



Fluvial Sediments as GeoArchives in the Tsauchab Valley, Namibia

Jörg Völkel (1), Oliver Bens (2), Marie Eden (1), Klaus Heine (3), and Kerstin Hürkamp (4)

(1) Technische Universität München, Science Center Weißenstephan, Ecology and Ecosystem Management, Freising-Weißenstephan, Germany (joerg.voelkel@tum.de), (2) Helmholtz-Zentrum Potsdam, (3) Universität Regensburg, (4) Helmholtz-Zentrum München

Understanding the history of how humans have interacted with the landscape can help clarify the options for managing our increasingly interconnected global system. In consequence of changing climate, major regional impacts on the human habitat is expected and must be addressed in modern land-use planning and management strategies which in turn has to rely on a diligent assessment of the nature of possible impacts on regional environments. In warm arid and semi-arid climatic zones, land use can result in landscape degradation, leading to enhanced activity of earth surface processes. Climatic changes can also be instrumental in producing landscape and ecosystem changes, similar to earth surface processes brought about by land-use change. However, predictions of the future behaviour of complex geo/bio-systems are limited, because these are open systems. Apart from modelling a promising approach to better understand the processes of environment responses is to learn lessons from past variability, i.e. searching for 'palaeo-analogue' situations. These are time intervals in the past with boundary conditions (e.g. sea-level changes, atmospheric circulation patterns) more similar to future scenarios than to the present day situation. Signals of these past climate and ecosystem changes are stored in a variety of natural continental and marine archives (sediments, biogens). These geoarchives have the potential for providing researchers with high-resolution data for the reconstruction of palaeo-ecosystems and their dynamics. The influence of key forcing variables and their effects extracted from the geoarchives will be cross-checked in order to validate and adjust models of present and future processes. This knowledge will help justify and calibrate prognostic scenarios in order to deliver proxy-data for southern-hemisphere records. - The project "GeoArchives" is funded by BMBF within the SPACES-Program.