



CRISTA-NF: First Measurements of a New Airborne Mid-IR Limb Emission Instrument

Fred Stroh(1), Klaus Großmann(2), Lars Hoffmann(1), Martin Kaufmann(1), Andreas Kullmann(1), Friedhelm Olschewski(2), Peter Preuße(1), Martin Riese(1), Sebastian Schröder(1), Reinhold Spang(1), Katja Weigel(1)

(1) Forschungszentrum Jülich, ICG-I, Germany, (2) University of Wuppertal, Germany.

The impact of changes in temperature, trace gases, aerosols, and clouds on Earth's climate maximises in the UTLS region. In spite of their great importance for radiative forcing, these quantities and their dependence on dynamical processes are far from being well understood. This is partly due to the lack of observations with sufficiently high spatial resolution. In an effort to improve this situation the central spectrometers and telescope of the CRISTA instrument (Offermann et al. 1999) was modified, newly integrated and installed onboard the Russian high-flying research aircraft M55-Geophysica in the frame of the CRISTA-NF (New-Frontiers) project. The new instrument enables Mid-IR limb emission measurements with vertical and horizontal resolutions on the order of a few 100 meters and a few tenths of kilometers in the altitude range 6 to 20km. Retrievable parameters and species include: pressure, temperature, H₂O, O₃, N₂O, CFC-11, CFC-12, as well as aerosol and cloud optical properties.

The new instrument was successfully deployed during the EC funded SCOUT-O3 aircraft campaign in Darwin, Northern Australia (20°S), in Nov./Dec. 2005. Data have been acquired on 4 local flights as well as on 8 of the transfer flights from Germany and back supplying a wealth of information covering from northern mid-latitudes down to the southern sub-tropical region. General instrument performance and first measurements will be discussed within this presentation.

Offermann et al., 1999, Cryogenic Infrared Spectrometers and Telescopes (CRISTA) for the Atmosphere experiment and middle atmosphere variability, *J. Geophys. Res.*, 104, 16311.