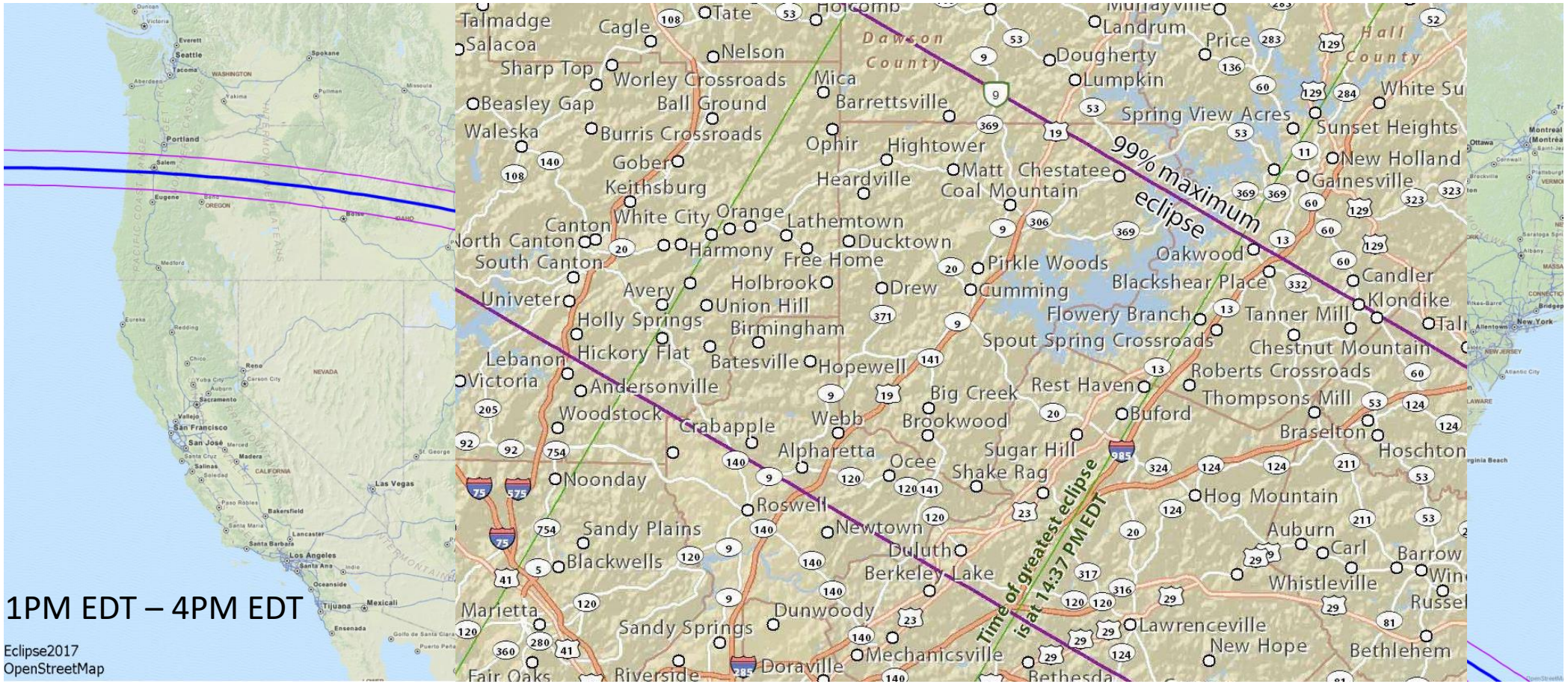
Solar Eclipse QSO Party

COMING TO A SKY NEAR YOU ON AUGUST 21

MARTIN BUEHRING – KB4MG

