

Tephrochronologie et Co-existence Hommes-Volcans

BRIVES-CHARENSAC, FRANCE, AUGUST 24–29, 1988)

A wide-ranging interdisciplinary meeting entitled “Tephrochronologie et Co-existence Hommes-Volcans” took place in the Haute-Loire, south-central France, with support and sponsorship from PAGES, the INQUA Commission on Tephrochronology and Volcanism, and UNESCO. This meeting joined geologists, volcanologists, tephrochronologists, palynologists, paleoclimatologists, and archeologists to discuss connections and relationships between volcanic eruptions, environmental and climate change, and archeological records of human response to volcanic events. Prof. Etienne Juvigne, a tephrochronologist from the Université de Liège and Prof. J. Raynal, an archeologist from the Université de Bordeaux, jointly organized the conference.

Participants at the meeting came from many countries in Europe, as well as North America, Asia, Africa, and New Zealand. PAGES support allowed scientists from former eastern-block countries to attend this meeting, including Dr. Vera Ponomereva, a noted volcanologist and tephrochronologist from Kamchatka, Dr. Oksana Savoskul, a geologist from the University of Moscow now residing in Ghana, Africa, who uses tephrochronology to date geologic records of climate change, and Dr. Alicia Stach-Czerniak, a palynologist and paleoclimatologist from the Institute for Quaternary Research in Poznan, Poland.

Highlights of the meeting came in sessions which made sometimes surprising interdisciplinary connections between aspects of tephrochronology, palynology, ice core records, climate and environmental change, and archeology. Prof. Rewi Newnham (University of Plymouth) and Prof. David Lowe (University of Waikato) gave an important talk concerning tephrochronologic

dating and the geologic and palynologic evidence of a Younger Dryas climate signal in New Zealand. Prof. Takaaki Fukuoka presented new data on tephros discovered in the Japanese Mizujo Station ice core in Antarctica, and their possible source and age. Dr. Ponomereva suggested that during times of intense volcanism in Kamchatka the environment was strongly affected, and human colonization was inhibited while Dr. Begét presented evidence of very similar volcanic constraints on the human occupation of Alaska during the Holocene. Prof. Juvigne showed that tephra layers can be used to precisely calibrate the timing of paleoclimatic events across wide areas, raising questions about the recognition of local vs. global environmental forcing in palynologic records. Prof. John Hunt (University of Cheltenham) presented a provocative model suggesting global climate and glacier fluctuations control volcanic eruption frequencies. Important talks were also given on new developments in geochronology by Prof. Edward Rhodes of Oxford and Prof. John Westgate of the University of Toronto. Dr. Jerome Lecoindre talked about volcanic processes at recent eruptions in New Zealand (and also was a tireless scientific translator).

The meeting included visits to interesting geologic and archeologic sites in the Haute Loire, including the museum at Chilhac, where volcanoclastic deposits contain a diverse upper Pliocene fossil assemblage, and associated, controversial, possibly human artifacts. A post-conference field trip visited numerous volcanic localities in the French Massif Central.

At the end of the meeting a visit was made to the PAGES distillery in Le Puy, where a curious green liqueur is produced in enormous copper-clad vats connected by dripping tubes. Although there is no known connection between IGBP-PAGES and the PAGES distillery, samples were forwarded to the PAGES office in Bern just to be sure.

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PEP II Meeting

FREMANTLE, AUSTRALIA, JULY 1–3

Australia hosted its first PEP II Workshop meeting over three days in the depths of a mediterranean-type winter. Two days were devoted to talks and discussions on PEP II science themes and one day was spent on biomisation of Australia and nearby tropical regional pollen data sets.

The talk fest, Day 1 and Day 3 of the meeting, attracted 23 oral papers and an audience of about 50 people attended the presentations. The meeting began with a series of reviews of the big picture climate change science questions for PEP II, including the links between PEP II questions and the those for other PEP transects (Dodson, Liu, Markgraf, Ono, Brooke). Cocklin covered the significance of climate change for human societies in the Pacific region. Harvey summarized the state of knowledge of palaeosea-level investigations in southern Australia while Heijnis, Harle, Magee, Hesse, Soons and Shulmeister presented recent and ongoing work on long climate change records from a range of environments in Australia and New Zealand, and what they tell us from the perspective of at least one glacial cycle. Taylor, Pickett, Boyd (two papers) and Suparan presented analyses of climate changes based on recent work on Late Pleistocene and Holocene records from northern and southern Western Australia, New Britain, Thailand and Indonesia while Colhoun and Haberle applied records from Tasmania and the tropics to raise and review questions about glacial refugia and fire history. The last group of presentations concentrated on high resolution data series from tree-rings, corals and lake sediments (Barbetti, Cook, Mooney, Hantoro).

