

High Resolution Limb Observations of Clouds by the CRISTA-NF Experiment during the SCOUT-O3 Tropical Aircraft Campaign

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The Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere - New Frontiers (CRISTA-NF) experiment on board the Russian research aircraft Geophysica measures limb emission spectra with an unprecedented vertical and horizontal resolution in 4-15 micron wavelength region. These new kind of measurements in the UT/LS region are especially valuable for the design and development of future space borne high resolution limb sounders. The IR spectra measured during the SCOUT-O3 Tropical Aircraft Campaign have been analysed in respect of cloud occurrence, cloud vertical and horizontal extent, cloud spatial structures and their utilisation for trace gas retrievals. In addition indicators for ice water content and optical thickness of the clouds have been adopted. Results of the transfer flights Oberpfaffenhofen, Germany to Darwin, Australia and return, as well of two local flights will be discussed in comparison to the meteorological forecasts and analyses of ECMWF and analyses with the Chemical Lagrangian Model of the Stratosphere (CLaMS). The CLaMS model is currently adapted for investigation in the upper troposphere including a model parameterisation for cirrus cloud formation.