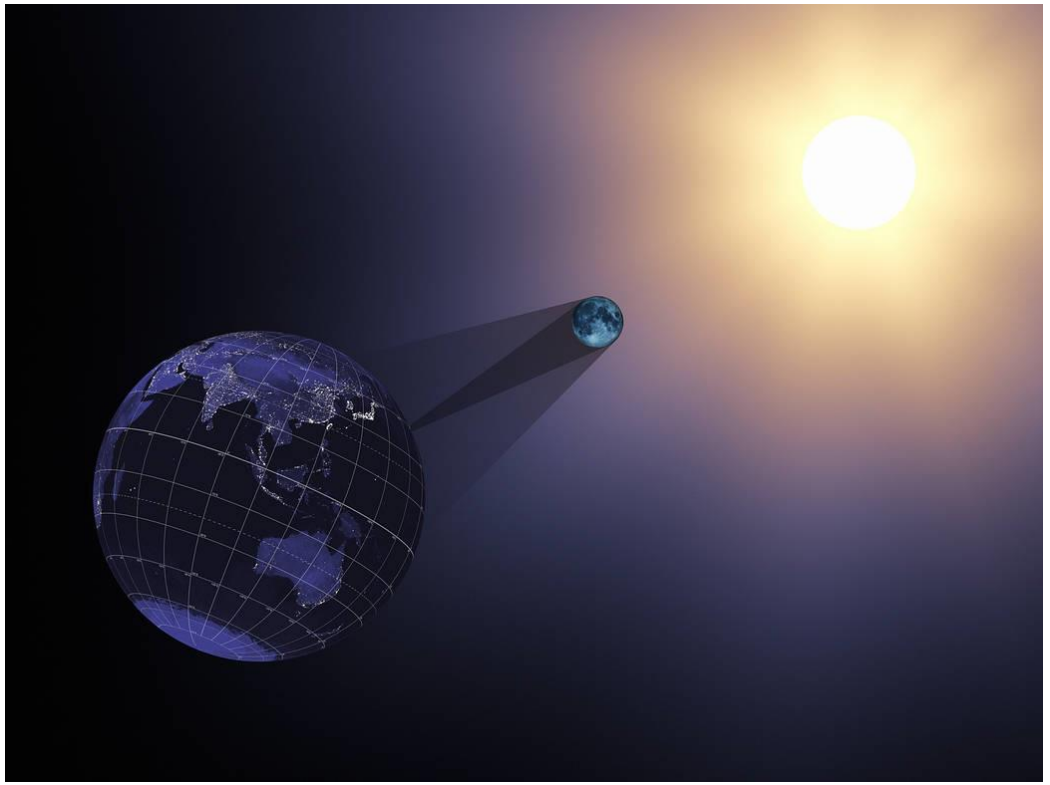
AUGUST CARS MEETING

Solar Eclipse August 21, 2017



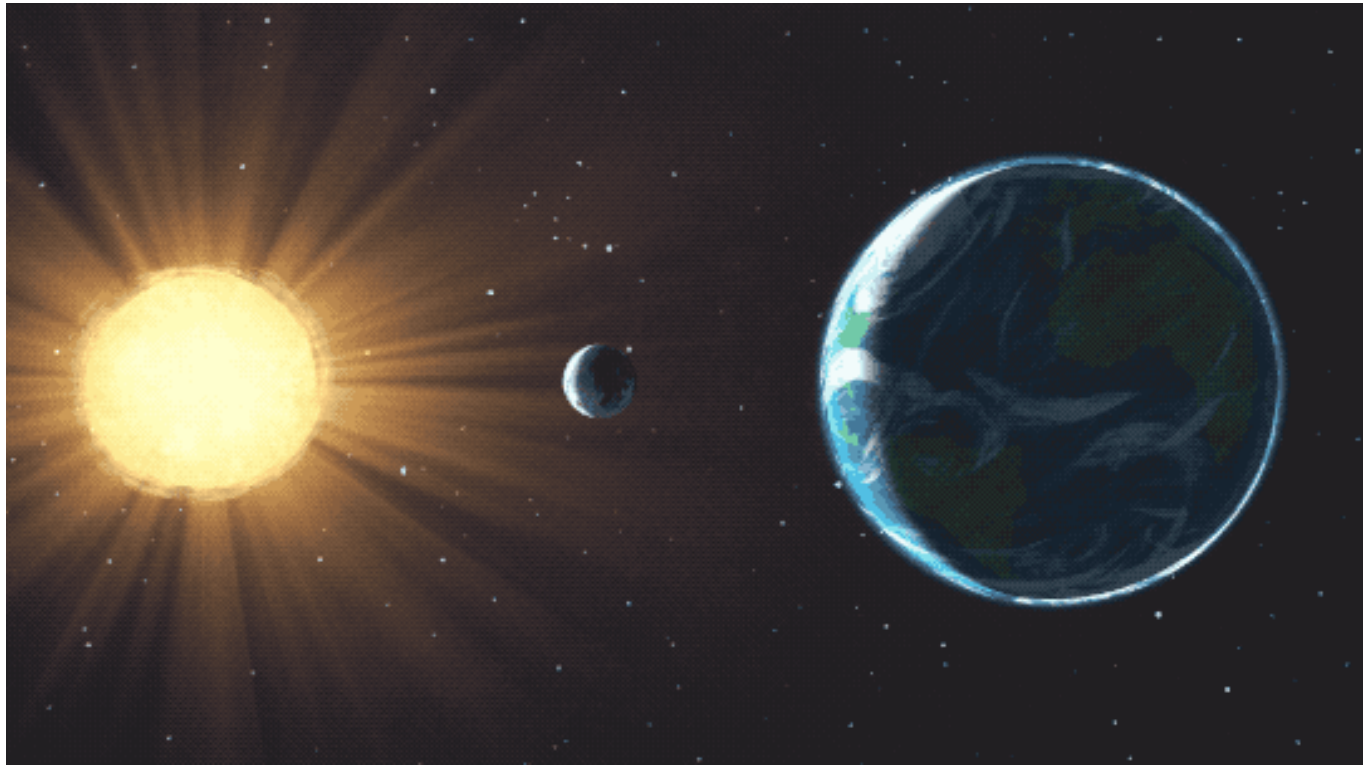
What is an eclipse?

