Remote sensing of Carbon Gases at Kourovka

Remote sensing of carbon gases at Kourovka is performed using a specialized instrument. The approach involves processing raw interferograms to derive mole fractions of carbon gases. The instrument is calibrated using standard gases and reference water samples at different timescales. The data is compared with in-situ measurements of dD and dO in surface air. The results are presented in the form of line plots showing seasonal and monthly variations. The comparisons highlight the effectiveness of the remote sensing approach in monitoring carbon gases.

PINCARO WS-CRS5 in situ measurements

The PINCARO WS-CRS5 instrument was installed in March 2012 at the same pavilion with Bruker IFS. The temperature around 18°C is maintained in the room. The instrument uses samples of 3/8 inch diameter for sampling line in order to minimize water vapour absorptions. The interferometric data is used to calculate the mole fractions of carbon gases. The data is compared with in-situ measurements at different humidity levels from 1000 to 20000 ppm and applied to measurements. Time series of the site temperature and precipitation sampling

Precipitation sampling was organized at the site since middle of October 2012. Liquid sample WS-CRS5 analysis of PINCARO L2130-i installed at the Climate and Environmental Physics Laboratory in Yekaterinburg, is used for isotopic analysis of collected samples.

Preliminary results of dD and dO measurements are presented at Fig. 4. Intercomparison of measured and ECHAM5-wiso model data (ECHAM5-wiso) is in progress.