

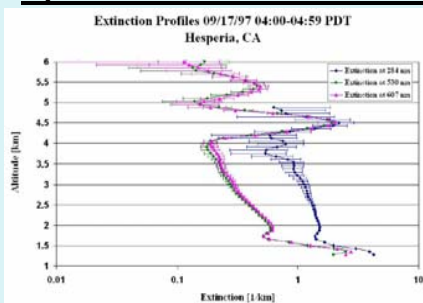
OPTICAL REMOTE SENSING OF AEROSOL CHARACTERISTICS

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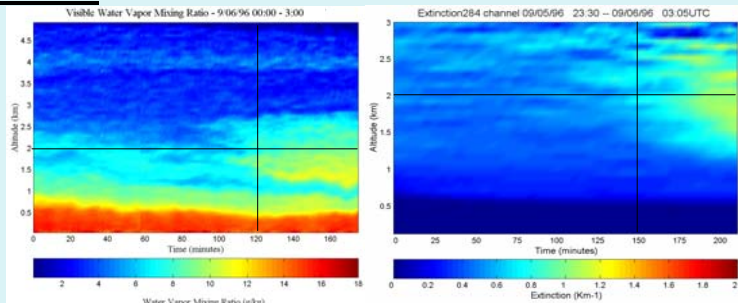
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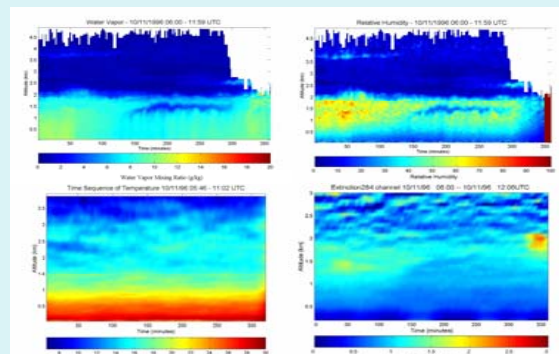
Optical Extinction from Raman Lidar



Gradients in the Raman Lidar vertical profiles of major molecular species can be interpreted as direct measurements of optical extinction.

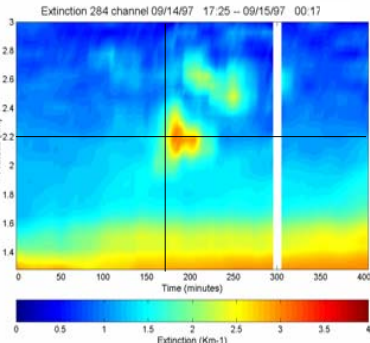
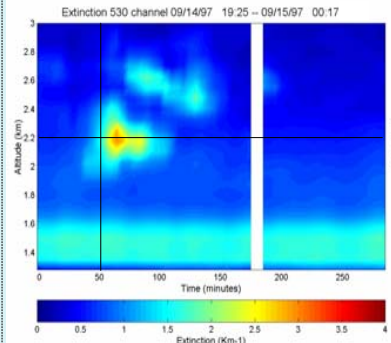
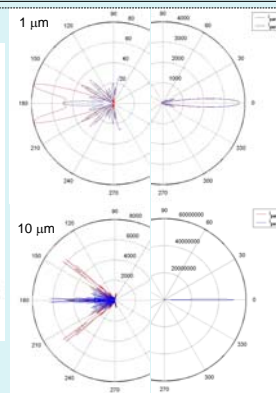
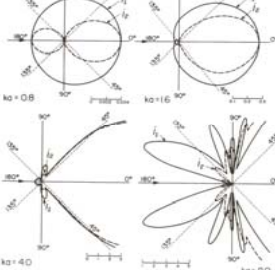
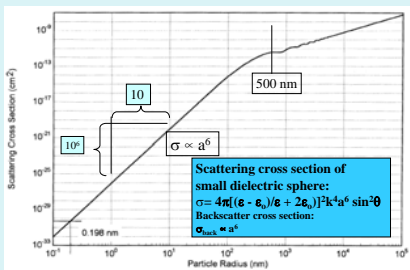


Water vapor profiles provide another way of detecting sub-visual cloud formation. The optical extinction at UV wavelengths is more sensitive for detecting particles.

