



Funnel Beaker weather (6200-4900 cal BP) - reconstructed from the palaeolimnological record of synchronously deposited varves in northern Germany

Stefan Dreibrodt (1), Jürgen Zahrer (1), and Achim Brauer (2)

(1) Institute for Ecosystem Research, University Kiel, Germany (sdreibrodt@ecology.uni-kiel.de), (2) GFZ German Research Centre for Geosciences

Depositional patterns of synchronously deposited varves of Lake Belauer See and Lake Poggensee (northern Germany) were studied on thin sections under the microscope comparatively. Events and trends that occurred synchronously in the lake systems were detected and interpret as limnologic responses to supra-regional extrinsic (climate) drivers. The different thresholds of the compared lake systems implied by different lake size were utilized to infer about weather conditions. For Lake Belauer See microfacies types of sub-recent varves were proved to reflect responses of certain meteorological conditions (e.g. severity of winters).

A short weather anomaly at around 5950 cal BP was detected. Cold summers of about 40 successive years (probably with sudden frost events) lead to breaks of the thermal summer stratification and the associated carbonate precipitation. Instead renewed blooms of planktic diatoms occurred. The subsequent interval of the Funnel Beaker Culture seems to have experienced a period with favorable weather conditions, with warm summers and not extra-ordinary severe winters. Between ca. 5400 and 5340 cal BP an interval with pronounced warm winters is indicated. The favorable weather conditions terminated abruptly at around 5275 cal BP when the weather (in particular summers) became colder.

The comparison of the sediment sequences also provides evidence for the asynchronous onset of anthropogenic activity in the catchment areas of the lakes. A significant increase of minerogenic matter (quartz grains) indication soil erosion in the lake catchment started at ca. 3850 cal BC in Lake Poggensee, and at ca. 3500 cal BC in Lake Belau. Cycles of minerogenic input have been detected with duration of 20-25 years. Whether these cycles could represent slash and burn cycles has to be studied further.