1   Carbonyl fluoride (COF_2) vertical information above Jungfraujoch by FTIR and multi-spectra fitting : error budget and comparison with KASIMA 3-D CTM model calculations

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The major sources of fluorine in the stratosphere are CFC-11 and CFC-12. During the decomposition process, fluorine is first present in the form of carbonyl compounds (e.g. carbonyl fluoride (COF_2)). Given its long life time, COF_2 is the second most abundant stratospheric fluorine reservoir. Earliest, COF_2 vertical distributions were derived from occultation measurements performed by the ATMOS instrument during the SPACELAB-3 Space Shuttle mission in 1985. The Canadian FTIR spectrometer ACE-FTS, onboard the SCISAT-1 satellite, is the first instrument since the last ATMOS flight in 1994, to record COF_2 vertical profiles from space. Four years of ACE-FTS occultation measurements are presently available.

Several COF_2 IR absorption lines located either in the so-called InSb (1-5 μm) and MCT (2-16 μm) spectral ranges can be used to determine its total column from ground-based high-resolution FTIR observations. In addition, we have proposed, dur-

ing the EGU General Assembly 2007, an original retrieval procedure that allows us to derive information on the COF_2 vertical distribution, between 17 and 30 km, from ground-based FTIR spectra recorded at Jungfraujoch. This "multi-microwindows multi-spectra" approach, using the SFIT-2 v3.91 algorithm, has been completely characterized in terms of fitting strategy and information content. Some examples of COF_2 vertical profiles inversions were also presented.

This year, we will complete the characterization of the multi-microwindows multi-spectra fitting procedure by exposing the full error budget affecting our COF_2 partial and total columns products. Also, comparisons with COF_2 model runs generated by the 3D CTM KASIMA (KArlsruhe SImulation model of the Middle Atmosphere) will be presented and critically discussed.