

studying these ancient ecosystems. As a temporal contrast, John Cann and Catherine Lovelock presented recent historical data from the northern shores of South Australia and a rapidly-prograding wave-exposed coast in New Zealand. These presentations illustrated the influence of sedimentation in mangrove ecosystem dynamics.

The remaining talks in the session presented Holocene reconstructions of mangrove environments. Marcelo Cohen and Hermann Behling presented palynological studies of numerous cores from mangrove sites in Brazil during the Holocene, reconstructing vegetation dynamics during relative sea level changes. Natalie Monacci presented pollen-based reconstructions of Holocene mangrove dynamics from Belize. She also showed

additional proxies of past environments, including stable isotope analyses (C, N and O) of mangrove leaves preserved in peat cores. Marilyn Fogel followed with details of biomarker analyses of the same cores. Compounds specific to different mangroves and microbial communities were used to complement pollen data to reconstruct past ecosystem composition. Sarah Woodroffe subsequently presented foraminiferal assemblage data derived from mangrove sediments as a proxy of past sea level during the Holocene in tropical north Queensland, Australia. Arghya Hait took a palynological approach to the reconstruction of mangroves of the Chamta and Sudhyanyakhali Islands of the Sundarban Biosphere Reserve, India. Simon Engelhart also focused on a palynological approach but concentrated on a modern

calibration set as a method of reconstructing Holocene sea levels and paleoenvironments of southeast Sulawesi, Indonesia. Sauren Das, finished the session by providing a paleoecological reconstruction of the Lower Bengal Basin, Calcutta, India during the Holocene.

The session illustrated the wide range of paleoecological approaches, both traditional and innovative, for reconstructing past mangrove environments. A common finding based on paleoecological inferences from a number of the studies and locations was evidence for significant variability in relative sea level during the Holocene.



## International workshop on environmental changes and sustainable development in arid and semi-arid regions

**Alashan Left Banner, Inner Mongolia, China, 10-14 September 2007**

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The prevailing point of view in many early textbooks was that sand seas experienced an arid climatic optimum in the Holocene, whereas glacial maxima were pluvially active. More recently, an extension of the sand seas during the Last Glacial Maximum (LGM), and a retreat during the Holocene climatic optimum, has been reported. Yet, with considerable improvement in dating techniques (particularly luminescence dating), new data from various deserts of the world suggest a much more complicated picture of desert landscape evolution. The International Workshop on Environmental Changes and Sustainable Development in Arid and Semi-arid Regions was recently held in Inner Mongolia, China. This workshop aimed to compare regional-scale reconstructions of late Quaternary changes in the deserts of various climate zones (monsoon regions, subtropics and westerlies), and to discuss case studies and theories relating to land degradation and sustainable development, geomorphological processes, and interactions between human and natural factors. 83 delegates from 17 countries attended (Fig. 1).

In his opening speech, Jiaqi Liu, Chairman of the Organizing Committee, emphasized the significance of dryland studies in understanding global changes, and for re-

gional developments in China and the rest of the world. Five keynote presentations followed, giving an overview of recent research progress on natural and anthropogenic impacts on arid environments, in addition to land management issues. Andrew Goudie presented sources and trends of desert dust, Ying Wang talked about the origins of the sands in Chinese deserts, Bojie Fu analyzed the problems of land degradation and rehabilitation measurements in China, Arthur Conacher highlighted the future of research in managing

land degradation, and Jianguo (Jingle) Wu demonstrated a scientific framework for sustainable development in arid and semiarid regions, with particular reference to the Inner Mongolia grassland. The program that followed included numerous oral presentations and posters.

What became increasingly evident over the course of the workshop was the degree of difference between paleoclimate reconstructions from different regions. New dating indicates that dune sand accumulation in South Australia continued



Figure 1: Workshop participants enjoying the sand dunes on the mid-conference field trip. The workshop also included two optional field trips to active and stable dunes in Inner Mongolia.

