Geophysical Research Abstracts
Vol. 14, EGU2012-8794, 2012
EGU General Assembly 2012

Late to middle Pleistocene climate variability recorded in stalagmites from Sofular Cave, Northern Turkey

D. Fleitmann (1,2), H. Cheng (2,3), R.L. Edwards (4), S. Badertscher (1,2), and O. Tüysüz (5)

(1) Institute of Geological Sciences , University of Bern, Bern, Switzerland (fleitmann@geo.unibe.ch), (2) Oeschger Centre for Climate Change Research, University of Bern, Bern, Switzerland (fleitmann@geo.unibe.ch), (3) Institute of Global Environmental Change, Xi'an Jiaotong University, Xi'an, Shaanxi, China, (4) Department of Geology and Geophysics, University of Minnesota, Minneapolis, USA (cheng021@umn.edu; edwar001@umn.edu) , (5) Eurasia Institute of Earth Sciences, Istanbul Technical University, Turkey (tuysuz@gmail.com)

The modern climate in Turkey and the eastern Mediterranean is strongly affected by two major climate systems; the North Atlantic/Siberian pressure system in winter and the Indian monsoon in summer. Turkey is thus ideally situated to study how and to what extent both systems were dynamically linked during the Holocene and Pleistocene. Our current knowledge of continental climate variability in Turkey relies almost entirely on lake records with only a few extending back to the Last Glacial Maximum and beyond. Another source of information on Pleistocene and Holocene climate variability is speleothems, which can be found in caves throughout Turkey. Here we present composite stalagmite oxygen and carbon isotope records from Sofular Cave located at the Black Sea coast in north-western Turkey, which cover the last 670.000 discontinuously. Uranium-series dates with unprecedented small age uncertainties of only 0.25-2% and highly resolved isotope profiles allow us to (1) identify the climatic impacts of Dansgaard-Oeschger and Heinrich events, (2) compare climatic and environmental conditions during different interglacial and glacial periods (Marine Isotope Stages 1-7, 9, 13 and 15) and (3) reveal changes in the hydrological state of the Black Sea in unprecedented detail.