

# PAGES

PAST GLOBAL CHANGES

# A CORE PROJECT OF THE INTERNATIONAL GEOSPHERE-BIOSPHERE PROGRAMME IGBP

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## News of the International Paleoscience Community Volume 2, Number 1 - March 1994

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### PAGES PROJECT ORGANIZATION

Since the establishment of PAGES Core Project Office in 1992, we have seen the scale and scope of the PAGES effort expand dramatically. The PAGES Project is now in the process of preparing a new structural organization plan that follows the overarching IGBP format. The organizational scheme will encompass all the on-going PAGES initiatives and provide a foundation for future efforts. This new structure for PAGES was prepared by the PAGES Executive Committee (EXCOMM) and will be presented to the Scientific Steering Committee (SSC) at its next meeting in Canberra, Australia, 8-10 June 1994.

The proposed organization plan will provide a unifying focus to all of PAGES initiatives including the 3 PEP (Pole-Equator-Pole) activities, joint efforts with groups such as CLIVAR and INQUA and our work in setting up an international paleo-data system with the World Data Center for Paleoclimatology. PAGES EXCOMM has developed an organizational scheme that will group all PAGES activities into a series of Foci covering global paleoclimate, polar paleoclimate, human interactions in past change, climate system modelling, and cross-project analytical development activities.

As always, we are also soliciting comments and ideas concerning PAGES projects and its direction for the future. If you have any ideas or are interested in obtaining more information, contact our Core Project Office or one of the SSC members for 1994 listed on page 4 of this newsletter.

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### PEP I WORKSHOP

PAGES sponsored the PEP I workshop entitled "Dynamics of past climate change and its forcing along a transect from Pole to Pole" in Panama City, on Sept. - Oct. 1993. PEP (Pole-Equator-Pole) I represents an inter-American paleoenvironmental research program focused on the dynamics of transequatorial atmospheric and oceanic linkages. The objectives of the initiative are to (i) determine the hierarchy of climate controls along the transect; (ii) to improve the understanding of the inter-hemispheric mechanisms of climate forcing; (iii) to encourage multidisciplinary research and strengthen the cadre of paleoclimatologists in the Americas.

Fifty scientists from throughout the Americas, Europe and Asia took part in the meeting. Participants focused on defining the state of our knowledge of present and past climates in the Americas and developing a plan for future interhemispheric paleoclimate correlation in a pole-equator-pole transect. To approach these workshop goals, PEP 1 researchers separated into 3 regional groups (North, Central, and South America) and later merged into 2 temporal sections, Stream I covering high resolution records of the last 2000 years and Stream II covering decadal to millennial resolution records of the last glacial/interglacial cycle. Each of these working groups produced sections of a document that will serve as a baseline for planning future research and for securing funding for projects linked to the PEP agenda.

Workshop discussions included a range of topics such as the recent coral-based oxygen isotope and Sr/Ca data suggesting a 4-5°C decrease in Caribbean sea surface temperatures during the last glacial maximum and the possible record of Younger Dryas cooling throughout the Americas. Participants also noted the importance of correlating more recent interdecadal climatic variability across the Americas. Finally, the workshop discussed recommendations for several critical research initiatives, such as drilling more long terrestrial or lacustrine cores, that promise to expand our understanding of past climates across the PEP 1 transect.

## PAST PAGES WORKSHOPS

### PAGES Ice Core Data Meeting

Representatives of the ice core scientific community met in Bern, Switzerland, on 26-27 August 1993 to discuss the formation of an Ice Core Data Bank (ICDB). The meeting participants laid out a set of guidelines for a new international repository for ice core data in Boulder, Colorado, USA. The initial point of contact for all data from deep cores and shallow cores is the World Data Center-A for Paleoclimatology. Data from shallow cores and surface collection may also be submitted to the World Data Center-A for Glaciology. Data submission and retrieval is intended to be a rapid and simple process. If you wish to receive information concerning the Ice Core Data Bank contact:

Jonathan Overpeck  
NOAA Paleoclimatology Program  
World Data Center - A for Paleoclimatology  
325 Broadway E/GC, Boulder CO, 80303, USA  
TEL: +1-303-497-6172; FAX: +1-303-497-6515;  
E-MAIL: jto@mail.ngdg.noaa.gov

Summarized from a report by J. White, organizer of the workshop.

