

Bard College 4/8/24 Solar Eclipse Report

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The solar eclipse started at 2.11 pm and ended at 4.36 pm, with the maximum eclipse at 3.26 pm. We measured total solar irradiance and diffuse (skylight) irradiance in watts per square meter (see figure 1). The solar energy dropped from around 400 to 28 watts per square meter. The second figure shows the the 24 minutes lagging temperature drop of 2.6 C at 2 meter height, which caused a shallow inversion. The inversion can be seen in different rates of drop between the 9 meter temperature which fell less compared to the 2 meter temperature. This is because sunlight is mostly absorbed at the surface and not in the atmosphere, so near the ground is where most change is noticed.

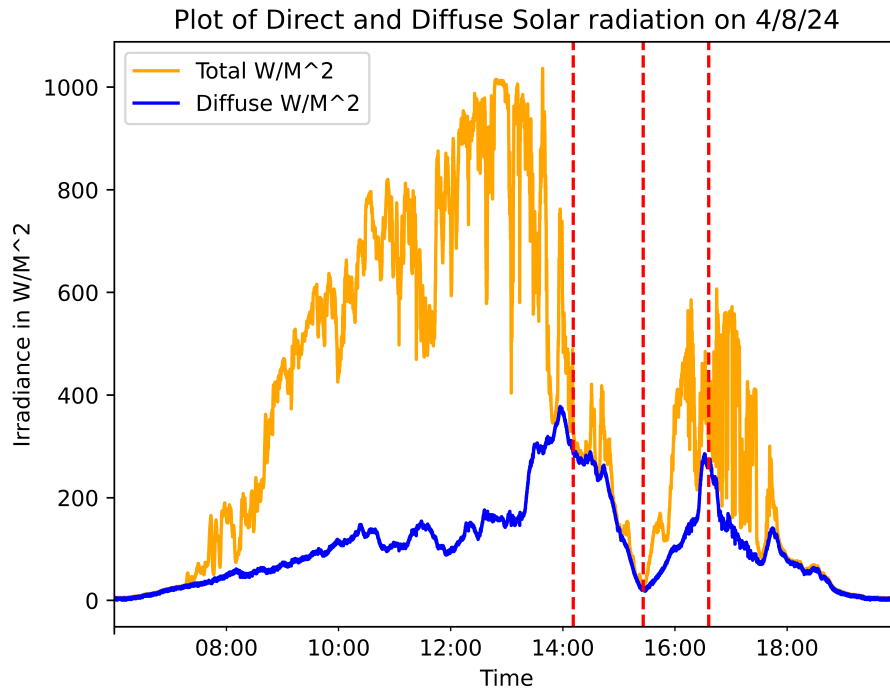


Figure 1: Data collected using a sunshine pyranometer at Bard campus

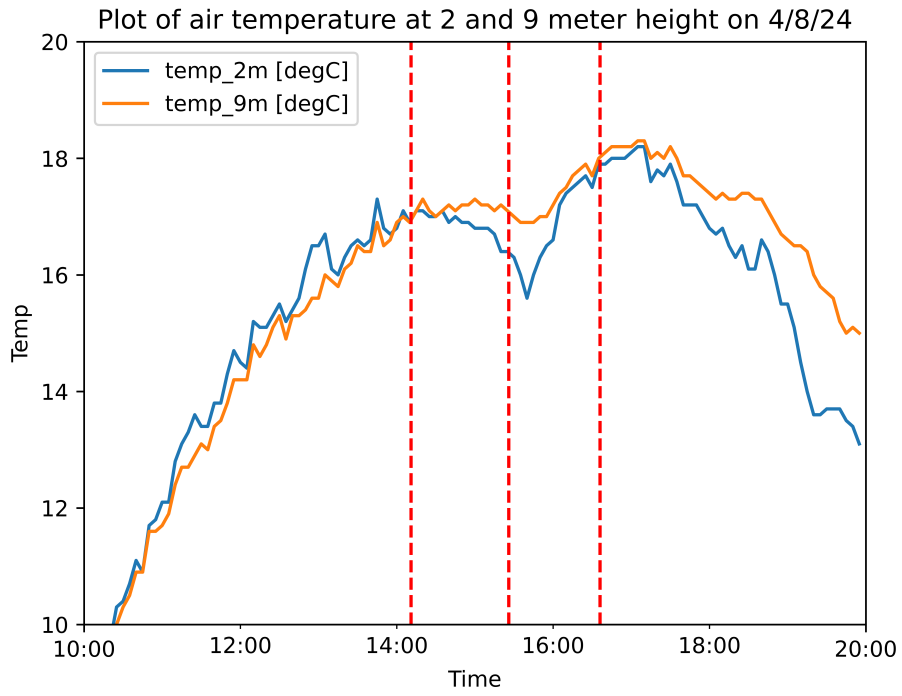


Figure 2: Temperature data from the Red Hook weather station was provided by the New York State Mesonet network, see Brotzge et al. (2020).