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# Overview of the South American Biomass Burning Analysis (SAMBBA) field experiment in Brazil during Sept - Oct 2012

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The South American Biomass Burning Analysis (SAMBBA) is an international research project investigating the impacts of biomass burning emissions on climate, air quality and numerical weather prediction over South America. The project involves a combination of measurements and modelling activities to assess the role of biomass burning and biogenic emissions in the earth system. This international collaboration has been led by a partnership between the Met Office, the Brazilian National Institute for Space research (INPE), the University of Sao Paulo, and a consortium of UK Universities. The measurement program was headed by the deployment of UK's Facility for Airborne Atmospheric Measurements (FAAM) BAe-146 research aircraft over Brazil during the dry season of September – October 2012. This was co-ordinated with ground-based measurements operated by the University of Sao Paulo and INPE. This successful field experiment now provides an excellent source of observations to build our understanding of biomass burning processes and improve model simulations of biomass burning aerosols and their interactions with biogenic emissions, atmospheric chemistry, clouds, radiation, and the terrestrial biosphere.

This talk will summarise the field experiment, including the aircraft measurements and ground-based observations made during the dry season of 2012. Preliminary results will highlight the range of biomass burning and biogenic emissions observed from tropical forest, deforested zones and scrub-land. Case studies will also show infra-red camera images of fire radiative output, the evolution of large smoke plumes and the variable composition of background aerosol and extensive haze layers across the region. The lidar data and aircraft profiles also highlight the prevalence of elevated aerosol layers observed at altitudes of 3 – 7km, presumed to be detrainment from large smoke plumes, pyrocumulus and mid-level convection. The ground-based observations also highlight the episodic nature of biomass burning activity during the dry season and the variability of aerosol properties related to their dominant sources.