

Abstract Submitted
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Single Scattering Albedo of fresh biomass burning aerosols measured using cavity ring down spectroscopy and nephelometry¹ SOLOMON BILILIGN, SUJEETA SINGH, MARC FIDDLER, NCAT State University, DAMON SMITH, High Point University, BILILIGN RESEARCH GROUP TEAM — An accurate measurement of optical properties of aerosols is critical for quantifying the effect of aerosols on climate. Uncertainties still persist and measurement results vary significantly. The factors that affect measurement accuracy and the resulting uncertainties of the extinction-minus-scattering method are evaluated using a combination of cavity ring-down spectroscopy (CRDS) and integrating nephelometry and applied to measure the optical properties of fresh soot (size 300 and 400 nm) produced from burning of pine, red oak and cedar. We have demonstrated a system that allows measurement of optical properties at a wide range of wavelengths, which can be extended over most of the solar spectrum to determine “featured” absorption cross sections as a function of wavelength. SSA values measured were nearly flat ranging from 0.45 to 0.6. The result also demonstrates that SSA of fresh soot is nearly independent of wavelength of light in the 500-680 wavelength range with a slight increase at longer wavelength. The values are within the range of measured values both in the laboratory and in field studies for fresh soot

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