

Name of research institute or organization:

Max Planck Institut für Biogeochemie, Jena

Title of project:

Flask comparison on Jungfrauoch

Part of this programme:

ICOS

Project leader and team:

Armin Jordan, project leader, Heiko Moossen, Willi Brand (retired) and Michael Rothe (Jena)
Prof. M. Leuenberger, Tesfaye Berhanu, Peter Nyfeler (all UBern)
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Project description:

The flask sampling for the intercomparison between MPI Jena, CIO Groningen (RUG) and the University of Bern (UBern) was ongoing during the reporting period. For UBE, flasks were taken every week, however, not all the flasks taken in 2017 have been analysed yet. The reproducibility for CO₂ flask measurements suffered in 2017.

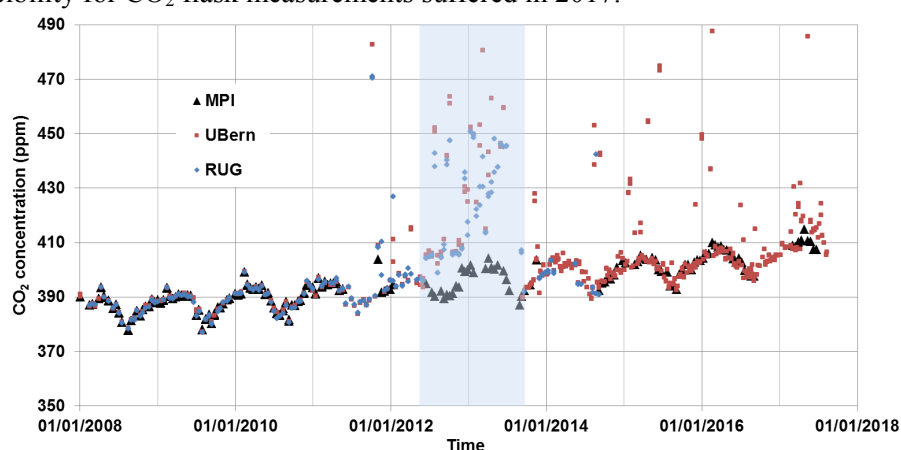


Figure 1. CO₂ concentration as measured by each laboratory. The period from June 12 to August 2013 shaded in light blue corresponds to continuously leaky conditions for the combined UBern and RUG sampling device that progressively increased.

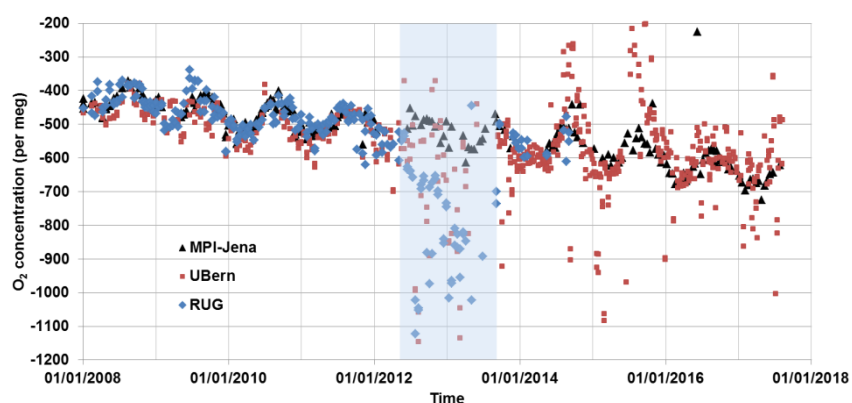


Figure 2. O₂ concentration as measured by each laboratory. The period from June 12 to August 2013 shaded in light blue corresponds to continuously leaky conditions for the combined UBE and RUG sampling device that progressively increased. UBern data unfiltered from 2012 onwards. The unexpectedly high oxygen values for the UBern flasks are not yet completely resolved but there are arguments of uncomplete drying during the sampling.

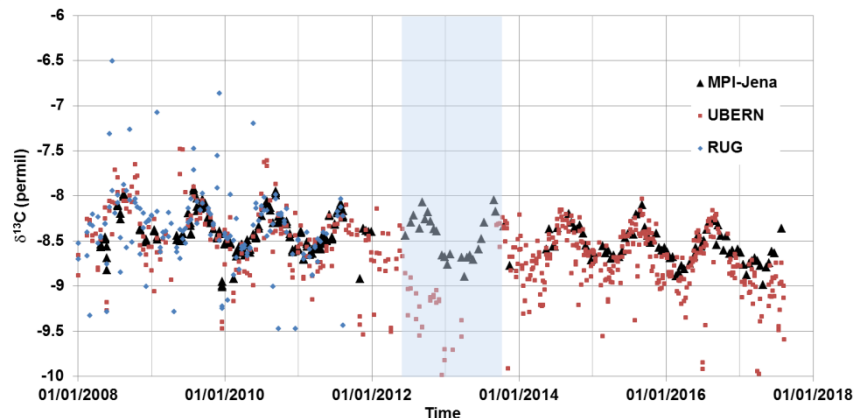


Figure 3. Carbon isotope series of Centre for Isotope Research of the Reichsuniversität Groningen (RUG), the Max Planck Institute for Biogeochemistry in Jena and the University of Bern sampled at the Jungfrauoch Research Station. The period from June 12 to August 2013 shaded in light blue corresponds to continuously leaky conditions for the combined UBERN and RUG sampling device that progressively increased. UBERN data corresponds to flask means that are unfiltered from 2012 onwards.

All measured parameters show lower reproducibility which requires investigation of the reliability of the flask sampling system at Jungfrauoch. During 2018 the new flask sampler from the ICOS project will be installed and parallel samples be taken to compare the two systems. This will shed light on the causes responsible for the lower reproducibility.

Key words:

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

Collaborating partners/networks:

University of Groningen, HFSJG, University of Bern, ICOS partners

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