

The Sun drives many processes in Earth's atmosphere.

National Aeronautics and
Space Administration



Air Temperature

Energy from the Sun warms the surface of the Earth. Warmth from the Earth's surface heats the surrounding air, causing it to rise.

Clouds

Warm air cools as it rises, and water vapor condenses into puffy cumulus clouds.

Wind

Changes in temperature drive differences in air pressure, causing wind to form.



How will the eclipse affect these solar-powered processes?

Share your eclipse observations using the GLOBE Observer app.
Learn more at observer.globe.gov/eclipse

nasa.gov



GLOBE
Observer

the app of THE GLOBE PROGRAM



Energy from the Sun warms our planet, and changes in sunlight can also cause changes in temperature, clouds, and wind. What happens when the Sun is blocked by the Moon during an eclipse? How will the eclipse affect these solar-powered processes?

Air Temperature

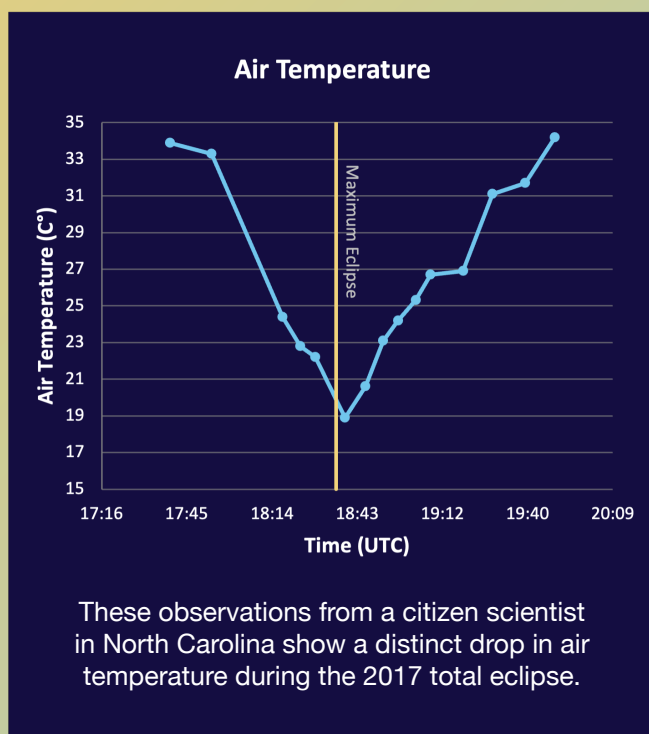
In general, during an eclipse when sunlight is blocked, the air temperature will go down. The amount of the drop can depend on factors such as cloud cover, humidity, passing cold or warm air fronts, vegetation, and local geography.

Clouds

Clouds form when air cools and water vapor condenses. However, the reason for that cooling can vary. One type of cloud formation is through convection, when the sun-warmed surface heats the air and causes it to rise, cool, and condense into clouds. We often call these “fair weather clouds,” and consist primarily of small cumulus clouds. Since the eclipse will affect the heating of the ground, this is the type of cloud we expect to be most affected by an eclipse. Clouds formed by other processes may change less during an eclipse.

Wind

Wind forms when air moves from an area of high pressure to low pressure. Differences in temperature drive differences in pressure that lead to wind. So, as the eclipse affects the temperature of the air and surface, we can expect to see changes in wind speed and direction. However, there are also many other factors involved, such as the surface type, vegetation, and the geography of the area.



Do Eclipse Science with NASA

If it seems that studying weather is complicated, it is! This is why we want your help to collect observations during the eclipse and document the impacts on the atmosphere.

Learn more about the GLOBE Observer app, and explore other opportunities to collect data at observer.globe.gov/eclipse.

Use the GLOBE Observer app to:

- Document clouds as the eclipse progresses
- Report the land cover and surface conditions at your observation site
- Record changing air temperature with a simple meteorological thermometer
- Photograph a wind flag to show changes in wind
- Add field notes and comments about your experiences during the eclipse

With additional GLOBE training, you can:

- Report changes in surface temperature using an infrared thermometer
- Share weather station data, including wind speeds and other atmospheric measurements

Check out additional NASA citizen science opportunities, like Eclipse Soundscapes.

With Eclipse Soundscapes, you can document changes in animal behavior and sounds during the eclipse.

NEVER LOOK DIRECTLY AT THE SUN! Learn more at solarsystem.nasa.gov/eclipses/safety