- An eclipse occurs when the path of the moon intersects the sun
- The path of totality is only 114Km wide (~70 miles)
- How often does it happen?
  - About every 18 months
  - Different parts of the globe
- How can I see it?
  - NASA live feed
  - Use ISO certified glasses



CHEROKEE AMATEUR RADIO SOCIETY
WX4CAR

What happens to the ionosphere?



Science says that the moon will block (turn off) the source of the extreme ultraviolet radiation that ionizes this part of our atmosphere.

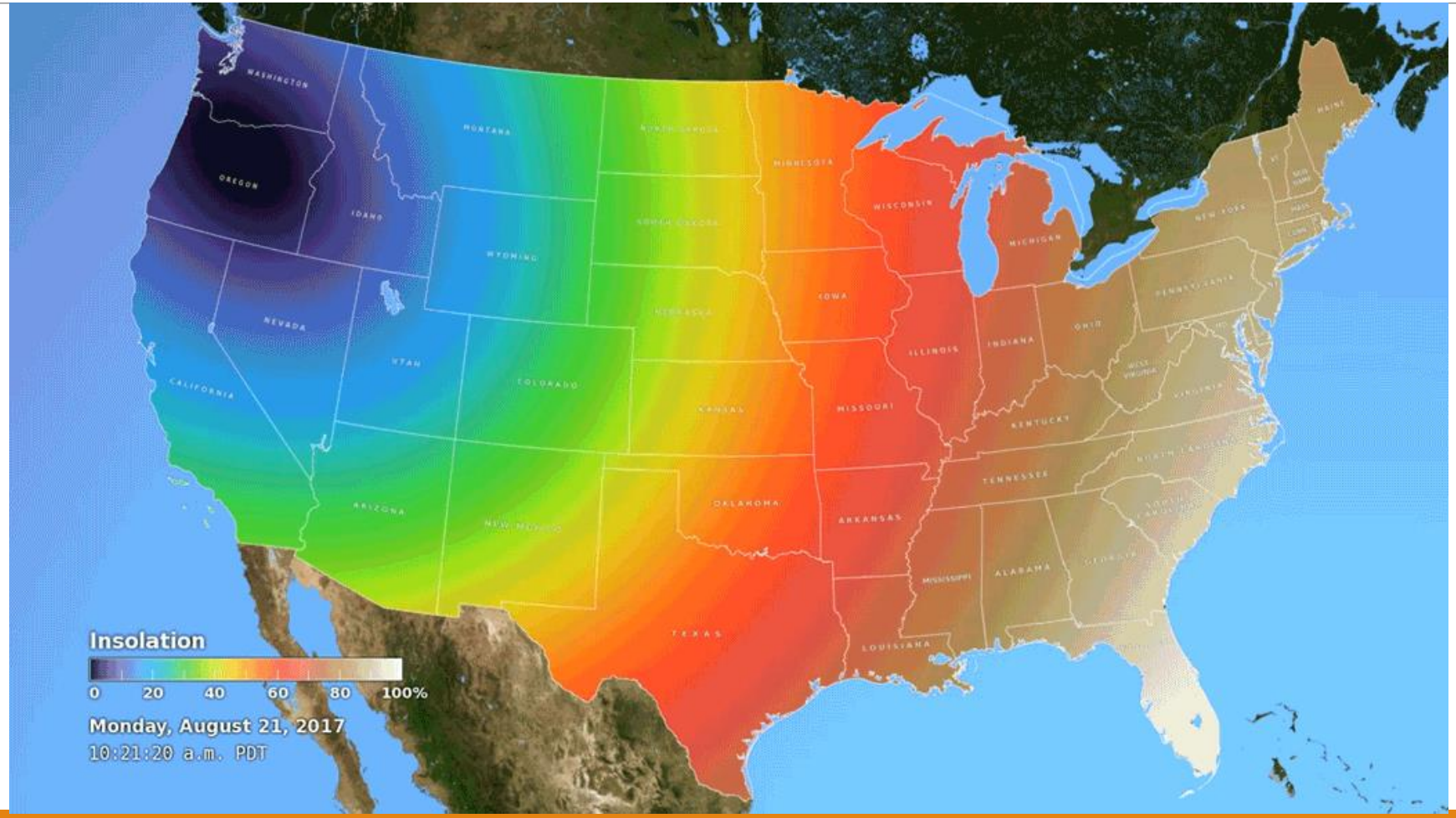
Without the radiation source, the ionosphere will “relax” , going from daytime to nighttime conditions along the path of the eclipse.

