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DYNAMIC TRACER RETRIEVALS FROM GLORIA SPECTRA (ESSENCE 2011)

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Team GLORIA

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The ESA Sounder Campaign (ESSenCe) was conducted in November and December of 2011 in Kiruna (Swedish Lapland). Its main focus has been on observation of the UT/LS region using the new Gimballed Limb Observer for Radiance Imaging of the Atmosphere (GLORIA), an infrared remote sensing instrument developed jointly by Forschungszentrum Jülich (FZJ) and Karlsruher Institut für Technologie (KIT).

GLORIA, the successor to the MIPAS and CRISTA instruments, is a limb-sounding imaging Fourier transform spectrometer. It is designed to run in either of two operation modes, emphasizing spatial (Dynamics Mode) or spectral resolution (Chemistry Mode) as desired, and covers the infrared range from 750 to 1450 cm⁻¹.

The focus of the data analysis presented here lies on the Dynamics Mode measurements. Retrievals are performed using the JURASSIC (JUelich RAPid Spectral SIMulation Code) forward model and JUTIL, the JUelich Tomographic Inversion Library.

During the ESSenCe campaign, two flights were performed on December 11th and 16th, and Dynamics Mode measurements were recorded during the latter of the two.

In this presentation, we focus on dynamic tracers like HNO₃ and CFC-11. We present altitude profiles for such species within the observed range, i.e. the upper troposphere and lower

stratosphere between about 8 and 17 km.