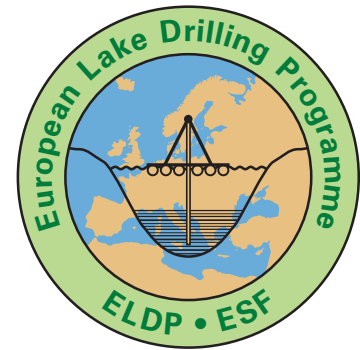


The 6th ELDP Workshop: High-Resolution Lake Sediment Records in Climate and Environment Variability Studies

POTS DAM, GERMANY, 11–16 MAY 2001

The European Lake Drilling Programme (ELDP) is an ESF (European Science Foundation) Scientific Programme aiming a better understanding of the regional dimension of past environment changes in Europe through high-resolution lake sediment studies (see PAGES newsletter Vol. 7, No.1, 1999). The Potsdam workshop was the last of a series of annual workshops on special themes concerning interpretation and correlation of European lake records which began in Strasbourg in 1996. The concept of the Potsdam workshop was to combine a summary of results achieved in ELDP, including answers to key questions raised by the programme, with a discussion about perspectives for future research. The workshop began with summaries of the four regional (Northern, Central, Southern Europe, Atlantic) and one thematic (Extraterrestrial forcing in palaeoclimate archives) working groups which have been established within ELDP. These summaries provided an overview of the scientific progress made in the last five years of ELDP and were followed by 6 thematic sessions with 28 contributions from participants from 12 European countries and Israel. In the first session, "Indications of solar forcing" $\Delta^{14}\text{C}$ variations and their link to the ^{14}C production rate as well as their effects on climate and environment were discussed using examples from the late and early Holocene. In the session "Holocene climate variability" complex environment changes during the early Holocene in central and southern Europe were reported. There is increasing evidence that palaeohydrological changes occurred even in Central Europe and that the reconstruction of variations in precipitation, although difficult to achieve, requires further attention. The key question addressed in the session "Human and climate interactions" was the connection between cultural and climatic changes

in NW Europe. An interesting approach was presented with the detailed comparison of vegetation development, influenced by both climate and man, along a West-East transect from Germany to Poland based on precise correlation of varved lake records. This example demonstrated the high potential for reconstructing spatial variations of climate change with detailed correlation between lake records, one of the main foci of ELDP. Further progress in establishing a network of linked high-resolution sediment records were reported in the session "Advances in correlation." It was clearly demonstrated that annually laminated records such as the one from Lago Grande di Monticchio, Italy, will play a key role in dating and correlation. Complementary techniques including the use of tephra layers and paleomagnetic variations have been further developed in recent years providing "hard" time markers which obviate the need for wiggle matching of climate signals. It is now possible not only to correlate between lake records but also to include marine records. Based on a tephra layer (Naples Yellow Tuff) Mediterranean records can now be linked to a southern Alpine site at least for the Lateglacial. As a result, networks of correlated palaeoclimate archives have been established for the regions south and north of the Alps. Further sessions concentrated on "Responses of lake ecosystems" with examples for the range of possible interpretation of sediment signals in lake records, and, on "Methods" where methodological problems and advances in interpretation of isotope signals were discussed. The danger of uncritical use of radiocarbon dates in establishing chronologies was demonstrated as well as a new approach for oxygen isotope analyses on diatom valves, an important tool in carbonate-free lake sediments.



During the last day of the workshop future perspectives were discussed in two sessions. At first, the urgent need to merge the "palaeo-community" which produces proxy data with climate modellers was demonstrated by the example of the German "Strategie-fondsprojekt" KIHZ (Natural climate variations of the last 10,000 years: <http://www.gfz-potsdam.de/pb3/pb33/kihzhome/kihzh00/welcome.html>) launched in 1998. One presentation concentrated on how to make proxy-data "digestible" by climate models, i.e. how to use these data to drive climate models. In the second session the idea of a regional extension of ELDP into a continental West-East transect including Asia was introduced with examples of high-resolution lake records from Russia, China and Japan. Such a transect would be an ideal complement to the PAGES North-South PEP transects. In between the "Summary" and "Perspective" parts of the workshop a field trip was organised to view morphological and sedimentary evidences of a Weichselian ice advance in northern Brandenburg (Pommeranian Stage).

An extended abstract volume has been published as Terra Nostra 2001/3 "High-resolution lake sediment records in climate and environment variability studies (ISSN 0946-8978) and can be ordered online from the Alfred-Wegener-Stiftung (<http://kih.z.gfz-potsdam.de>). More information about the Potsdam and previous ELDP workshops is available from the ELDP homepage at <http://www.gfz-potsdam.de/pb3/pb33/eldphome/>.

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