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Experimental and Analytical Techniques to Map Tropospheric Aerosols Using High Powered Lasers MICHAEL NARIJAUSKAS, NIMMI SHARMA, Central Connecticut State University — High powered laser pulses sent up into the troposphere scatter off air molecules and suspended atmospheric aerosols. CCD imaging detection of this laser scattering can be accomplished experimentally, and when combined with detailed analysis, reveals a map of aerosols located in the troposphere. This technique provides a greater resolution of lower atmospheric regions than that achieved by many more traditional lasing and detection systems. Wide angled optics capture the scatter from the entire laser beam and image the scattered intensities at each altitude onto a CCD chip. Pixel intensities are analyzed through IDL software and molecular and aerosol scattering can be determined. Techniques are discussed and results are presented for measurements of aerosols at Central Connecticut State University.

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