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Detection of Atmospheric Features using In Situ and Optical Remote Sensing Measurements WILLIAM TUXBURY, CHRIS OVILLE, JALAL BUTT, NIMMI SHARMA, Central Connecticut State University — Detection of features in the lower atmosphere is important for enhancing our understanding of atmospheric dynamics and for providing inputs into atmospheric modeling. In situ measurements allow direct sampling of the atmosphere, however they typically provide a limited amount of data due to the challenges in obtaining the data. This study used in situ measurements from radiosondes, small direct sampling instruments which sample the atmosphere at various altitudes as they are borne aloft on large weather balloons. They are typically limited to two launches per day. While useful, such measurements are unable to capture the temporal variations of certain atmospheric features that result from atmospheric dynamics. Laser radar, also known as Lidar (an acronym for Light Detection and Ranging) is an optical remote sensing technique that is capable of providing longer time frame atmospheric measurements. In this study, lower atmospheric feature detection is accomplished using radiosonde data collected from three regional sounding sites in conjunction with remote sensing measurements from a CCD Camera (CLidar) system at Central Connecticut State University. The CLidar is a bi-static, laser and CCD camera imaging lidar which is designed to detect the scattering of light from aerosol particles.

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