Amateur bands typically only good at night (160m thru 40m) will come to life.

Scientists are studying these effects during this eclipse event, and you can help.

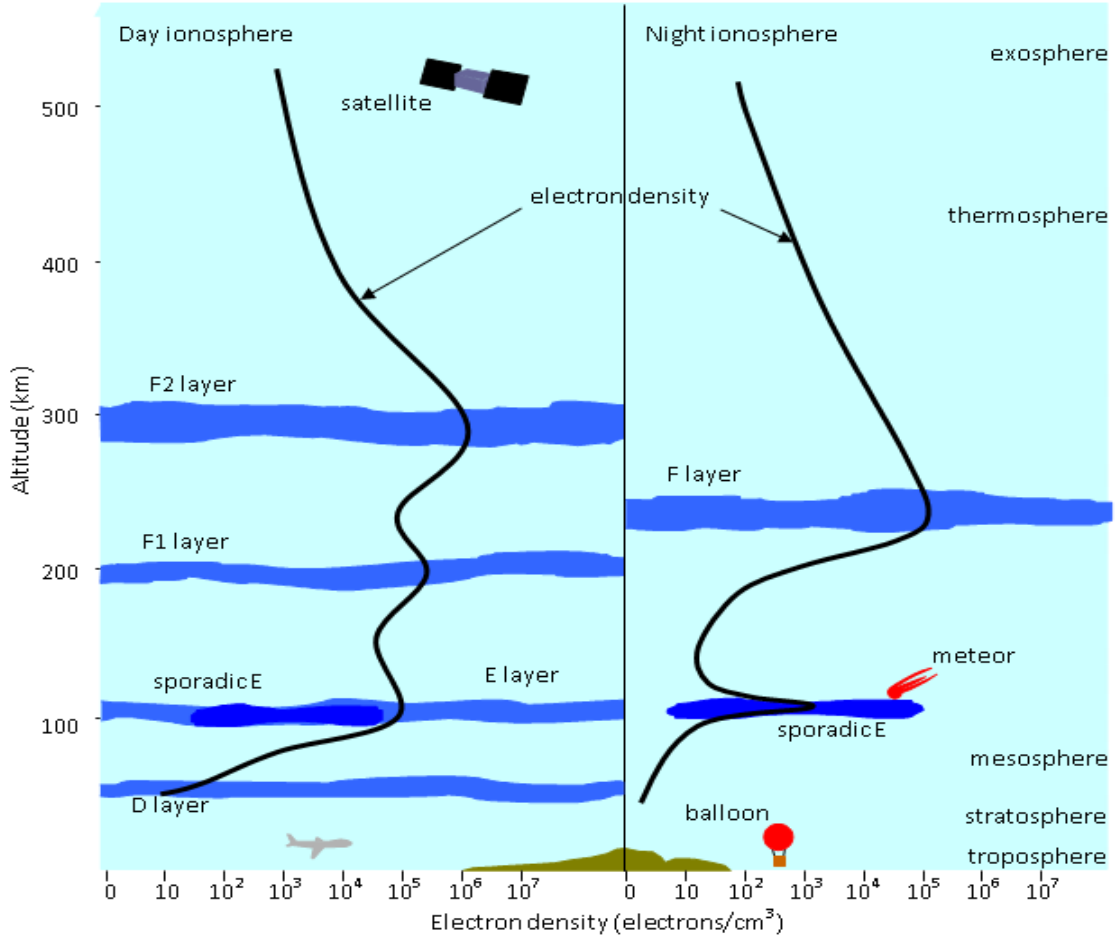
CHEROKEE AMATEUR RADIO SOCIETY
WX4CAR

Effect on Ionization



Layers of the ionosphere

- Ionosphere is made up of 2-4 layers depending on the time of day
- Not a smooth mirror – more like those Fun House mirrors
- Each of these play a role in understanding radio propagation
- Lowest layer D **only in daylight time**
  - Absorbs lower frequency RF
- E layer – **Day time and sometimes at night**
- F layer – Breaks into two parts in the day and merges into a single layer at night
- Notice the electron density at the layer boundaries. This is what provides radio propagation



Why is ham radio involved?

New Jersey Institute of Technology and Virginia Tech have teamed up on a project to study the effects of the eclipse on the ionosphere.

The QSO Party is to encourage ham radio operators to register and participate in this experiment

Reporting services will be listening for your signals and spotting you.

- RBN – Reverse Beacon Network
- PSKReporter
- WSPRNet

It's not a contest, but is an event to encourage hams to operate during this time period so data can be collected.

How can I participate?

- **Be available** the day of the solar eclipse and able to operate at 1PM EDT Aug 21st
- **Register** online at www.hamsci.org/seqp-prereg
