



## **PTR-MS measurements from the UK BAe-146 research aircraft during the ICARTT campaign**

**A. Hulse** (1), D.E. Oram (1), C.E. Reeves (1), S.A. Penkett (1), J.R. Hopkins (2), N. Watson (2), J. Methven (3) and R. Purvis (4)

(1) School of Environmental Sciences, University of East Anglia, Norwich, UK, (2) Department of Chemistry, University of York, York, UK, (3) Department of Meteorology, University of Reading, Reading, UK, (4) Facility for Airborne Atmospheric Measurements, Cranfield University, Cranfield, UK (a.hulse@uea.ac.uk / Fax: +44 (0) 1603 452420 / Phone: +44 (0) 1603 452420)

A Proton Transfer Reaction Mass Spectrometer (PTR-MS) has been adapted for use on the new UK Research Aircraft (BAe Systems 146, FAAM) and took part in the Intercontinental Transport of Ozone and Precursors (ITOP) campaign within the multinational ICARTT (International Consortium for Atmospheric Research on Transport and Transformation) experiment in the summer of 2004. An ITOP objective was studying chemical processing as pollution is transported away from source regions. The PTR-MS method is based on proton transfer reactions of  $\text{H}_3\text{O}^+$  ions with volatile organic compounds (VOCs) and is capable of monitoring VOCs in near real time, with detection limits of a few tens of pptv. Flying out of Horta airport (Faial Island, Azores), the aircraft frequently intercepted plumes of pollution emanating from the North American continent, some of which were heavily impacted by the Alaskan forest fires. Compounds measured include methanol, acetonitrile, acetaldehyde, acetone, benzene and toluene. Data will be presented to include vertical profiles and comparisons with  $\text{CO}$ ,  $\text{O}_3$  and other tracers. The in situ PTR-MS measurements will also be compared with VOC/OVOC data from bottle samples which were collected during flight and analysed using gas chromatography.