



## **Carbon isotopic measurements on CO<sub>2</sub> – an overview for the Transition and the Holocene**

J. Elsig (1), A. Lourantou (3), J. Schmitt (1,2), R. Schneider (1,2), D. Leuenberger (1), H. Schäfer (3), M.C. Leuenberger (1), H. Fischer (1,2), T.F. Stocker (1), and J. Chappellaz (3)

(1) Climate and Environmental Physics, Physics Institute and Oeschger Centre for Climate Change Research, University of Bern, Sidlerstrasse 5, CH-3012 Bern, Switzerland (schmitt@climate.unibe.ch), (2) Alfred Wegener Institute for Polar and Marine Research, Columbusstrasse, 27568 Bremerhaven, Germany, (3) Laboratoire de Glaciologie et Géophysique de l'Environnement, LGGE, 38402 St Martin d'Hères, France

The carbon isotopic signature of atmospheric CO<sub>2</sub> provides key information about the sizes of the major reservoirs of the global carbon cycle. During the last decades, the Holocene and the Transition have been measured with different extraction techniques and sample sizes on different ice cores. Although the expected precision and accuracy of the individual records was reasonable, combining these records revealed discrepancies. Within the last years considerable technical improvements were made on the measurement devices allowing us for the first time to come up with a combined Holocene record using different extraction techniques. In parallel, for the Transition the current data basis is already convincing, but in view of the tricky mission (identifying the timing and magnitude of many ocean and terrestrial processes acting simultaneously) there is room for further improvements. One step in this direction is to look at the differences among the records and identify possible artifacts. Here we summarize our latest data basis and the status of interpretation along with latest technical improvements and intercomparison strategies.