### Explosive Volcanism and Climate

In December, 1993, PAGES and INQUA jointly sponsored an international meeting entitled "Climatic impact of explosive volcanism", in Tokyo, Japan. The convenors of this workshop were H. Machida (Tokyo University) and J. Beget (Univ. of Alaska). Participants discussed a variety of climate proxy records such as ice cores, tree rings, corals and historical records and their value in assessing the effects of volcanism on global and regional climates.

The group noted the importance of joint work between volcanologists, climate modelers and scientists working with various proxy records and outlined a series of research recommendations that will lead to high resolution global mapping of the impact of explosive eruptions. Participants at the meeting also stressed the pressing need for a volcanism/ climate data base covering major Holocene events and including information on global acid fallout, estimates of volcanic degassing into the atmosphere and tephra volume and composition.

For more information on this meeting contact:

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Dept. of Geography  
Tokyo Metropolitan University  
Tokyo 19203 JAPAN  
TEL: +81-426-711-111 FAX: +81-426-772-589

Abstracted from a report by S. Leroy.

## PAST MEETINGS

### Nival and Glacial Processes in Mountains

A week long international symposium held in Tashkent, Uzbekistan in September, 1993 brought together scientists from Europe, Central Asia and the Americas to examine the relationship between the state of mountain glaciers and climate. The symposium, entitled "Seasonal and long-term fluctuations of nival and glacial processes

in mountains", was supported by UNESCO, IGGU, the International Association of Hydrological Sciences and both the Uzbekistan and Russian Academies of Science. The chief impetus for the meeting was the current perception of the need for an international effort to address the dynamics of glacial systems and their relationship to patterns of large-scale climatic change.

Mountain glaciers are sensitive to short and long-term variations in temperature and precipitation and therefore are good indicators of climatic change. A number of speakers at the Tashkent meeting noted that many glaciers show distinct evidence of recent warming trends. Research presented at the symposium pointed out the prevalence of glacial retreat and ice volume reduction across the equatorial belt as well as in the mountains of Central Asia. Significant glacial retreat in the Tian Shan range, for example, has been correlated with an increase in air temperature of 0.5° C over the last 50 years. Other presentations in the symposium detailed Late Pleistocene nival and glacial processes as an approach to modeling ancient global changes.

Summarized from a report by: A. Velichko.

### Scientific Continental Drilling

The first international conference on scientific continental drilling was held in at the University of Potsdam, Germany, August - September 1993. At the invitation of the GeoforschungsZentrum of Potsdam, a new research center for Geosciences (Grossforschungsanlage), conference participants discussed the formation of an international continental scientific drilling program (ICSD). The ICSD will have a structure similar to that of the ODP (Ocean Drilling Program). Dr. J. Negendank will direct the drilling program's Earth History and Climate Working Group which focuses on initiatives that promise to yield high resolution records of past global climatic and ecosystem change. With ten different countries offering financial support, the ICSD will clearly play an important role in advancing paleoscience. For more information contact:

J. Negendank  
Geoforschungszentrum GFZ Potsdam  
Telegrafenberg A 26  
Potsdam D-O-1501, GERMANY  
TEL: +49-69-331-310316 FAX: +49-37-331-370607

Summarized from a report by S. Leroy.

### Tree-ring Chronologies Workshop

Thirty scientists from nine countries met recently in Tuscon, Arizona, USA for a workshop on extracting climatic and environmental signals from millennial-aged tree-ring chronologies. The workshop, sponsored by the U.S. National Science Foundation, addressed three themes: (1) types of tree-ring material and geographical coverage, (2) technical problems in chronology development, and (3) detection of climate signals and reconstruction of climate. The meeting brought together dendrochronologists and statisticians specializing in time-series analysis as a first step toward integrating all the new information from the recent "mini-explosion"

in the number long chronologies developed from subfossil wood.

The workshop participants presented material and datasets from 30 different sites in the Americas, Europe, Asia and Tasmania, with chronologies based on exceptionally old living trees, archeological timbers and subfossil logs and wood remnants. Several of these datasets represent absolutely dated chronologies of over 2000 years and some include floating chronologies that detail seasonal climatic variation stretching well into the Late Pleistocene. Workshop organizers are pursuing publication of the conference findings in a scientific journal.

The tree-ring conference attendees also jointly prepared a series of recommendations for future work in global dendrochronology. The group primarily stressed the need to expand geographic coverage of long chronologies, but also noted the need to expand the kinds of climatic proxy information obtained from tree-ring studies and to exploit a wider range of statistical techniques to extract this climatic data. Similarly, more modern long-term monitoring studies are needed to develop mechanistic models of climate influence on tree growth that can then be used to evaluate ancient chronologies.

