Abstract Submitted
for the NES18 Meeting of
The American Physical Society

Effect of Polarized Light on Aerosol Extinction Using the CLidar at Mauna Loa Observatory CHRIS OVILLE, JALAL BUTT, NIMMI SHARMA, Central Conn State Univ, JOHN BARNES, NOAA —

Aerosol measurements at Mauna Loa Observatory (MLO) are the focus of many investigations involving climate, weather, and atmospheric physics. The CCD-chip Camera Lidar, or CLidar, is one of a group of complimentary remote sensing instruments maintained at MLO. The Bi-static orientation of the CLidar system allows excellent altitude resolution close to the ground but requires an empirically derived scattering phase function for the accommodation of angular dependence. While the method for determining the phase function relies on *unpolarized* sunlight, the laser at MLO has been traditionally *linearly* polarized. The objective of this study is to determine the effect that differing polarization has on extinction measurements of side scattered laser light. For several evenings, a quarter wave plate was alternatingly fitted on the MLO laser to shift between linearly and circularly polarized light (which integrated over time mimics unpolarized light). Extinction was computed and compared.

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Date submitted: 02 Mar 2018 Electronic form version 1.4