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RECONCILE – Project Overview and first Results

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Laboratory experiments, field measurements and modelling studies are being carried out in the frame of the EU-project RECONCILE (Reconciliation of essential process parameters for an enhanced predictability of arctic stratospheric ozone loss and its climate interactions) to reach the following objectives

1. Reach quantitative understanding of the chemistry leading to polar ozone depletion
2. Improve our understanding of polar stratospheric cloud (PSC) microphysics and heterogeneous chlorine activation
3. Quantify the flux and mixing of air through the vortex edge and its impact on polar and mid-latitude ozone
4. Incorporate the improved parameterisations into a Chemistry Climate Model (CCM) to generate more reliable predictions for the future evolution of the ozone layer and its effects and sensitivities to climate, and test the improved CCM simulations against observed trends.

We present a compact overview of the project activities and show first results. Particular emphasis will be given to very recent trace gas and particle measurements from a field campaign with the high-flying aircraft M55-Geophysica from Kiruna, Sweden, between 17. January and 19. March. Flights were carried out in the cold activated polar vortex. During some flights, the Geophysica sampled air inside synoptic-scale PSCs.