

# **CRISTA-NF: Development and Performance of a New Airborne Mid-IR Limb Emission Instrument**

Fred Stroh (1), Armin Afchine (1), Jochen Barthel (1), Verena Cals (1), Vincenzo Fracassi (2), Klaus Großmann (3), Hans-Peter Heuser (3), Achim Heynen (2), Martin Kaufmann (1), Andreas Kullmann (1), Peter Knieling (3), Friedhelm Olschewski (3), Peter Preuße (1), Martin Riese (1), Axel Schönfeld (1), Reinhold Spang (1), Nicole Spelten (1), Vicheith Tan (1), Katja Weigel (1), Jörg Wolters (2)

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

On the basis of the central spectrometers and telescope of the CRISTA instrument (Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere, Offermann et al. 1999) the new airborne CRISTA-NF (New-Frontiers) instrument was developed and integrated onboard the Russian high-flying research aircraft M55-Geophysica. 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 with moderate spectral resolution. Retrievable parameters and species include: pressure, temperature, H<sub>2</sub>O, O<sub>3</sub>, N<sub>2</sub>O, CFC-11, CFC-12, as well as aerosol and cloud optical properties.

The new instrument was successfully deployed during the EC funded SCOUT-O3 Tropical Aircraft Campaign in Darwin, Northern Australia (20°S), in November/December 2005. General instrument performance and first measurements will be discussed within this presentation.

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