Summarized from a report by Dr. David Meko.

#### American Association of Stratigraphic Palynologists

The 26th annual meeting of the AASP (American Association of Stratigraphic Palynologists) in Baton Rouge, Louisiana, October 1993 included a number of presentations detailing recent research on the modern pollen and modern pollen-based transfer functions as well as pollen-based paleoenvironmental and climatic reconstructions. Several contributed papers concerned important new research on tropical sites in South America and East Malaysia. Palynological reconstructions for Amazonia during the last glacial maximum indicate lesser Pleistocene aridity than implied by biogeographic studies. Pollen data revealed annual temperatures that were on average 4°C cooler than present with periodic declines to as much as 9°C cooler than present. Similar, detailed, records were also reported for several high and low latitude Pliocene sites. These high resolution pollen records provide important benchmarks for the ongoing quantification and calibration of Pliocene climate and suggest a promising outlook for using palynologic data to reconstruct global climatic and environmental change over the last 3 m yr.

Summarized from a report by O. K. Davis.

### **UPCOMING WORKSHOPS**

#### Opening of the European Pollen Database

On 3-5 March 1994, a "Past Vegetation and Climate From Pollen Databases" workshop will be held in Arles, France. The workshop marks the official opening of the European Pollen Database, which is supported by the CEC - ENVIRONMENT program, and the launching of a pan-European network for a common pollen database supported by the CEC - COPERNICUS Program (PECO). The European Pollen Database advisory and executive committees, database managers and contributors will assemble in

Arles to present research projects and examples of pollen databases. Discussion topics will include vegetation dynamics, biomass and climate reconstructions, boundary conditions for climatic models, and data model comparison. Over 400 sites are currently available in the database. For more information about this workshop or about contributing to the European Pollen Database contact:

EPD, Centre Universitaire d'Arles,  
Place de la République,  
F-13200 Arles, FRANCE,  
TEL: +33-90961818 FAX:+33-91939868;  
E-MAIL: EUPARL@FRMOP11.BITNET

#### 4th Meeting of the National IGBP Committees

Representatives of National IGBP committees will meet in Bonn, Germany, 13 - 16 March 1994. Discussions will focus on the role of national committees in advancing Core Project research and the development of two planned Core Projects, "Land Use and Global Land-cover Change" (LUCC) and "Global Ocean Euphotic Zone Study" (GOEZO). The meeting will consider the adoption of a five-year action plan.

#### Lake Baikal and Global Change

An international workshop focused on Lake Baikal as a natural laboratory for global change research will be held in Irkutsk, Russia on 11-17 May 1994. The conference will review the state of knowledge on Baikal, Earth's oldest and deepest lake. Workshop convenors Prof. M. Grachev and Prof. J. Klerkx hope to further interdisciplinary and international contacts to develop joint projects examining the environment and ecology of the lake and its relationship to global change.

The workshop will include oral presentations and poster sessions covering Lake Baikal's geologic, biologic and environmental history as well as the present status of the Baikal ecosystem. Abstracts for presentations will be accepted through 15 March 1994. Author's of selected abstracts will be invited to prepare manuscripts for a special volume to be published after the workshop. For more information contact:

Michael Grachev  
Limnological Institute  
P.O. Box 4199  
Irkutsk 664033 Russia  
Tel: 7-3952-460504; Fax 7-095-4202106  
E-mail: root@lin.irkutsk.su

### **LONG CORES FROM TIBET**

Dr. Wang Sumin from the Nanjing Institute of Geography & Limnology (Academia Sinica, Nanjing, 210008, P.R.C.) reports some extraordinary drilling work that was recently completed on the Qinghai-Tibet Plateau. Two deep cores (120m and 310m) have been successfully recovered in the Zoge Lake basin in the northeast of the Plateau (32°20' - 34°20'N, 101°30' - 103°E). Results from the 120 m core suggest that the base of the longer 310 m core could be more than 3 million yrs old. The cores represent a unique record of the geologic and environmental evolution of the Qinghai-Tibet Plateau. They should yield significant basic data on Quaternary regional and global climates.

