



## **ICDP Workshop on Scientific Drilling of Lake Challa:**

### **Research on the climatic and ecological history of equatorial East Africa**

*Nairobi & Taveta, Kenya, 10-14 September 2012*

The sediment record of Lake Challa (3°S, 38°E), a permanently stratified crater lake on the lower east slope of Mt. Kilimanjaro, has archived a uniquely long and continuous history of continental climate and ecosystem change in eastern equatorial Africa. Its location squarely inside the intertropical zone is highly appropriate to study long-term climate dynamics near the equator, because latitudinally extensive seasonal migration of the Intertropical Convergence Zone over East Africa generates strong regional interaction between northeasterly and southeasterly monsoons. Lake Challa's proximity to the Indian Ocean also ensures its all-season location east of the zone of convection between Atlantic and Indian Ocean moisture sources, such that the region is little affected by the climatic effects of changes in Atlantic meridional overturning circulation, through which signatures of northern high-latitude glaciation are imprinted on low-latitude continents.

Multi-proxy investigation of accurately-dated sediment cores covering the last 25,000 years confirmed Lake Challa's potential as a tropical climate archive of global significance. Stimulated by seismic-reflection data of the deeper sediment sequence revealing an exquisite stratigraphy over at least 150,000 years, the DeepCHALLA research consortium is now preparing a drilling project to recover this long record. Selected research objectives are:

- \* To reconstruct a complete glacial-interglacial cycle of tropical monsoon dynamics over the western Indian Ocean, allowing assessment of the regional interplay between low-latitude insolation forcing and long-distance impacts of northern high-latitude and Antarctic glaciation.
- \* To document long-term ecological dynamics of a tropical grassland-woodland landscape in response to changes in atmospheric CO<sub>2</sub>, temperature, moisture balance, and fire.
- \* To reconstruct the long-term dynamics of a tropical freshwater ecosystem in response to climate-driven changes in lake level, temperature, water-column mixing and nutrient budget.

An ICDP-funded workshop and fieldtrip to Lake Challa will be held in Nairobi and Taveta, Kenya, on 10-14 September 2012 to further develop the project's scientific goals and to discuss technical and logistic issues concerning recovery of the long sediment sequences and a lake-system monitoring program. It will also discuss the project's multinational scientific collaboration and co-financing, and opportunities for outreach and knowledge transfer. The

principal workshop outcome will be a draft science plan that will form the basis of an ICDP drilling proposal.

We invite applications to attend this workshop from members of the scientific community who are interested to contribute to the DeepCHALLA project. We particularly aim to expand the research consortium with additional expertise in geochronology, tropical limnology, climate and hydrological modelling, and aquatic and terrestrial paleoecology including paleogenetics.

Interested parties are requested to submit their application by May 20, 2012 to Dirk Verschuren ([dirk.verschuren@ugent.be](mailto:dirk.verschuren@ugent.be)) and Daniel Olago ([dolago@uonbi.ac.ke](mailto:dolago@uonbi.ac.ke)) with full contact details, a summary of research interests and expertise, and a brief description of the intended project contribution. Successful applicants will be notified in early June.

Accommodation and travel costs within Kenya will mostly be covered by ICDP funds, and additional travel grants may be awarded to participants from East African nations. Preference will be given to scientists from ICDP member countries and whose expertise complements that of current consortium members.