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towards the costs of three others who were primarily funded by the African Pollen Database: Bisi Sowunmi (University of Ibadan, Nigeria), Immaculate Ssemmanda (Makerere University, Uganda) and M.U. Mohammed (Addis Ababa University, Ethiopia). Several important points of discussion were raised by this group and their national colleagues during these meetings. A lack of adequate national funds for both field and laboratory work, computing facilities, internet access and availability of key publications in libraries is placing African scientists at a serious disadvantage for full participation in paleoclimatic programmes.

There is a need to build on existing networks to further the integration of African and Euro-African communities. PAGES does not fund research, but we can help by funding Africans to attend workshops and summer schools and there are a number of opportunities for national meetings. Also, PEP III strongly encourages the use of its name and logo to support grant applications to African funding agencies, provided the proposal fits within the PEP III remit and we receive relevant feedback. For the future, PEP III is preparing to meet with African science leaders in Nigeria next year to further discuss these issues. In addition, the next IDEAL meeting sponsored by PAGES, START and IGU, will be held in Malawi, January 10-13, 2000. Several African scientists involved in large lake studies have been invited to attend. A plenary PEP III Conference will be held in Aix-en-Provence, France, 27-31 August, 2001. To register your interest please contact Catherine Stickley. Efforts are being made to find financial support for scientists from developing countries to participate.

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Climate in Historical Times

The project "Natural climate variations from 10,000 years to the present day" (Klima in historischen Zeiten, KIHZ) is a joint effort to analyze the dynamics of natural climate variability. Geoscientists and climate modelers from five German institutions, all members of the Helmholtz Association of National Research Centers (HGF), intend to create a synergy between proxy data and numerical modeling of the ocean-atmosphere system. KIHZ, led by J.W.F. Negendank, H. von Storch and H. Miller, is funded from 1998-2001 through the Strategy Fund of the HGF.

Data from continental and marine climate archives such as ice cores, tree rings, lake and marine sediments from different locations across both hemispheres are systematically combined with dynamic climate modeling and data assimilation. The different archives, to be organized along a consistent synthetic time scale, will be integrated to form a multi-proxy-parameter network. The project thus comprises three main segments, (i) analysis of geological archives, (ii) evaluation of existing paleoclimate data and time series, and (iii) climate modeling. A comparison of "free" climate simulations with integrations driven by data-assimilation aims at time-spatial, continuous climatic reconstructions of the last 10,000 yrs with a temporal resolution of decades to centuries. Selected time windows and simplified models are chosen to simulate regional differences during historical highs and low temperatures.

Project progress is achieved through annual workshops where all project members present their work in progress, and frequent smaller ad-hoc meetings that focus on specific questions being raised by project participants. At the KIHZ'99 workshop, held from 6-9 September at Jülich, Germany, preliminary results were presented and accompanied by vigorous discussions. Many archives show larger amplitude signals than would be expected to result from reconstructed temperature changes alone. Thus, a major portion of climate variability during the Holocene must be attributed to changes in the hydrological cycle. Also all archive data show



a strong response to regional climate forcing and local effects. These results raise the following questions: What is the regional pattern of climate variations and anomalies? Which regions, variables and time scales can be realistically simulated by GCM's? Furthermore, climate models show that the internal atmospheric and ocean dynamics are able to produce a strong climate variability signal. Which signals can be attributed to external forcing and which ones to internal dynamics? In addition, increased focus is required on the main problems in data assimilation, with the ultimate question being: Can the trajectory of a climate simulation be driven by assimilation of proxy data? The next ad-hoc meetings will focus on, for example, the synthesis of a consistent time scale, upscaling, and climate variability during the past millennium. Data administration and exchange will be achieved through the information system PANGAEA (see PAGES News Vol 7, No. 1).

Currently, 9 groups from German universities, funded by the federal research and education ministry (BMBF), are preparing to join the project. KIHZ thus provides a platform for interdisciplinary and inter-institutional exchange within the national paleoclimate community and is looking forward to exchanging concepts, data and methods with the international paleoclimate community. For more information about the project, including the scientific background, structure and list of members please visit the KIHZ-homepage at www.gfz-potsdam.de/pb3/pb33/kihzhome/kih200/.

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