INITIAL RETRIEVAL STUDIES FROM THE INFRARED STRATOSPHERIC SOLAR ABSORPTION SPECTRA RECORDED WITH THE ATMOSPHERIC CHEMISTRY EXPERIMENT FOURIER TRANSFORM SPECTROMETER DURING THE SCISAT-1 MISSION

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SciSat-1, otherwise known as the Atmospheric Chemistry Experiment (ACE), is a Canadian satellite mission for remote sensing of the Earth's atmosphere. It was launched into low Earth orbit (altitude 650 km, inclination 74°) aboard a U.S. supplied Pegasus XL rocket in August 2003. The primary measurement configuration for the mission is solar occultation. The scientific instruments on the ACE satellite are co-aligned to simultaneously probe the same altitude region and feature broad spectral coverage, from the mid-infrared to the near UV. The primary instrument on board is a Fourier Transform Spectrometer known as ACE-FTS, with unapodized resolution 0.02 cm^{-1} (maximum path difference $\pm$25 cm) and wavenumber coverage 750-4100 cm^{-1}. The vertical resolution of ACE-FTS occultation measurements will be 2-3 km. The primary ACE goal is to study stratospheric ozone chemistry and dynamics in the Arctic; however, the inclined orbit also provides occultations in the Antarctic, midlatitudes, the tropics, and subtropics and will yield standard data products for a dozen key stratospheric constituents and temperature. We describe initial retrieval studies with the ACE FTS spectra, comparing results achieved with different retrieval software developed by groups in Canada, NASA Langley, and in Belgium. The consistency observed for results from different retrieval software is discussed, along with plans for validation of the ACE data with other datasets.