



## **Turbulence measurements in the vicinity of a strong polar jet during POLSTRACC/GWLCYCLE II/SALSA, 2016**

Martina Bramberger (1), Andreas Dörnbrack (1), Markus Rapp (1), Steffen Gemsa (2), and Kevin Raynor (3)

(1) DLR, Institut für Physik der Atmosphäre, Weßling, Germany, (2) RUAG Aviation, Oberpfaffenhofen, Germany, (3) DLR, Flugexperimente, Weßling, Germany

In January 2016, the combined POLar STRATosphere in a Changing Climate (POLSTRACC), Investigation of the life cycle of gravity waves (GW-LCYCLE) II and Seasonality of Air mass transport and origin in the Lowermost Stratosphere (SALSA) campaign, shortly abbreviated as PGS, took place in Kiruna, Sweden. During this campaign, on 31 January 2016, a strong polar jet with horizontal wind speeds up to 100 m/s was located above northern Great Britain. The research flight PGS12 lead the High Altitude Long range (HALO) aircraft right above the jet streak of this polar jet, a region which is known from theoretical studies for prevalent turbulence. Here, we present a case study in which high-resolution in-situ aircraft measurements are employed to analyse and quantify turbulence in the described region with parameters such as e.g. turbulent kinetic energy and the eddy dissipation rate. This analysis is supported by idealized numerical simulations to determine involved processes for the generation of turbulence. Complementing, forecasts and operational analyses of the integrated forecast system (IFS) of the European Centre for Medium-Range Weather Forecasts (ECMWF) are used to thoroughly analyze the meteorological situation.