The second day of the meeting was held in the Department of Geography at the University of Western Australia and was devoted to the BIOME 6000 project. Eighteen people spent the day discussing biomisation of pollen data from the Australia-Indonesia-New Guinea and Western Pacific Islands region. Participants were not allowed to go until a first pass at defining viable Plant Functional Types (PFTs) and biomes, based on the collective knowledge of pollen repre-

continued on next page

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The Southeast Asian Dendro Workshop 1998 (SEA Dendro 98)

CHIANG MAI, THAILAND, FEBRUARY 16-20, 1998



Coring old-growth Pinus merkusii from Thung Salaeng Luang National Park in north-central Thailand (Photo: M. Barbetti)

PEP II, continued from previous page

sentation for the region, had been agreed. The outcome was 30 proposed PFT's and 23 biomes. These were compared to the established Biome 6000 biomes. Dr. Liz Pickett was able to present these at the BIOME 6000 meeting in Jena, Germany, October 1998, along with the modern and fossil assembled data series as part of the region's overall contribution to the BIOME 6000 project.

The 3 days were clearly productive and many participants were involved in a PAGES project for the first time. The lively discussion brought home the value of this kind of comparative exercise in allowing a refining of interpretations of climatic change data from a substantial body of existing and growing proxy-data across the region. There are now many new data series coming online from South East Asia [see for example the following report by D'Arriago], and these are particularly welcome as they fill a large gap identified from the earliest days in setting up the PEP II program. The meeting was also seen as an important link to other groups such as the Southern Connections, Australasian Quaternary Association and the Institute of Australian Geographers. The meeting was generously supported by PAGES and the University of Western Australia.

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The principal goal of this conference was to foster communication, collaboration and exchange of information and ideas among scientists actively involved or interested in the development and analysis of tree-ring and other paleorecords for paleoclimatic studies in Southeast Asia and the vicinity. Such data are very sparse for vast areas of this region of the Pole-Equator-Pole (PEP) II transect, for both PAGES time streams I and II. There is thus

a critical need to expand the existing database for Southeast Asia and adjacent sites. Tree-ring records were the main emphasis of the meeting, although other paleoclimatic and historical data were discussed. The meeting brought together some 50 scientists from 15 nations, many of whom had not had the opportunity to attend an international conference in the past. Both oral communications and posters were presented. The meeting succeeded in summarizing the state of the art for dendrochronology in Southeast Asia and vicinity and in identifying key scientific questions and needs for successful future research efforts in the region, including efforts to reconstruct large-scale climatic change. It was thus highly successful in advancing the interests of PAGES/PEP II as well as ESH, ARTS, CLIVAR, START and other initiatives. Below is an overview of the meeting.

Introductory Presentations

The governor of Chiang Mai opened the meeting with a Buddhist ceremony. Several introductory presentations provided an overview of the climate of Southeast Asia based on instrumental data, including Asian monsoon and ENSO variability and ENSO-monsoon interactions in the Southeast Asian region. A state of the art review of tropical dendrochronology set the stage for the tree-ring papers. Another keynote presentation discussed the ecophysiology and forest dynamics of tropical forest trees in Thailand and elsewhere in Southeast Asia.

Southeast Asia

A series of presentations highlighted recent tree-ring studies in Thailand, focusing on the development of teak and mountain pine tree-ring chronologies and their links

to monsoon climate and historical data. Other Thailand work presented included radiocarbon variations in mountain pine tree-ring records and discussion of forest physiology, ecology and stand dynamics modeling, and human disturbance. Papers were also given on the development of teak records in Indonesia and their use in paleo-ENSO studies, including reconstructions of the Southern Oscillation Index (SOI). Another paper reported on the development of density tree-ring records from Laos.

North and East Asia

Several papers outlined recent tree-ring studies in northern and eastern Asia. For Mongolia, presentations were given on the use of tree-ring data to reconstruct temperature and precipitation (drought). The climatic response of tree growth to monsoon rainfall, snowfall, winter temperature and other factors was identified in tree-ring data from South Korea, China, Japan, and Taiwan.

Western Asia

Studies were also presented from Western Asia, including the high elevation areas of Tibet, Nepal and India. For Tibet, there was discussion of the potential for use of tree rings from drought-sensitive trees for reconstruction of monsoon activity; for Nepal, the development of chronologies, growth patterns and links to monsoon climate were discussed, for India there was discussion of teak and other tree-ring records and their response to monsoon precipitation.

Other Tropical Regions

There were also presentations on tree-ring studies in tropical regions outside of Asia: in Brazil x-ray identification of growth ring features in Araucaria, and in Zimbabwe identification of suitable tree species for dendrochronology.

Recommendations for Future Work

Future collaborative efforts between dendrochronologists from Asia and western nations need to include the establishment of tree-ring laboratories in Asia (as has already been initiated in Nepal, Thailand and Mongolia), coordinated field expeditions, and the writing of combined proposals and papers. Memoranda of Under-