
PALAEO & MODERN PERSPECTIVES ON GLOBAL CHANGE

A UK IGBP meeting at The Royal Society, London

Wednesday 27th June 2007

TOPICS

- **Biodiversity, Ecosystem Structure and Functioning**
- **The Regulation of Ocean Productivity**
- **Ocean Fertilization and the Biological Pump**
- **Fluxes to the Coastal Ocean: Changing Land-Surface Conditions and Human Interactions**
- **Natural Regulation of Atmospheric Oxidizing Capacity**

SPEAKERS & MODERATORS

Rick Battarbee	UCL; UK IGBP Committee
Thorsten Kiefer	PAGES IPO
Sandy P. Harrison	University of Bristol
Paul Leadley	University of Paris at Orsay
Kathy Willis	University of Oxford
Ian Joint	Plymouth Marine Laboratory
Karen E. Kohfeld	Simon Fraser University
Andrew Watson	University of East Anglia
Ros Rickaby	University of Oxford
Laurence Mee	University of Plymouth
John Dearing	IGBP-PAGES; University of Liverpool
Nicola Warwick	University of Cambridge
Patricia Martinerie	CNRS; Université Joseph Fourier
Colin Prentice	QUEST, University of Bristol
Harry Elderfield	University of Cambridge
Andy Ridgwell	University of Bristol
Jason Holt	Proudman Oceanographic Laboratory
Eric Wolff	British Antarctic Survey

UK IGBP Meeting
“Palaeo and Modern Perspectives on Global Change”
June 27th 2007
Royal Society, Carlton House Terrace, London, UK

Background: We need to understand the mechanisms and processes of climate and environmental change in both natural and anthropogenically-perturbed situations. The various components of the earth system respond on very different timescales to perturbations: the atmosphere reacts on timescales of hours to years, natural ecosystems on time-scales of years to decades to centuries, the land-surface on timescales of decades to hundreds of years, the ocean on centennial to millennial timescales, and the cryosphere on timescales of up to millennia and longer. These two considerations make it important to examine climate and environmental change in the recent past and over the longer-term timeframe offered by the “palaeo” record if we are to be able to improve our ability to predict the direction of future global changes.

Within the organizational framework of the IGBP Programme, PAGES represents palaeo-science and the data-gathering activities that underpin it. However, key science issues that arise out of the palaeo-record are considered important foci for many of the other IGBP projects. For example, explaining the apparently tightly-controlled upper and lower limits on atmospheric trace gases on glacial-interglacial timescales as shown by the ice-core record is considered to be a key focus for modeling activities within iLEAPS and SOLAS. A major focus for the GLP project is how ecosystem structure and functioning is affected by changes in atmospheric composition and biogeochemical cycles on different timescales. GLP has also identified a need to exploit the palaeo-record of recolonisation of different environments in order to achieve a better understanding of the survival of natural vegetation in the future. Similarly, DIVERSITAS and the ESSP GWSP have identified the need to set the understanding of the contemporary hydrological and freshwater ecological systems in a temporal context

The problem here is that palaeo-questions within most of the IGBP core projects are seen primarily as modeling exercises; the community that is responsible for the data syntheses and process studies that are required underpinnings for such modeling exercises resides in PAGES. It is timely, as the new IGBP projects move from planning to implementation, to bring these two communities together to stimulate a more integrated view of the dynamics of the earth system. Specifically, it is important to examine the key challenges posed by the palaeo-record from the perspective of each of the IGBP projects and to build a dialogue between these projects and the PAGES community to ensure that these challenges are addressed in a realistic way.

Specific Aims of the Meeting

The meeting is expected to achieve the following objectives:

- 1) To inform the UK science community of the major challenges to our understanding of the medium and long-term dynamics of key aspects of the earth system as currently perceived by the IGBP community;

- 2) To inform the UK science community about the availability of resources (e.g. process studies, data syntheses, modeling tools) for tackling such challenges over the next 5-10 years;
- 3) To strengthen the links between the IGBP projects at a critical phase in the planning and implementation of new projects, including their link with the ESSP integrated projects on water, food, carbon and human health
- 4) To explore differences in perspective and in our understanding of key aspects of the earth system that stem from the timescale at which these phenomena are studied;
- 5) To explore approaches based on analysis of observations at different time and space scales and on the use of modeling tools;
- 6) To develop ideas for improving the integration of palaeo-studies within the other core IGBP projects and to provide feedback to the international IGBP on how to do this.

An important outcome of the meeting will be a summary report for IGBP, aimed at improving the formulation of palaeo-research foci within core projects and ensuring that observational components of these foci will be supplied by the palaeoscience community.

Draft Programme for the “Palaeo and Modern Perspectives on Global Change” open meeting

9.00: Coffee and registration; poster set-up

9.30: Welcome and introduction to the meeting

Rick Battarbee: UK IGBP Committee

Torsten Kiefer, PAGES IPO

10.00-11.00: Biodiversity, ecosystem structure and functioning

Speakers: Paul Leadley, Kathy Willis

Moderator: Colin Prentice

11.00-11.30: Coffee break

11.30-12.30: The regulation of ocean productivity

Speakers: Ian Joint, Karen Kohfeld

Moderator: Harry Elderfield

12.30-13.30: Lunch

13.30-14.30: Ocean fertilization and the biological pump

Speakers: Andy Watson, Ros Rickaby

Moderator: Andy Ridgwell

14.30-15.30: Fluxes to the coastal ocean: changing land-surface conditions and human interactions

Speakers: Laurence Mee, John Dearing

Moderator: Jason Holt

15.30-16.30: Natural regulation of atmospheric oxidizing capacity
Speakers: Nicola Warwick, Patricia Martinerie
Moderator: Eric Wolff

16.30-17.00: Final plenary session
Moderators: Sandy Harrison and Rick Battarbee

17.00: End of meeting

Contact Information

Further information is available on the meeting website:
<http://www.bridge.bris.ac.uk/palmope>

Or contact katie.pellicci@bristol.ac.uk