

Fig. 1: The structure of PROPER.

co-host Institute of Earth Sciences (CSIC Barcelona))- 7-13.11.2004 (application deadline 1.8.2004). This course will focus on the processes potentially affecting and distorting the archived climate record, in particular in ultra high-resolution marine and lacustrine settings, and its interpretation.

Courses 3 to 5 will provide a fully integrated data and computer model based assessment of the processes

controlling Earth's climate on different time scales.

- **Course 3: Paleoclimate I: Integrating modern processes data evaluation and models** (Host: University of Southampton) – February-March 2005. This course assesses key aspects of the modern climate system, e.g. the carbon cycle and its changes in past time slices.
- **Course 4: Paleoclimate II: Orbital forcing – data and models**

(Host: University of Bratislava) – spring – Early summer 2005. This course focuses on the processes controlling long-term climate change on orbital time scales.

- **Course 5: Paleoclimate III: Rapid climate change – data and models** (Host: LSCE Gif sur Yvette, Institut Pierre-Simon Laplace, CNRS-CEA, University of Paris Sud Orsay, Université de Versailles-UVSQ) – Fall 2005. This final course offers an in-depth overview of the most recent developments in reconstructing and understanding the processes involved in rapid climate change down to annual resolution.

We invite qualified PhD students and suitable post docs from the EU and other countries to attend these courses. Details of the application procedure can be found on the PROPER website (www.proper-training.nl). Applications should be directed to proper@falw.vu.nl.



The Catalan Network of Palaeoclimatology (Palaeocat)

L. SCHULTE¹, R. JULIÀ² AND A. ROSELL-MELÉ³

¹Department of Physical and Regional Geography, University of Barcelona, Spain; schulte@ub.edu

²Institute of Earth Science – CSIC, Barcelona, Spain; rjulia@ija.csic.es

³Institute of Environmental Science and Technology, Autonomous University of Barcelona, Bellaterra, Spain; antoni.rosell@uab.es

Since June 2003, palaeoclimatologists and palaeoecologists from Catalan universities and research centres have been cooperating to promote research on past global climate changes in Catalonia (north-eastern Spain). This palaeoclimatology network is supported by the Catalan government. The principal objective of the initiative is to promote research on the understanding of the nature, causes and effects of past climate changes. Special attention is devoted to studying the transformations undergone by human societies and natural systems related to climate variability, and to improving natural hazard management policies. In addition, emphasis is placed on strengthening international cooperation and networks,

increasing public understanding of palaeoclimate issues, and supporting student training.

The pluridisciplinary network of 40 scientists undertakes research on a broad range of time scales, at annual and millennial resolution, using instrumental, historical, phenological, sedimentological and geomorphological archives. The most frequently employed analytical techniques involve stable isotopes, organic and inorganic geochemistry, pollen, sedimentology, biota remains, and artefacts. Geochronology is based on radiocarbon, excess ²¹⁰Pb, ¹³⁷Cs fallout and uranium disequilibrium series. Research projects are undertaken in the western Mediterranean, especially in Catalonia but member groups also undertake

research elsewhere; in marine (e.g. Mediterranean Sea, Atlantic and Pacific Ocean), lacustrine (e.g. Caspian Sea, Issikul and Baikal Lakes) and high mountain environments (e.g. Alps, Andes).

Activities to date have included three internal network meetings, for members to exchange experiences, and the creation of a web page, (see below) to present an overview of the network and links to Catalan palaeoclimate research groups. Network members have also participated in the compilation of a Current State Report of climate changes and implications in Catalonia (www.iecat.net/canviclimatic/). Another activity, planned for March 2005, is a two-day Open Meeting to analyze the interaction between