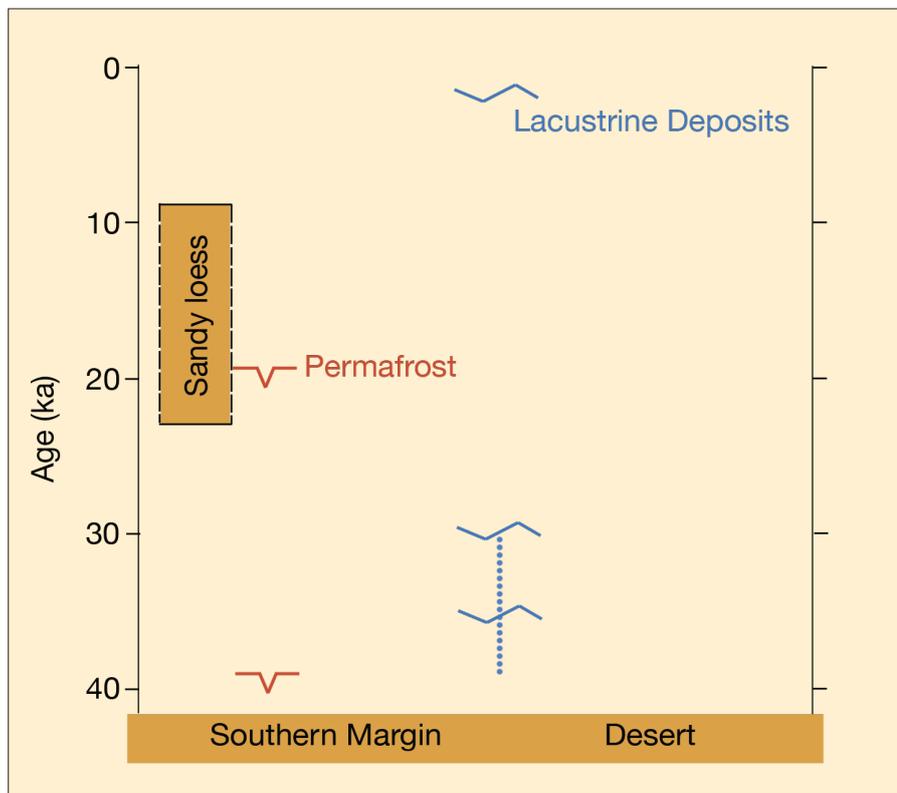


Figure 2: Wetter climate in the Taklamakan Desert of China (recognized from lacustrine processes) and colder times on its south margin (recognized from permafrost processes) (modified from Yang et al., 2006).

throughout the glacial and interglacial of the late Quaternary, with no large-scale hiatus recorded. In contrast, geomorphological and sedimentological records from the Atacama Desert, southern Peru show

several phases of drier conditions during the Holocene. Further, sedimentological evidence for the three periods of lake formation during the last 40 kyr in the hyperarid center of the Taklamakan Desert,

western China was discussed (Fig. 2). The obvious inconsistencies of paleoclimatic histories between different deserts reconfirm the need for detailed regional desert studies in order to comprehensively understand of paleoclimatic changes in the arid regions of the world.

The workshop also attracted a great deal of attention from the Government of Alashan District, demonstrating the importance of paleoenvironmental studies to society. The local appreciation was shown not only by a welcoming address from a Governor but also by an excellent banquet—with superb Mongolian singing and dancing, and many friendly toasts—provided by the government of the district.

Publications of workshop presentations are currently in preparation. Papers on land degradation and desertification are being considered for a special issue in *Geographical Research* (March 2009 issue; vol. 47 no. 1), and manuscripts on geomorphology and paleoenvironmental changes for publication in *Quaternary Research*.

## Reference

Yang, X., Preusser, F. and Radtke, U., 2006: Late Quaternary environmental changes in the Taklamakan Desert, western China, inferred from OSL-dated lacustrine and aeolian deposits, *Quaternary Science Reviews*, **25**: 923-932.



# First Asian dendrochronology conference and workshop: Environmental change and human activity

**Bangkok, Thailand, 9-15 September 2007**

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The First Asian Dendrochronology Conference and Workshop “Environmental Change and Human Activity” was held in Bangkok, Thailand, in conjunction with a seminar organized by Won-kyu Park, South Korea and Liu Yu, China, and a special one-day course on “Wood anatomy in dendrochronology: concepts, methods, image analysis system and SEM” by Kam-biz Pourtahmasi, Iran. The conference allowed researchers in dendrochronology and other disciplines related to climate dynamics and forest science to present their most recent research achievements. It also offered a platform for students and young scientists to present their projects, organize collaborations and arrange tree ring networks in Asia.

The conference and workshop attracted over 80 participants from twenty

countries. The first day was focused on opening activities, keynotes and plenary presentations. Three keynote papers were related to issues of climate change, environmental change and human activity in Thailand. The presentations dealt with tree ring research in Thailand, climate data sets and watershed management, and climate change. The keynote session was followed by plenary presentations from several scientists. The first day was wrapped up with a session of 7 oral presentations.

The following days covered a range of topics, such as dendrochronological studies from Himalaya to East Asia, tropical dendrochronology, heavy metal contamination of plants and soil, wood anatomy, forestry and sub-fossil wood in Southeast Asia. For the third day a field trip to Putey National Park, was organized. This is a key

study site for pine dendrochronology, particularly in understanding pine forest growth in monsoon climate and external disturbances on growth.

In Thailand, teak tree ring indices have been used for climate reconstruction back to 1640 AD. N. Pumijumnong presented an extended teak chronology from Thailand, which suggests several changes in temperature and precipitation between 1590 and the present. However in general, the climate in Thailand has not changed significantly over the last 300 years. According to the teak index, the climate in Thailand was relatively cool between 1590-1640 and 1800-1890. Furthermore, the precipitation in May-July (beginning of rainy season) has decreased by 0.69 mm, and the temperature in February, March