



Chemical tracers of emissions, photochemistry and transport processes in West Africa

C.E. Reeves (1), D.J. Parker (2), C.M. Taylor (3), J.G. Murphy (1,4), D. Stewart (1), D.E. Oram (1)

(1) University of East Anglia, UK, (2) University of Leeds, UK, (3) Centre for Ecology and Hydrology, UK, (4) University of Toronto, Canada (c.reeves@uea.ac.uk / Phone: +44-1603-593625)

The data to be presented were collected on board the FAAM BAe-146, which made 26 flights from Niamey, Niger during July and August 2006 as part of the international AMMA (African Monsoon Multidisciplinary Analyses) project. The 146 was equipped with instruments measuring parameters relevant to dynamics, gas phase composition, radiation, aerosols and clouds.

The flights made were designed to examine a range of multidisciplinary scientific questions. These include:

1. the impact of soil moisture on atmospheric dynamics (e.g. convection) and on emissions of nitrogen oxides
2. emissions of biogenic compounds (e.g. isoprene) from different vegetation types and their subsequent impact on atmospheric composition (e.g. secondary organic aerosol)
3. the use of chemical tracers (e.g. isoprene and its oxidation products) for determining transport dynamics
4. the impact of long range transport in both importing air influenced by biomass burning in the southern hemisphere and the transport of boundary layer air into the upper troposphere through mesoscale convective systems
5. emissions from cities including the mega-city of Lagos.

The campaign has produced an excellent data set addressing all of these objectives and showing the interrelations between the land-surface characteristics, dynamics and chemistry. This paper will focus on the distribution of the chemical tracers and what they infer about the sources, chemical processing and transport of these trace gases over West Africa.