



Quantifying the impact of BOREal forest fires on Tropospheric oxidants over the Atlantic using Aircraft and Satellites (BORTAS) experiment: design, execution and science overview

Paul Palmer (1), Mark Parrington (1), Ally Lewis (2), James Lee (2), Andrew Rickard (2), Peter Bernath (2,3)

(1) School of GeoSciences, University of Edinburgh, Edinburgh, UK, (2) National Centre for Atmospheric Science, School of Chemistry, University of York, UK, (3) Department of Chemistry and Biochemistry, Old Dominion University, Norfolk, VA, USA

We describe the design and execution of the BORTAS (Quantifying the impact of BOREal forest fires on Tropospheric oxidants using Aircraft and Satellites) experiment, which has the overarching objective of understanding the chemical aging of air masses, containing the emission products from seasonal boreal wildfires, and how they impact downwind atmospheric composition. The central focus of the experiment was a two-week deployment of the UK BAe-146-301 Atmospheric Research Aircraft (ARA) over eastern Canada. This was complemented by ground-based measurements at the Dalhousie University Ground Station (DGS) and the University of Toronto, enhanced ozonesonde launches, measurements on the Pico Mountain Atmospheric Observatory in the Azores, and coordinated space-borne measurements. Integration of these data has helped us to describe pollution plumes from wildfires on a wide spectrum of temporal and spatial scales. These data are interpreted using a range of chemistry models, from a near-explicit gas-phase chemical mechanism to a regional and global model of atmospheric transport and lumped chemistry, and data assimilation tools. We also provide a brief science overview of the project, providing the platform for co-submitted science abstracts.