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DETECTING ATMOSPHERIC STRUCTURE WITH CLIDAR ANALYSES SETH GAGNON, ALICJA URBANCZYK, Central Connecticut State University, AMIN KABIR, University of Bahamas, NIMMI SHARMA, Central Connecticut State University — Atmospheric models often make the simplifying assumption that the lowest layer of the atmosphere is well mixed due to convection. Because of this mechanism, this layer is often called the convective boundary layer. By detecting the presence of small particulates suspended in the atmosphere (aerosols) through their ability to scatter incident laser light, we can examine this assumption locally to see if their dynamics over time indicate a well-mixed distribution. Atmospheric aerosol extinction data collected from camera-based Lidar (CLidar) analyses demonstrate instances of atmospheric behavior which does not match the well-mixed assumption. The CLidar system consists of a laser, which is transmitted vertically into the atmosphere and imaged from the side with a CCD camera. The aerosol extinction represents how much of the laser light is removed from the beam through scattering and absorption within a certain altitude increment. By graphing this relationship with altitude and investigating how the plots vary with time, we visualize the amount of scattering occurring at each altitude over time. These studies show that on occasion multiple layers of increased scattering within the atmosphere persist throughout a dataset.

Seth Gagnon
Central Connecticut State University

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