

## UV broadband aerosol extinction measurements during the southern oxidant and aerosol study (SOAS)

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### Broadband Cavity Enhanced Spectrometer (BBCES)

Atmospheric particles are produced from a wide variety of both anthropogenic and natural sources and impact the Earth's radiative budget by direct scattering and absorption of radiation. To investigate these impacts we have developed a novel BBCES covering a wavelength range of 360-420 nm, which we used to measure wavelength dependent aerosol extinction cross sections during the SOAS field campaign.

### Brown Carbon Aerosol During a Biomass Burning Event

Recently Zhang *et al.*, has shown evidence for wavelength-dependent absorption by brown carbon aerosols with enhanced absorption at shorter wavelengths [1]. During the SOAS field campaign, one major biomass burning event was observed, which showed enhanced aerosol absorption in the UV. We retrieve complex refractive indices (RI) for these aerosols from the BBCES extinction and a Scanning Mobility Particle Sizer (SMPS) measurement. The variation of extinction with wavelength in the UV for biomass burning aerosols are inconsistent with a wavelength-independent RI, suggesting an influence by brown carbon aerosols at short wavelengths. This presentation will outline methods for complex RI retrievals from ambient measurements of wavelength-dependent extinction and the implications for understanding sources and impacts of brown carbon.

[1]Zhang *et al* (2011) *GRL* **38**, doi: 10.1029/2011GL049385.