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Optical Measurements of Atmospheric Layers using Two Different Lidar Systems JALAL BUTT, CHRIS OVILLE, NIMMI SHARMA, Department of Physics and Engineering Physics, Central Connecticut State University, JOHN BARNES, Cooperative Institute for Research in Environmental Sciences, CU Boulder; NOAA Earth System Research Laboratory, Global Monitoring Division — Two distinct lidar systems were used to investigate the scattering of laser light by constituents of the atmosphere. The two lidar systems differ in design; one is monostatic, with the laser transmitter and detector for scattered photons located at the same place, and the other, a CCD-Camera Lidar, is bistatic, with the detector located far from the laser. A single 532-nm laser was vertically transmitted at MLO for both lidar systems and raw signals from the laser light scatter off atmospheric constituents were detected by both systems approximately simultaneously. The monostatic system measures backscatter, the portion of the laser light that is scattered back at a 180 degree angle toward the detector. The CLidar system measures side scatter at angles which change depending on the altitude of the portion of the atmosphere being probed. The received scatter signals were converted to aerosol extinction for both lidar systems. We explored the measurements of atmospheric layers, as measured by the two lidar systems.

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