THE ATMOSPHERIC CHEMISTRY EXPERIMENT (ACE): MISSION STATUS AND RECENT RESULTS

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On 13 August 2008, the Atmospheric Chemistry Experiment (ACE) will complete its fifth year in-orbit. ACE, also known as SCISAT-1, is a Canadian scientific satellite designed to perform remote sensing measurements of the Earth's atmosphere. The primary instrument is the Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS), a high-resolution (0.02 cm^{-1}) FTS operating between 750 and 4400 cm^{-1}. It also contains two filtered imagers (0.525 and 1.02 microns) to measure atmospheric extinction due to clouds and aerosols. The second instrument is a dual UV-visible-NIR spectrophotometer called ACE-MAESTRO (Measurements of Aerosol Extinction in the Stratosphere and Troposphere Retrieved by Occultation) which extends the ACE wavelength coverage to the 280-1030 nm spectral region. The primary measurement technique for both instruments is solar occultation. From these measurements, atmospheric profiles of trace gas species, temperature and pressure are obtained. The primary goal of the ACE mission is to measure and to understand the chemical and dynamical processes that control the distribution of ozone in the upper troposphere and stratosphere, with a particular focus on the Arctic region. This presentation will focus on recent scientific results from SCISAT-1 measurements and validation of the ACE results using data from other remote sensing instruments.