



Measurements of O₃, NO₂ and temperature during the 2004 Canadian Arctic Validation of ACE Campaign

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The purpose of the Canadian Arctic Validation of the Atmospheric Chemistry Experiment (ACE) campaign is to provide correlative data for use in validating measurements from the ACE satellite mission. ACE, also known as SCISAT-1, was launched on 12 August 2003 and carries two instruments: ACE-FTS, a high resolution infrared Fourier Transform Spectrometer, and ACE-MAESTRO (Measurements of Aerosol Extinction in the Stratosphere and Troposphere Retrieved by Occultation), a dual UV-Visible-NIR spectrograph. The primary goal of the ACE mission is to investigate the chemical and dynamical processes that control the distribution of ozone in the atmosphere, with a focus on the Canadian Arctic.

The ground-based validation campaign took place at Eureka, Nunavut (80°N, 86°W) at Environment Canada's Arctic Stratospheric Observatory (AStrO) from 18 February to 18 April 2004, coinciding with the most chemically active time of year in the Arctic stratosphere. Seven instruments were operated during the most intensive phase of the campaign (23 February to 9 March): a MAESTRO clone, a SunPhotoSpectrometer (SPS), a zenith-viewing UV-visible grating spectrometer, a ground-based version of ACE-FTS (PARIS-IR - Portable Atmospheric Research Interferometric Spectrometer), a Bomem DA8 Fourier transform spectrometer, a Differential Absorption Lidar, and a Brewer spectrophotometer. In addition, daily ozonesondes were released during

this intensive phase.

We will present comparisons of vertical columns and, where possible, profiles of ozone and NO₂ and also profiles of temperature retrieved using this suite of instruments. Comparisons will also be made to coincident satellite measurements made by ACE-FTS and ACE-MAESTRO.