

Abstract Submitted
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Scattering and Absorption of E&M radiation by small particles-applications to study impact of biomass aerosols on climate¹ SOLOMON BILILIGN, North Carolina A&T State University, Department of Physics, SUJEETA SINGH, MARC FIDDLER, DAMON SMITH, North Carolina A&T State University — The phenomena of scattering, absorption, and emission of light and other electromagnetic radiation by small particles are central to many science and engineering disciplines. Absorption of solar radiation by black carbon aerosols has a significant impact on the atmospheric energy distribution and hydrologic processes. By intercepting incoming solar radiation before it reaches the surface, aerosols heat the atmosphere and, in turn, cool the surface. The magnitude of the atmospheric forcing induced by anthropogenic absorbing aerosols, mainly black carbon (BC) emitted from biomass burning and combustion processes has been suggested to be comparable to the atmospheric forcing by all greenhouse gases (GHGs). Despite the global abundance of biomass burning for cooking, forests clearing for agriculture and wild fires, the optical properties of these aerosols have not been characterized at wide range of wavelengths. Our laboratory uses a combination of Cavity ring down spectroscopy and integrating nephelometry to measure optical properties of (extinction, absorption and scattering coefficients) of biomass aerosols. Preliminary results will be presented.

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