The Priority Research Program “Integrated analysis of interglacial climate dynamics” (INTERDYNAMIC), funded by the German Research Foundation (DFG), aims at a better understanding of climate dynamics using quantitative paleoclimate analyses with a view to create more reliable scenarios for future climate change.

INTERDYNAMIC is based on an integrated approach in paleoclimate research in which all available paleoclimate archives (terrestrial and marine, as well as ice cores) are combined in order to yield a comprehensive and quantitative analysis of global environmental variations. Through close linkage between paleoclimate reconstructions and results from Earth System models, detailed insights into the dynamics of climate variations are gained.

The investigations in INTERDYNAMIC focus on the interglacials of the late Quaternary (including their onset and end) and address the following key questions:

- Which biogeochemical feedback mechanisms control the natural limits of atmospheric concentrations of greenhouse gases and aerosols?
- What linkages exist between climate and pre-industrial cultures?

INTERDYNAMIC was established in 2007 and has an expected duration of 6 years. The program consists exclusively of collaborative projects, in which at least two of the research fields (e.g., ice cores, marine archives, terrestrial archives and Earth System modeling) are represented. Currently 13 projects are active, supporting 22 doctoral and 8 postdoctoral scientists. Information on the individual projects can be found at www.interdynamik.de.

During the annual status seminar, initial results from each project were presented and discussed. Climate changes during the Holocene were addressed with respect to the hydrology of the Arctic Ocean, variation of precipitation, and flood dynamics in central Europe and central Asia. High-frequency intra-Holocene changes in the Caribbean and with respect to dust
Compiling records of Holocene erosion and sediment transport

LUCIFS Workshop – Christchurch, New Zealand, 6-10 December 2008

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A general meeting of the PAGES Focus 4 (PHAROS) Working Group “LUCIFS” took place in Christchurch, New Zealand, on the campus of Canterbury University. Richard Dikau (University of Bonn, Germany) as Chair, and the local organizer, Nick Preston (Victoria University of Wellington, New Zealand), were pleased to welcome 30 participants from 13 countries. The workshop provided an opportunity for presentation of recent research results and for discussion of a range of topical issues.

The workshop followed a joint meeting of the International Association of Hydrological Sciences and the International Commission on Continental Erosion, with many participants attending both meetings. A field trip led by Nick Preston and Nicola Litchfield (GNS Science, New Zealand) provided a break between the meetings. The field trip traveled to Mount Cook at the heart of New Zealand’s Southern Alps and followed a source-to-sink route from the headwaters down through the catchment of the Waitaki River, focusing on the relative impacts on sediment flux of anthropogenic modifications and the glacial/post-glacial transition.

The schedule consisted of 18 oral presentations spread over two days. Many presentations highlighted the importance of human land use as the dominant control on erosion and sedimentation in diverse environments, ranging from central Europe to South America and New Zealand. It is therefore important to be able to reconstruct population densities through time, which the prehistoric archeologists from the University of Cologne have been able to do, suggesting that the pronounced human impacts result from lower population densities than have been conventionally estimated. Nevertheless, over longer temporal scales, human impacts must be considered to intensify natural trends, as was shown for Middle East desertification. Similarly, research from the Rhine catchment shows that the behavior of the geomorphic system itself offers a further level of complexity. A number of keynote talks provided the basis for subsequent discussion group sessions. On the second and third days of the workshop, the meeting separated into small working groups to discuss the following issues:

- Defining a “LUCIFS method”: Identification and elaboration of the systematic context in which LUCIFS researchers characterize fluvial systems (trajectories of change, spatial and temporal dis/connectivity, scale issues, etc.).
- Methodological considerations: Techniques for reconstruction of past landscape behavior using multiple and diverse environmental proxies.
- Development of a LUCIFS database: Structure, metadata, content. These structured discussions helped to clarify key issues for further research, which were presented to the whole group of participants in a plenary session. White papers will be produced, summarizing the discussions and the issues that they raised, and will initially be published on the LUCIFS website.

A final discussion addressed future LUCIFS research strategies and the group’s role within the overarching PHAROS research focus. While LUCIFS research will continue with its emphasis on understanding the behavior of fluvial sediment redistribution systems, particularly as influenced by humans, members of the group will also contribute to the PHAROS “Soil and Sediment” and “Carbon” Themes (see www.pages-igbp.org/science/focus4.html for more information on these). Richard Dikau expressed the wish to pass on the leadership of the group, and the gathered membership decided to make a number of changes to the organizational structure. Nick Preston was elected as Chair and Thomas Hoffmann to fill the dual role of Secretary and Co-Chair. They will be joined by a flexible Steering Committee, consisting of Andreas Lang, Gilles Erkens, Jochen Schmidt and Mike Page. Membership of the Committee will change to reflect the nature of the group’s activities. In addition, those members who have previously served on the Committee will be invited to continue their input by serving on an Advisory Board.

People interested in LUCIFS activities are invited to visit the LUCIFS website (http://gidimap.gub.uni-bonn.de:9080/lucifs/) for further information.