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## PAGES SCIENTIFIC STEERING COMMITTEE 1994

Hans Oeschger, Chair, SWITZERLAND  
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Jonathan Pilcher, UNITED KINGDOM  
Nat Rutter, CANADA  
Andre Velitchko, RUSSIA

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### FUTURE MEETINGS

- 3-5 March 1994 – **Past Vegetation and Climate from Pollen Databases**; Arles, FRANCE.  
Contact: R. Cheddadi, (TEL: +33-90961818; FAX: +33-91939868).
- 13-16 March 1994 – **4TH Meeting of the National IGBP Committees**; Bonn, GERMANY.  
Contact: H. J. Bolle, Berlin, GERMANY (TEL: +49-030-83-87-11-17; FAX: +49-030-83-87-12-17).
- 15 March 1994 – **INQUA Workshop: The Termination of the Pleistocene in South America**; Tierra del Fuego, ARGENTINA. Contact: J. Rabassa, ARGENTINA (TEL: +54-901-22310; FAX: +54-901-22318).
- 7-12 April 1994 – **PEP II Meeting: Changes in palaeoclimate and paleoenvironment in the last 200,000 years along pole-equator-pole: Asia and Australia**; Beijing CHINA. Contact: R. Wasson, AUSTRALIA (TEL: +61-6-246-4911; FAX: +61-6-246-5800) or LIU Tunghsheng; CHINA (TEL: +86-1-202776, ext. 345; FAX: +86-1-4919140).
- 13-14 April 1994 – **PAGES/EXCOMM Meeting**; Beijing, CHINA. Contact: H. Zimmerman, USA (TEL: +1-703-306-1527; FAX: +1-703-306-0377).
- 9-13 May 1994 – **PAGES/GCTE/DIS Workshop on development of global Paleovegetation data set**; Lund, SWEDEN. Contact: I. C. Prentice, SWEDEN (TEL: +46-46-104176; FAX: +46-46-104423).
- 11-17 May 1994 – **Baikal as a Natural Laboratory for Global Change**; Irkutsk, RUSSIA.  
Contact: M. Grachev, RUSSIA (TEL: +7-3952-460504; FAX: +7-09504202106) or J.Klerkx, BELGIUM (TEL: +32-2-7695426; FAX: +32-2-7695432).
- 1-3 June 1994 – **International Colloquium: Subpolar Oceans, World Ocean and Climate**; in association with Futuroceans 94- Le Recontres Mondiales de la Mer; Loire Atlantique, FRANCE.  
Contact: L. Labeyrie, FRANCE (TEL: +331-6982-3536; FAX: +331-6982-3568).
- 5-11 June 1994 – **ICOG8: - 8th International Conference on Geochronology, Cosmochronology and Isotope Geology**; Berkeley, USA. Contact: G. H. Curtis, USA (TEL: +1-510-845-4003; FAX: +1-510-845-9453).
- 8-10 June 1994 – **PAGES SSC Meeting**; Canberra, AUSTRALIA. Contact: H. Oeschger, PAGES-CPO, Bern, SWITZERLAND (TEL: +41-31-312-31-33; FAX: +41-31-312-31-68).
- 7-12 August 1994 – **International Symposium on the Role of the Cryosphere in Global Change** (International Glaciology Society); Columbus, Ohio, USA. Contact: Secretary General, International Glaciology Society, Lensfield Road, Cambridge CB2 1ER, U.K.
- 8-10 August 1994 – **International Symposium on Global Change in Asia and the Pacific Regions**; Beijing, CHINA. Contact: LIU Tunghsheng, CHINA (TEL: +86-1-202776, ext. 345; FAX: +86-1-4919140).
- 14 August 1994 – **Workshop on PAGES Chronologies- Dating Techniques and Comparability of Chronologies**; Glasgow, UNITED KINGDOM. In connection with the 15th International Radiocarbon Conference. Contact: W. Mook, NETHERLANDS (TEL: +31-2220-69366; FAX: +31-2220-19674).
- 15-18 August 1994 – **Symposium on The South Atlantic: present and past circulation**; Bremen, GERMANY. Contact: B. Donner, GERMANY (TEL: +49-421-218-3389).
- 5-9 September 1994 – **International Conference on Arctic Margins**; Magadan, RUSSIA.  
Contact: ICAM94 Geophysical Inst., University of Alaska, Fairbanks, Alaska, USA.
- 10-17 September 1994 – **INQUA/GLOCOPH International Meeting**; Global Continental Paleohydrology; Southampton, UK. Contact: J. Branson, Geodata Institute, University of Southampton, Southampton, SO9 5NH, UNITED KINGDOM.
- 3-7 October 1994 – **NATO Workshop: Climatic Fluctuations and Forcing Factors the last 2000 years**; Tuscan, ITALY. Contact: R. Bradley, USA (TEL: +1-413-545-2794; FAX: +1-413-545-1200).