COMPARISONS OF ACE-FTS AND PARIS-IR MEASUREMENTS OF SEVERAL TRACE GASES IN THE NORTHERN MID-LATITUDE ATMOSPHERE

DEJIAN FU, KALEY A. WALKER, KEEYOON SUNG, CHRIS BOONE, SEAN D. McLEOD, PETER F. BERNATH, *Department of Chemistry, University of Waterloo, Waterloo, Onatrio, Canada N2L 3G1*.

Infrared solar absorption spectra were recorded at Waterloo, Ontario (43.47^{o}N, 80.55^{o}W) and Vanscoy, Saskatchewan (52.02^{o}N, 107.03^{o}W) using the Portable Atmospheric Research Interferometric Spectrometer (PARIS-IR). Column amounts of several trace gases (for example O_3, CH_4, CO_2, N_2O and CFCs) were obtained from the spectra by using an Optimal Estimation Method (OEM) retrieval code (SFIT2 Version 3.81). These ground-based results have been compared with partial column densities retrieved from the measurements in the northern mid-latitude atmosphere (42^{o}N - 53^{o}N) recorded by the Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS) on-board the Canadian science satellite also known as SCISAT-1. Because PARIS-IR and ACE-FTS have similar designs, these comparisons not only provide the concentration information for the target gases in the northern mid-latitude atmosphere but also can be used to assist in validating the quality of observations made by the ACE-FTS.