

Name of research institute or organization:

Centre for Isotope Research (CIO), Groningen

Title of project:

Flask comparison on Jungfrauoch

Project leader and team:

Dr. Rolf Neubert, project leader, Groningen

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Project description:

Within the European project IMECC (Infrastructure for Measurements of the European Carbon Cycle) includes an activity called Transnational Access activities (TA). It is designed to broaden and improve access to European Carbon Cycle measurement facilities. One of those facilities is the Research Station at Jungfrauoch. CIO Groningen has submitted a proposal to get access to this research station which was approved in 2009. The goal behind this TA activity is to compare combined flask takings in regard to CO₂ and O₂ concentrations at Jungfrauoch. Therefore, the research station at Jungfrauoch has been supplied with an flask sampling unit from CIO-Groningen which is run in conjunction to the Jena (project Willi Brand, Jena) as well as UBern (project Markus Leuenberger, Bern) flask sampling programmes.

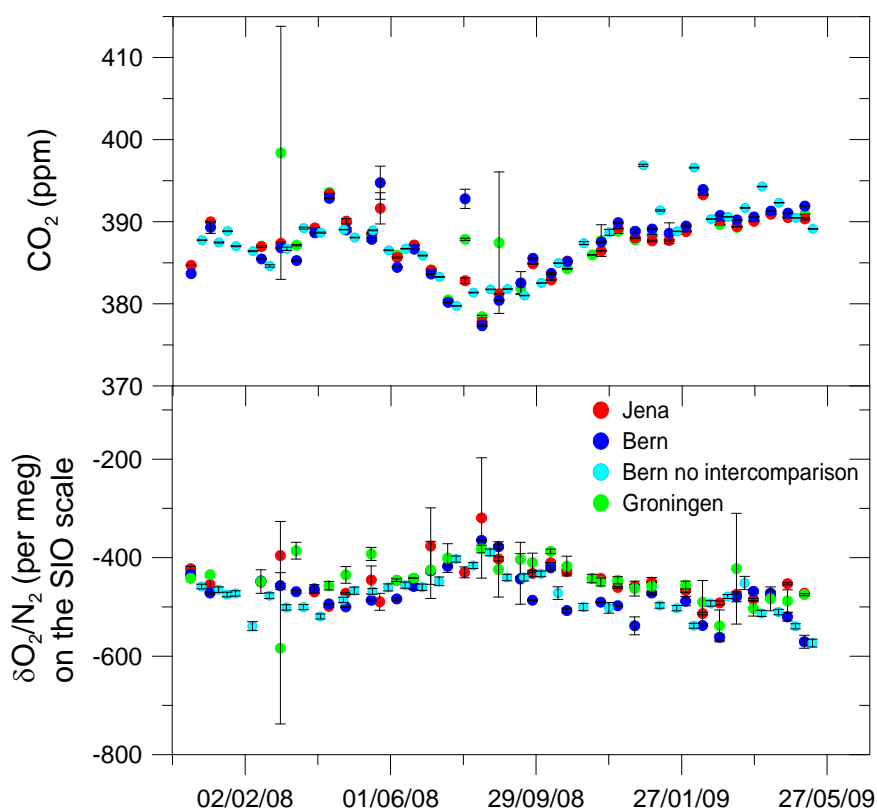


Figure 1: Measurement comparison of CO₂ and O₂/N₂ between CIO Groningen, CEP UBern and MPI-BGC Jena.

As seen from Figure 1, several issues regarding inconsistencies of the measurements became apparent in both species. The differences are higher for O₂/N₂ than for CO₂. The sampling procedure was several times adjusted since it became clear that a combined flask taking was not manageable due to the different requirements of sampling volume and air pressure. The MPI-BGC Jena flask request a sampling pressure of about 1600 mbar whereas the Groningen and UBern flask are filled to about 960 mbar. Therefore, it was decided to sample the Jena flask separately from the Groningen and UBern flask which are sampled together. However, the time of sampling remains the same for all flasks. Combined sampling is made every second week.

Key words:

Flask measurements, inter-comparison, oxygen and carbon dioxide measurements, Greenhouse gas

Collaborating partners/networks:

IMECC partners

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