

Abstract Submitted
for the NES18 Meeting of
The American Physical Society

Using Photometer Measurements to Investigate Seasonal Atmospheric Changes JAMES KULOWIEC, NIMMI SHARMA, Central Connecticut State University — Photometers convert incoming light of a given bandwidth into a detected voltage which can be used to derive atmospheric quantities. Mauna Loa Observatory (MLO) in Hawaii hosts a Cimel sun photometer which is part of AERONET, NASA's Aerosol Robotic Network. One quantity derived from the MLO data is the aerosol phase function. Aerosols are small particulates in the atmosphere. They scatter light unequally into all angular directions. The amount depends on the particle types, shapes, and sizes. The aerosol phase function is a function which shows the distribution of scattered light with angle. Since scattering by angle differs for different particle types, phase functions may provide insight on particulate types in the atmosphere. This study focuses on the phase functions recorded for the atmosphere over MLO, over the years 2006-2009. The phase functions differed by season. In spring, the air circulation patterns over MLO may transport dust from East Asia over Hawaii. If the effect of dust is strong, it has the potential to influence the phase function. Phase functions for classes of aerosols, including dust, polluted continental, and polluted dust, have been formed from CALIPSO (Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations) satellite data. We conducted comparisons of MLO seasonal aerosol phase functions with the CALIPSO aerosol class phase functions to study which classes best fit the MLO data over each studied season.

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Date submitted: 12 Mar 2018

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