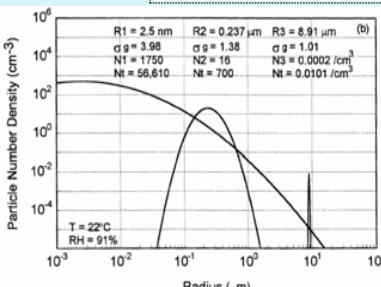
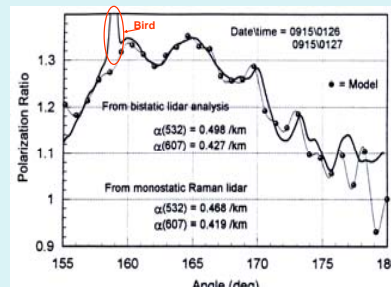
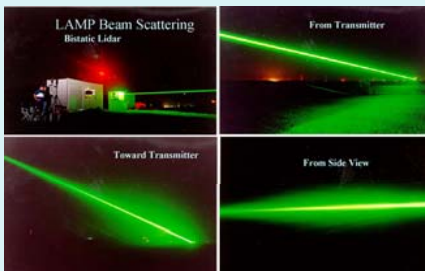


Specific humidity and temperature profile sequences are used to calculate the relative humidity and compare with optical extinction.

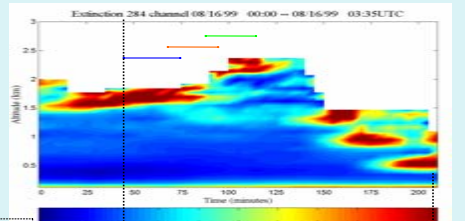
Bistatic and Multistatic Lidar



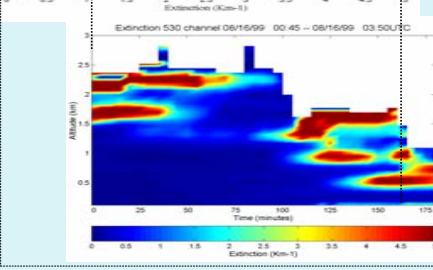
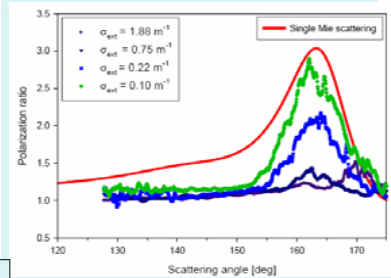
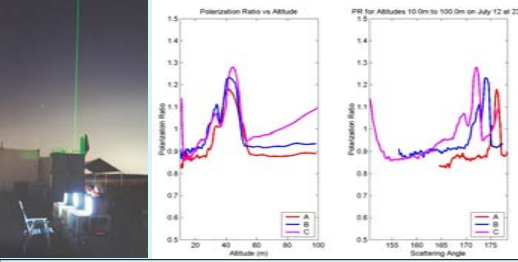
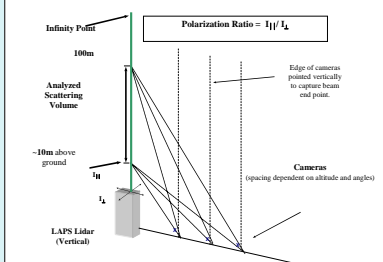
Polarization ratio of the scattering phase function determines the size, size distribution, and density of spherical aerosols.



Using multiple wavelengths (UV-VIS-NIR) provides opportunity to study the distribution of aerosols around regions of cloud formation and dissipation.



Scattering phase function observed in light fog.



Current Topics

Bistatic and multistatic scattering can describe the size, size distribution, density and refractive index of spherical aerosols.

Multiple scattering solutions describe the aerosol characteristics.

Multi-λ combined with multistatic; extending the wavelength region; solution for non-spherical particles; genetic algorithm solutions; investigations of aerosol growth and dissipation; design standard sensor.