- Looking primarily for people to **operate** PSK31, CW, RTTY, and SSB as well as WSPR
- All bands, but most interest is 40 and 80 meters
- **Logging** is with the N1MM+ logger, which has the format of the exchange programmed as ECLIPSE. Must use the latest version to get this log.
- Logs must be **submitted** by Sept 30th, 2017
- ARRL Supported event

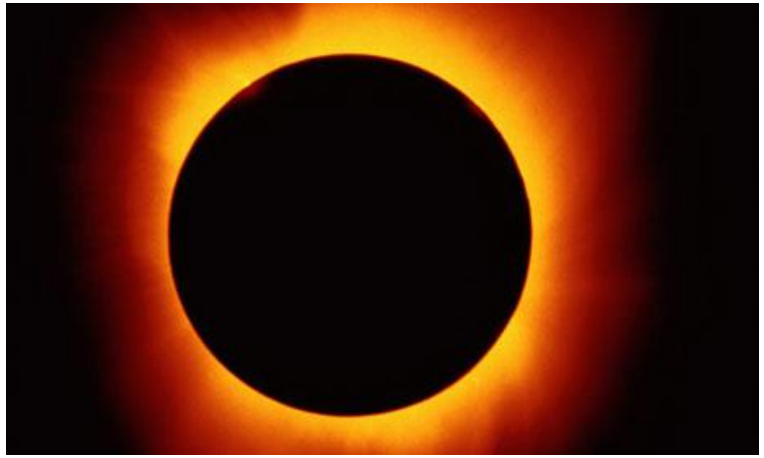
CHEROKEE AMATEUR RADIO SOCIETY
WX4CAR

Precautions !

- The only safe way to look directly at the uneclipsed or partially eclipsed sun is through special-purpose solar filters, such as “eclipse glasses” (example shown at left) or hand-held solar viewers. Homemade filters or ordinary sunglasses, even very dark ones, are not safe for looking at the sun; they transmit thousands of times too much sunlight.
- Always supervise children using solar filters.
- Stand still and cover your eyes with your eclipse glasses or solar viewer before looking up at the bright sun. After looking at the sun, turn away and remove your filter — do not remove it while looking at the sun.
- Do not look at the uneclipsed or partially eclipsed sun through an unfiltered camera, telescope, binoculars, or other optical device.

CHEROKEE AMATEUR RADIO SOCIETY
WX4CAR

Want to know more?



NASA Website coverage : www.eclipse2017.nasa.gov

Physics: www.phys.org/news/2017-08-day-night-earth-ionosphere-total.html

General Viewing Info: www.greatamericaneclipse.com

Ham Radio: www.hamsci.org Solar Eclipse QSO party info

CHEROKEE AMATEUR RADIO SOCIETY
WX4CAR