

Abstract Submitted
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High Altitude Solar Radiation Measurements Used in Aerosol Optical Depth Calculation and Sun Photometer Calibration EVAN MCCARTHY, NIMMI SHARMA, Central Connecticut State University — Optical measurements of incoming solar radiation may be used to derive atmospheric characteristics. Sun photometers use multi-wavelength optical measurements to derive aerosol optical depth. Voltages created in the detectors by solar radiation passing through various band-pass filters are measured and calibration procedures are employed to determine the attenuation of the radiation along the path from the top of the atmosphere to the experimental location. These voltages are then related to the aerosol optical depth with a calibration constant that is determined through analysis of calibration measurements recorded with each band-pass filter. To transcend the atmospheric impurities found at lower altitudes, the sun photometer calibration measurements were conducted at a high altitude to measure the intensity of sunlight reaching the ground through various air masses. These measurements can then combined with laser radar and/or nephelometer measurements for further atmospheric research.

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