

Spring 2024 GLOBE Workshop: Atmosphere Changes during the Solar Eclipse in Tupper Lake, NY

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Abstract:

This research project investigates the dynamic environmental changes observed during Totality, focusing on the drop in temperature and increase in wind speeds. Utilizing data from a meat thermometer and wind speed measurements, we found that at the beginning of Totality, the temperature decreased from 17.7 degrees Celsius to 11.50 degrees Celsius, while wind speeds exhibited a consistent rise. Future research directions include exploring the correlation between temperature drop and wind speed increase, and analyzing the impact of Totality duration on these phenomena. These efforts aim to deepen our understanding of Earth's atmospheric processes during celestial events like Totality.

Background Information:

The energy from the Sun warms up our planet. When there are changes in the amount of sunlight we get, there are also changes in the air temperature, clouds, and wind. A total solar eclipse occurs when the Moon blocks the Sun completely, as on April 8, 2024 in North America. This research was conducted at Tupper Lake, NY, which experienced 100% eclipse cover at 3:26 pm..

Claim/Hypothesis:

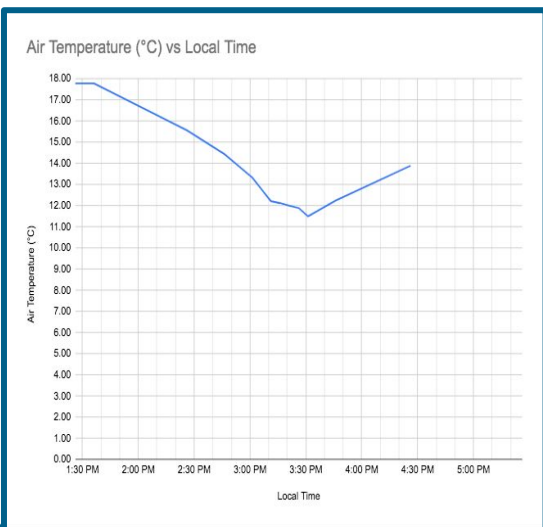
As the Sun gets blocked by the Moon, the air temperature drops.

Research Question:

How does air temperature change during a solar eclipse?

Dataset: [Air temperature changes in Tupper Lake, NY](#)

Graph



Evidence/Conclusions: Based on the graphed data from the meat thermometer, we can see that the temperature at the beginning of Totality started at 17.7 degrees Celsius and gradually decreased to 11.50 degrees Celsius over time. This indicates a noticeable drop in temperature during the observed period. Additionally, we observed rising wind speeds throughout the course of Totality.

Next Steps/Future Research:

Correlation Analysis: Investigate the correlation between the drop in temperature during Totality and the rising wind speeds. Are these two variables related, and if so, what is the nature of their relationship?

Impact of Totality Duration: Explore how the duration of Totality affects the magnitude of temperature drop and wind speed increase. Compare data from different Totality durations to understand any patterns or trends

Bibliography/Sources:

The GLOBE Program. *GLOBE Educator One-Week Pacing Guide: Experiencing a Solar Eclipse.*
<https://www.globe.gov/documents/18527/37661214/Solar+Eclipses>