



The Microphone Lake Whitney Amateur Radio Society



(A monthly publication for members and friends of LWARS)

MARCH / APRIL 2024

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| LWARS Board: Pres. Roy McCleary (N5ZKW) VP. Martin Coons (N5FAC) Treas. Robert Tear (N9KGL) Sec. Kenneth Ezzell (KE5EZZ) Dir. Matthew Sullivan (KG5ZPV) Dir. Mike Drew (KG5FZC) Dir. Tim Hutchings (N5TCH) | LWARS Training Net: Each Thursday at 7 PM. Repeater 146.620 Tone 123 Simplex 146.580 (Simplex Net - First Thursday Evening of the Month) Back Up Repeater 146.780 Tone 123 Email lwars.nz5t@gmail.com | Next Meeting: Saturday, April 20th, 2024, at 10 AM Lake Whitney Public Library, 602 E. Jefferson Ave, Whitney, TX. Check the club's Facebook page or check into the Thursday evening LWARS Training Net for any updates. LWARS meets on the third Saturday of each month at 10 AM. |
| Members:38 Tech:13 Gen:10 Extra:13 Advance:1 | | |

From The Secretary's Desk....

THE GREAT SOLAR ECLIPSE OF 2024

As you might be aware, day will become night for about 5 minutes on April 8th 2024. What can be a once in a lifetime event for most persons, the moon will completely blocked out the Sun for those lucky enough to be in (or travels to) the "Path of Totality".

The time line of the 2024 eclipse viewing from Lake Whitney is as follows:

- 12:21p, Moon's shadow first touches the Sun.
- 01:06 p, Sun will be about 50% blocked.
- 01:38:19p to 01:42:40p Sun is 100% blocked.
- 02:14p, Sun will be back at 50%.
- 03:00p, Moon's shadow will be off of the Sun.

Upcoming Dates of Note:

April 8th
ECLIPSE 2024!

April 13th, 7 AM – 1 PM
Temple Amateur Radio Club HamExpo
<https://tarc.org/hamexpo/>
Belton TX

April 20th
LWARS Club Meeting

2024 ARRL Field Day is June 22-23

Note: This edition of The Microphone will be serving as both the March and April editions. By separating the club meeting meetings & financial report from The Microphone, we are no longer bound to a release date post club meeting. The mins and financial report will be sent to LWARS members shortly after the club meeting each month and The Microphone will be released during the first few days of each month. The next edition will be May 2024. This will give me extra time to research and include more content.

Special Event Call Sign

LWARS members will be operating a special event call sign, W5S, from April 1st to April 15th. Ron Franklin-AA5HK will be coordinating this and if you would like to operate under W5S during these days please get in touch with him to add your name to a time slot(s).

A checklist for what to expect during the 2024 total solar eclipse!

[Jason Davis](#) • Sep 08, 2023, The Planetary Society

A total solar eclipse can be a life-changing experience. People who have seen the Moon blot out the Sun firsthand tend to agree that it's a spectacular sight like nothing else in nature.

The next chance to see a total solar eclipse will be on April 8, 2024, when the Moon's shadow crosses Mexico, the U.S., and Canada. While most of North and Central America will see a partial solar eclipse, a fortunate fraction of people living in the path of totality will experience a total solar eclipse. If you have the means to travel to the path of totality, we highly recommend it.

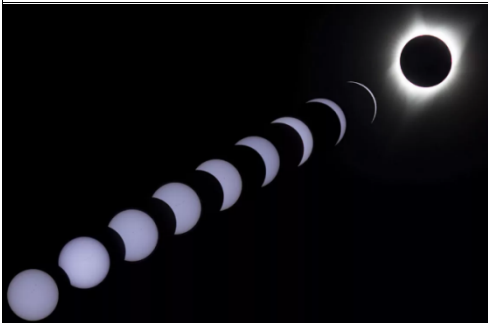
A total solar eclipse only lasts a few minutes, depending on your location. There are a lot of things to watch for, which can make the big moment feel overwhelming — particularly for first-time viewers.

Here's a checklist of things you might see during a total solar eclipse. The most important thing you can do is enjoy the show. There's no need to try and check off every item we list below, but by knowing what to expect ahead of time, you'll be more prepared to experience this cosmic spectacle.

Before totality

Watch the Moon's movement

Starting at least an hour before totality (the exact time depends on your location), you can watch a partial eclipse as the Moon slowly crosses in front of the Sun. As seen through eclipse glasses or a solar filter-equipped viewer like a telescope or binoculars, the Moon will take a larger and larger bite out of the Sun.



TOTAL SOLAR ECLIPSE MONTAGE Eclipse montage, as seen from Glenrock, WY.

Shot with a Canon T3i, 55-250mm lens and Baader solar film. *Image: Corey Chapman*

You can also see the Moon's shadow by making a pinhole projector, holding up a colander, or by looking at the dappled shade from a tree.

The quality of light

As more and more of the Sun gets eclipsed, you'll notice some strange lighting effects.

