



Comparison between in-situ measured and modelled CH₄ and CO₂:

Recent TDLAS CH₄ and CO₂ measurements from the ITOP campaign.

W. Flynn (1), P. Cook (1), S. Arnold (2), T. Gardiner (3), R. Robinson (3), **J. Methven** (4), S. Garcelon (1), G. Hansford (1), **R. Jones** (1)

(1) Centre for Atmospheric Science, Department of Chemistry, University of Cambridge, (2) Institute for Atmospheric Science, School of Earth and Environment, University of Leeds, (3) National Physical Laboratory (NPL), Middlesex, (4) Department of Meteorology, University of Reading.

The ITOP (Intercontinental Transport of Ozone and its Precursors) campaign took place during July and August 2004, based in Faial - in the Azores. The aim of this international campaign was to study the intercontinental transport of air pollutants over the East coast of North America, the Azores and the West coast of Europe. The FAAM (Facility of Atmospheric Measurements) BAe-146 aircraft was used to make in-situ atmospheric measurements from the Azores.

Back trajectories have been used to interpret in-situ measurements of CH₄ and CO₂ made during ITOP. The back trajectories arrive at regularly-spaced points along each flight track. These trajectories have been used to identify the origins of air masses sampled on board the BAe-146. Comparisons will be drawn between TDLAS (Tunable Diode Laser Absorption Spectrometer) CH₄ and CO₂ in-situ measurements, and modelled CH₄ and CO₂ values at the origin of each back trajectory. The latter were taken from the global tropospheric chemistry-transport model, p-TOMCAT. The intention is to use a combination of modelled and measured CO and CO₂ concentrations to diagnose where significant mixing has taken place within air parcels, sampled during the ITOP campaign.