Geophysical Research Abstracts,
Vol. 11, EGU2009-9210-1, 2009
EGU General Assembly 2009


# Air and water temperature changes for the last two glacial/interglacial transitions in Lake Baikal (Siberia)

S. Fietz (1), A. Rosell-Melé (1), M. Escala (1), and H. Oberhänsli (2)

(1) Universitat Autònoma de Barcelona, Institute of Environmental Science and Technology (ICTA), Barcelona, Spain (susanne.fietz@uab.cat, +34935814219), (2) GeoForschungsZentrum, Potsdam, Germany

Quantitative climate reconstructions over Central Asia, especially those performed at high-resolution allowing the detection of millennial scale events, are rather scarce. Lake Baikal's remoteness from any marine influence, yet at the boundary of European and Asian weather systems makes its sedimentary archive an excellent target for continental climate studies (Oberhänsli and Mackay 2005). Here we present a reconstruction of the climate (e.g., air and lake surface temperature, terrestrial run-off) and export production during the glacial and interglacial stages and their transitions since 135,000yr. Quantitative temperature reconstructions are derived from paleoproxies based on fossil archaeal and bacterial lipids (GDGTs), the so called TEX86 (surface lake temperature) and CBT/MBT (air temperature) indices. Other proxies measured are %TOC, biogenic silica, and pigments. The core was collected as part of the CONTINENT project from the eastern part of the North Basin of Lake Baikal, at a site of continuous sedimentation (Charlet et al. 2005). The age model was based on a 200kyr long record of geomagnetic paleointensity performed on a parallel core that was tuned to a reference curve (ODP Site 984, Channell, 1999), and whose chronology is well constrained (Demory et al., 2005). Recent material (i.e. late glacial to Holocene) was dated by AMS 14C on pollen (Piotrowska et al. 2004). The parallel cores were correlated using their density. The proxy-derived productivity and temperature records provide evidence of the climatic shift in the Lake Baikal region at the transitions between the last glacial-interglacial cycles, reinforcing the idea of orbital-driven changes in this region. We have reconstructed stable phases as well as several abrupt cold and warm events and compared these oscillations i) between the stages, ii) to a core from the South Basin in order to determine the regional extent of the climate signal, and iii) to published global records to enhance understanding on how major weather systems influence the climate in the Baikal region.