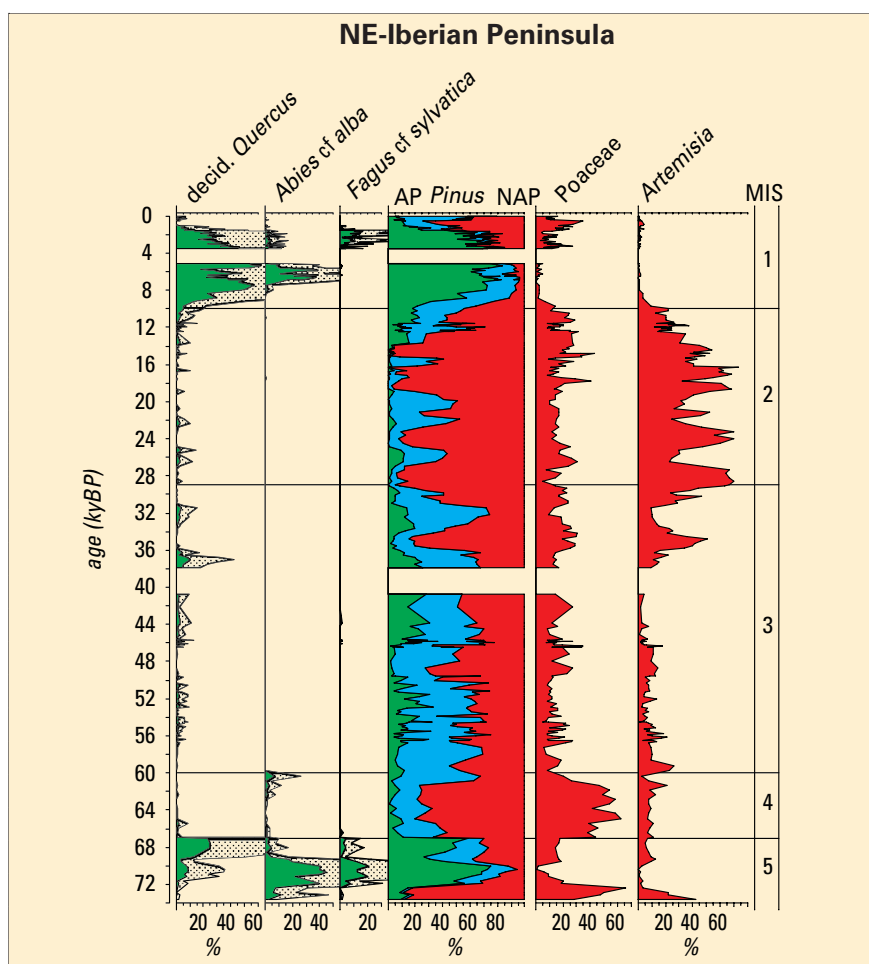


Fig. 1: The composite palynological profile of the Abric Romani, Lake Banyoles and Pla d'Estany records (Catalonia, northeastern Iberian Peninsula) shows major Late Quaternary climate variations (Burjachs et al. 1996), such as cooler temperatures during the last fluctuations of Marine Isotope Stage (MIS) 5, cool climate during MIS 4, rapid climate oscillations during MIS 3 (Dansgaard-Oeschger oscillations and Hengelo), cool and arid climate during MIS 2, and finally, temperate humid climate conditions during the Holocene.

climate and the hydrological cycle in the Western Mediterranean, and its influence on human societies through time.

Studies of Late Pleistocene organic-rich lacustrine deposits in the Banyoles area, on the foothills of the Pyrenees, are representative of research being carried out on Catalonia's palaeoclimate. Palaeo-

temperatures were reconstructed from ostracode valve geochemistry, and vegetation history from pollen analysis over the last 40,000 years. Other continental and marine sequences record older palaeoenvironmental data, e.g. Abric Romani travertine or western Mediterranean marine cores. The composite palynological profile of Fig. 1 shows major

climate changes during the last 70,000 years. At the beginning of the Holocene, the environment of the northeastern Iberian Peninsula was characterized by humid climate conditions, which became drier after 6,000 yr BP. There is also evidence from fluvial sedimentary deposits and historical documentary data that the overall Holocene climate trend was punctuated by minor climatic episodes, such as the Little Ice Age. In spite of frequent signs of early Neolithic land-management, the first noticeable human impact on natural environments dates from the Bronze Age. Archaeological, palynological and sedimentological data all point to the fact that major landscape changes occurred during the late Middle Ages and the Industrial period.

Despite all the research being carried out, there is still a shortage of palaeoclimate records for Catalonia. Hopefully this will change in the future. The establishment of this research network is a first step towards determining research priorities on the understanding of past and present climate variability, and possible impacts on the region.

Information regarding the Catalan network of palaeoclimatology, its participating groups and workshops can be found at: antalya.uab.es/_c_ceambientals/Xarxes/XT_Paleoclima/index.htm. To request further information, please send an email to gr.xtpaleocat@uab.es.



Paleoclimate Research within DEKLIM

G. LOHMANN^{1,2} AND F. SIROCKO³

¹Bremen University, Center for Marine Environmental Sciences, P.O. 330440, 28334 Bremen, Germany

²Alfred-Wegener-Institute for Polar and Marine Research, 27570 Bremerhaven, Germany; gerrit.lohmann@dkrz.de

³Johannes-Gutenberg University of Mainz, Institute for Geology, 55099 Mainz, Germany; sirocko@mail.uni-mainz.de



DEKLIM
Palaeo - Projects

The overarching aim of DEKLIM (German Climate Research Programme) is to improve climate predictability at global and regional scales by achieving a better understanding of long-term processes and climate modes. This includes:

- (i) Detailed reconstructions of the temporal and spatial structure of climate change at centennial-to-millennial timescales from paleoclimatic proxy data.
- (ii) Climate modeling studies to disentangle the physical and biogeochemical processes

involved in the generation of these modes.

The research objective within DEKLIM-Paleo is related to the driving mechanisms of past and future climate change. Specific questions are related to the interaction of vegetation, atmospheric dynamics,