

**Abstract:**

A total solar eclipse is a rare event that occurs when the moon passes in between the Sun and Earth, and the face of the sun is blocked and darkens the sky. As rare as they can be, on 8 April, 2024, several states in the United States will get to witness this phenomenon. While data on average cloud cover is available, there are no corresponding, readily available climatologies for other meteorological variables such as temperature, precipitation, snowfall, and snow depth. The weather conditions will impact how viewers prepare for the eclipse, so this project seeks to fill in this gap. Quality controlled climate data from several automated surface observing stations (ASOS) sites in the path of totality was compiled for this project. This presentation will examine the possible and average weather conditions for the various ASOS sites in the path of totality. Having this data readily available will allow the National Weather Service and state officials to inform people and travelers from all over the country about the weather conditions and will also allow emergency management officials to better plan and prepare to maximize public safety for this rare event.