreclipse.com) (good "how-to" take photos)

[eclipsophile.com](http://eclipsophile.com) (weather prospects & more)

[www.thousandoaksoptical.com](http://www.thousandoaksoptical.com) (for filters)

[www.zam.fme.vutbr.cz/~druck](http://www.zam.fme.vutbr.cz/~druck) (site of Miloslav

Druckmuller; you must visit. Stunning photos. I met him during the Libyan eclipse.)

There are many more sites; just use Google.

### Sperling's Law...All Total Solar Eclipses Last 8 Seconds

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Everyone who sees a total solar eclipse remembers it forever. It overwhelms the senses ... and the soul as well — the curdling doom of the onrushing umbra, the otherworldly pink prominences, the ethereal pearly corona. And, incredibly soon, totality terminates. Then it hits you: "That was supposed to last a few minutes — but that couldn't have been true. It only seemed to last 8 seconds!"

This effect frustrated my first 4 eclipses, and most fellow eclipse fanatics assure me they've been bothered by it, too. Yet tape recordings, videos, and the whole edifice of celestial mechanics all claim that it did last the full, advertised 2 to 7

minutes — to within a few seconds, that's what really happened. Where did all that precious time get lost?

**Eclipse Watching...**True eclipse freaks recognize only 2 modes of life: eclipse expeditions, and preparing for them. They'll devote a year or 2 to perfecting equipment: telescope, camera, weird filters and film; sandproofed, soundproofed, rainproofed (heaven forbid!), and bug resistant. No matter what their expedition sees or does along the way, they'll fret about totality. Will the clouds part? Will \* the \* equipment \* work? WILL \* WE \* SEE \* IT?

The partial eclipse is a tantalizing, exasperating hour and a half. Then the diamond ring forms, gleams and vanishes — and at last they have totality. They gape in awe for just a second, then dive desperately into the sequence, many times rehearsed, of exposures, adjustments, notations so hurried they can only be unraveled from the tape recordings afterwards.

Inevitably, totality terminates too soon, often even before the planned sequence does, and they never make it to their own hard-won free-looking phase. "But I got it on film!" they proclaim, "And I can frame that and glow at it forever — even though ... I only saw it ... through the ... camera's finder."

The novice and the non-astrophotographer take the hang-loose approach. Restless in the partial phase, they get impatient and even quarrelsome around the 1-hour mark. But in the last 10 minutes they can feel it: totality's a-comin'. The world is darker, oranger; shadows look oddly sharp-edged. There's a nip in the air, the birds are atwitter, and shadow bands go skittering around. The ominous umbra sweeps in, the corona unfolds, the diamond glitters and is extinguished, and "OH \* MY \* GOD \* THAT'S \* THE \* MOST \* BEAUTIFUL \* THING \* I'VE \* EVER \* SEEN!" They stare transfixed, all their senses open, trying to take in as much as they can.

Unwilling to concede that totality can't linger past third contact, they keep staring at the emerging solar sliver long after it gets painfully bright. Finally, they must be ordered to look away. Then, limp, with self-satisfied grins, they applaud, or yelp, or shuffle aimlessly and ask where the next one's gonna be and how to get there.

Both styles of eclipse-watching yield the viewer a solid 8 seconds of memory. I replayed all my mental images of my first 4 totalities in about half a minute. And that was after seeing 12½ minutes of totalities. The other 12 minutes just weren't there! Poof!

**Transfixed...** The culprit is attention span. If you stare transfixed, your mind, knowing the scene isn't changing, says "I already know that", and refuses to store away the same



image yet again. So the solution is not to stare. What? Not look at that most marvelous miracle you've traveled umpteen thousand kilometers to see?

No, I didn't say not to look, I said not to stare.

Pre-record a cassette, timed to start at the first diamond ring. On it, tell yourself what to notice during different parts of your precious few minutes in the Moon's shadow. Notice how the umbra envelopes you, enjoy the diamond ring, then examine the prominences (they're bright, so you don't have to be fully dark-adapted). Next, survey the corona – its general shape, and any outstanding features.

Switch away for a few seconds, to check the colors all 360° around the horizon. Since totality is just starting, it'll be darkest in the west, lighter in the east. Now back to the Sun. Your eyes, now partly dark-adapted, are ready for the corona. Which is the very longest streamer, and how far out can you trace it? Where is the innermost dark wedge? Pick out an interesting pattern of filaments and make a mental engraving of it.

OK, back to the horizon. Sweep around again, and notice how much difference a minute or 2 makes. The west is lightening, foretelling totality's end, and the east is dark, where folks down-path are just now getting theirs.

Finally, back to the Sun. Review the best coronal details. Look again at prominences, since there's a whole different crop of them on the third-contact side. Watch for the pink fringe of chromosphere that anticipates – yes, here it comes – the second diamond ring.

How quickly the corona fades! – and now, even the last of it is going – and it's incredible how bright even that tiny wedge of Sun's surface can be!

And now this eclipse, too, is over. But this time you've won. From each separate span of attention during totality you can savor your 8 seconds of mental replay. If you moved your attention enough times, you'll recall many times that 8-second limit. Yes, Sperling's 8-Second Law can be beaten!

### In Closing...

My first eclipse was on February 26, 1979 to Bowbells, North Dakota. It was a cold but glorious 2½ minutes. The trip was organized by eclipse veteran Carroll Moore. He was a professor at Nebraska Wesleyan University and was a great astronomy advocate.

Next, Fay and I traveled to Mexico for the July 11, 1991 eclipse. We were aboard a cruise ship and experienced nearly 7 minutes of dark! Fay was hooked from that moment!

March 29, 2006 found us in the Sahara desert, near Tobruk, Libya. The morning dawned very cloudy but cleared as we were bussed to our viewing site where we had 4 minutes. The photos

in this paper are all from that date. A strange side note: Muammar Gaddafi was just a mile from our camp!

For most folks, 2017 will be the only total solar eclipse they ever see. It is important to make plans to see it but also not to make it a complicated endeavor. You must simply plan to enjoy the experience.

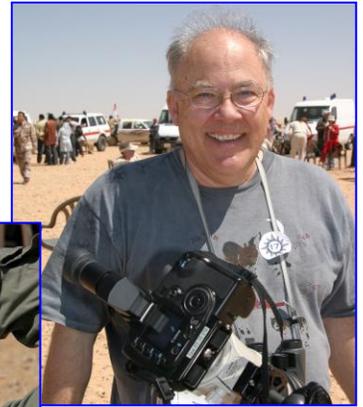
For myself, Fay and I will view it from Nebraska. I plan to set up some sort of automated timer on the camera and just let it snap away during totality while I simply view the sky.

I also plan to let a video camera run to record sounds and images. In many ways, this will be more interesting later on than the still photos.

Wishing you clear skies.

See you in the Dark!

Steve & Fay



Photos © Steve Traudt

