

Past Human-Climate-Ecosystem Interactions (PHAROS)

JOHN DEARING

Chair of IGBP-PAGES Focus 4, Department of Geography, University of Liverpool, UK.; j.dearing@liverpool.ac.uk

This issue's special section serves to launch one of the new PAGES Foci. Past Human-Climate-Ecosystem Interactions (PHAROS) has evolved from the former "Focus 5". It ventures beyond paleoclimate reconstruction to ask questions about how climate, ecosystems and human activities have interacted in the past, and how this knowledge can provide information about the functioning of modern environmental systems. This is a timely focus as there have been a number of recent international initiatives promoting or arguing the need for improved long-term environmental perspectives. The Millennium Ecosystem Assessment (www.maweb.org/) has drawn attention to the extent of degraded ecosystems worldwide and how we often lack a temporal perspective or trajectory against which to gauge the modern condition. The Earth System Science Partnership (www.essp.org/), through the International Geosphere-Biosphere Programme (IGBP), has embarked on a Cross-Cutting Theme called IHOPE (Integrated History of People on Earth) to reconstruct socio-ecological interactions through time, with the prime purpose of understanding better how society interacts with environmental change. The recent IPCC reports are underlining the need for improved long-term data for key Earth system attributes, like land cover, which can feed into regional and global climate models. In each case, the demand is for accurate information about past environmental states and interactions, using case studies as the fundamental data-gathering unit coupled with careful integration and upscaling of datasets.

First in the special section there is a summary by John Dearing and Rick Battarbee of the PHAROS Focus with its four Activities, INTEMODS, HITE, LIMPACS and LUCIFS. Kathy Hibbard and Bob Costanza then give a summary of the linked program IGBP-IHOPE. These two program summaries are followed by science highlights chosen to demonstrate the wide range of science questions, case studies and scales covered by PHAROS. There are four contributions dealing with regional scales. Hamisai Hamandawana shows how careful use of geomorphic and documentary evidence can help define the timescale of historical desiccation in the Okavango Delta, Botswana, and its causes. Peter Gell and Roger Jones provide a regional synthesis of the causes in the decline of water quality in southeastern Australia based on several case studies. Neil Rose reviews the paleolimnological approach to studying past atmospheric pollution with special emphasis on the leads and lags within lake-catchment systems. Peter Houben and colleagues provide a synthesis of changes in the Rhine River system over the period of major human impact, addressing methodological issues of how to quantify past human pressures and sediment budgets. And finally, there are three contributions dealing with the challenges of producing global syntheses. Richard Bradshaw and John Boyle review the challenges of producing databases of Holocene land-cover, fire and carbon fluxes. Thomas Hoffmann leads a review of the means and scope of producing databases of Holocene erosion and paleohydrological change. Finally, Rick Battarbee describes the first steps taken in the compilation and analysis of records of surface acidification and eutrophication covering recent centuries.



PAGES Calendar 2007

27 June 2007, London, UK
UK IGBP Paleo and Modern Perspectives on Global Change

www.bridge.bris.ac.uk/palmope

3 - 7 September 2007, Shanghai, China
9th International Conference on Paleoceanography

icp9.iodp-china.org/

17 - 21 July 2007, Florida, USA
1st International Sclerochronology Conference (ISC07)

conference.ifas.ufl.edu/sclerochronology/

9 - 15 September 2007, Thailand
1st Asian Dendrochronology Conference

www.en.mahidol.ac.th/dendro/

27 - 31 August 2007, Beijing, China
3rd Alexander von Humboldt International Conference: East Asian Summer Monsoon, past, present and future

www.conferencenet.org/conference/avh.htm

10 - 17, September 2007, Inner Mongolia, China
International Workshop on Late Quaternary Environmental Changes in Arid Lands

www.iggcas.ac.cn/iw07/index.htm