Normally, the edges of your shadow under the full Sun are fuzzy. That's because our big, round star generates light rays at an infinite number of angles. But as the Sun gets eclipsed into a crescent, it behaves more like a glow stick, putting out light in a more uniform direction. Objects aligned to the axis of the Sun's crescent will cast sharper shadows.

You may also notice daylight starting to fade. What began as a bright, sunny day may start to appear overcast as the Moon blocks more and more sunlight.

Shadow bands

A rarer phenomenon to look for near totality is shadow bands. Shadow bands are undulating shadows that are most easily seen on plain surfaces. They are subtle, but may appear for a few minutes before and after totality.

Scientists are not certain what causes shadow bands, and their appearance is unpredictable. One theory is that they are created by the same turbulent air in the upper atmosphere that makes stars twinkle. As the Sun shrinks into a thin crescent — the same crescent that makes shadows sharp — the light may organize into twinkling lines.

The racing shadow

After observing the Moon's leisurely progression across the Sun, you may be tempted to forget that the Earth, Moon, and Sun are locked in a high-speed orbital dance.

The Moon's average speed around the Earth is around 3,700 kilometers per hour (2,300 miles per hour), meaning the darkest part of its shadow, the umbra, travels just as fast. The Earth's rotation changes the shadow's effective speed depending on where you live, but it's still quick. If you're watching from a spot where you can see a long way in the direction of the oncoming shadow, you may be able to see it racing toward you on the ground or in the clouds.

Baily's beads

As the last of the Sun's rays disappear, you may see what looks like a string of beads along the Moon's limb. These beads are caused by sunlight slipping through lunar valleys — you're actually seeing the Moon's topography!



SOLAR ECLIPSE PHENOMENA Baily's beads, the Sun's chromosphere, and solar prominences are visible in this picture captured from Madras, Oregon during a total solar eclipse on Aug. 21, 2017. *Image: NASA / Aubrey Gemignani*

Chromosphere and prominences

For a few moments, you may be able to see a red arc along the Moon's edge. This is the Sun's middle atmosphere, known as the chromosphere. You might also see red prominences extending off the surface. These prominences are larger than Earth and consist of electrically charged hydrogen and helium, known as plasma. Diamond ring as the Baily's beads wink out, only one will remain, shining bright like a diamond set into a glowing ring. Get ready for totality!

Totality

Twilight and sunset

The diamond ring disappears as the sky plunges into twilight, marking the start of totality. It is now safe to view the Sun with your unaided eye.

The darkness of the sky overhead depends on how close you are to the center of the path of totality. The horizon all around you glows orange like at sunset.



Imelda Josen and Edwin Aguirre

The solar corona

With the Sun completely eclipsed, the corona emerges. The corona is the Sun's outer atmosphere, visible as a wispy, white expanse billowing out from the Sun. At

the center of the corona, the Moon is a black disk blocking the Sun's surface. A solar eclipse is the only time you can see the corona with the unaided eye, as it is normally lost in the glare of the Sun.



2017 TOTAL SOLAR ECLIPSE The total solar eclipse on 21 August 2017 captured the attention of millions as it passed across the United States. This image of the eclipse during totality, taken in Douglas, Wyoming, captures our star's streaming corona in stunning detail. Total solar eclipses provide a unique opportunity to study our Sun's atmosphere without the use of space-based coronagraphs. *Image: Blake Estes*

The corona is much hotter than the Sun's surface, and scientists aren't sure why. Data from NASA's Parker Solar Probe recently showed that turbulence beneath the Sun's surface may be causing magnetic field lines to vibrate like plucked guitar strings, transferring energy out to the corona.

Stars and planets

As the sky darkens, bright stars and planets may emerge. You can check what the sky will look like during totality at your location, but generally speaking, look for Venus to the Sun's right or bottom-right. Jupiter should be to the Sun's left or upper-left.

Temperature drop

With the Sun temporarily hidden by the Moon, temperatures on the ground will fall. Expect a drop in temperature of about 5 degrees Celsius (10 degrees Fahrenheit), depending on humidity levels and cloud cover at your viewing site.

Animal behavior

Unlike you, animals haven't been warned ahead of time that a major cosmic event is about to happen. As the sky fades into twilight, some diurnal animals may engage in their bedtime rituals, while nocturnal animals may wake up and become active.

Before totality, notice any animal behaviors at your viewing location. Are any birds singing or calling? Do you see or hear any noisy insects? During totality, you'll

have a lot to take in, but you may notice that some animal behaviors have changed, or that different animals have appeared.

After totality

All of the events that preceded totality will now occur in reverse. The diamond ring will re-emerge. The chromosphere and prominences may appear as the Moon slides off the Sun's disk. Baily's beads will blink on. And then the glare of the Sun's surface will reappear.

Look for shadow bands again, along with the Moon's shadow racing away from your location. Temperatures will rise. Shadows will remain sharp along the Sun's crescent axis. And finally, as seen through eclipse glasses or a solar filter, the Moon's bite out of the Sun will decrease until it disappears.

It's important to note again that the most important thing you can do during the eclipse is enjoy the show. It may not be possible to see every eclipse phenomenon, even if you're trying really hard. But by knowing what to expect ahead of time, you'll be better prepared to have a memorable experience