

Continuous long and high-resolution sequences are needed for testing the effect of orbital forcing over full glacial-interglacial cycles.

Another keynote by Julius Lejju dealt with Holocene environmental history and human interaction based on sedimentary records and archeological findings around the Great Lake Regions of Central Africa. This paper reported significant changes in environmental and socio-cultural conditions from the Holocene to present.

This was followed by a series of plenary papers focused on the interdependencies of climate change and groundwater budget across the West African Sahel Zone, and the impact and consequences of sea level rise on coastal erosion. It was revealed that societal impacts associated with climate change include drought, land degradation, biodiversity loss, decreased human well-being and poor agricultural output, ultimately affecting food security.

Euloge Ogouwale then described the history of climate change during the Quaternary in West Africa citing examples from the Benin Republic. The results revealed that the impact of the dry climatic condition in Benin Republic is visible in the landscape vegetation.

The second day focused on climatic variability and human health, and the consequences of ecosystem changes on the livelihood and sustainability of humans in West Africa during the Holocene. The session highlighted integrated studies that combine marine and terrestrial proxies to correlate changes in oceanic, continental and atmospheric conditions. For example, Ilham Bouimetarhan presented historical records that show that the Sahel region has experienced several shifts towards



Figure 1: Participants of the 1st WAQUA international workshop.

more arid climate during the last glacial period. The data indicated that abrupt onsets of arid conditions in the West African Sahel co-occurred with cold North Atlantic sea surface temperatures during Heinrich surge events, which is explained by southward migration of the InterTropical Convergence Zone and its associated tropical rain belt by a few degrees latitude over West Africa. These results documented the occurrence of multi-millennial-scale droughts in the Sahel during the past 57 ka (see Ilham Bouimetarhan et al., 2009).

Post-workshop meeting

A general meeting was held immediately following the workshop sessions. The following actions were taken and decisions made:

- An interim committee was set up to run the affairs of WAQUA until a general election is conducted. Dr. Akaegbobi (Nigeria) and Dr. Yabi (Benin Republic) were nominated and approved as Chairman and Vice Chairman respectively. Other members include Mr. Ediang (Secretary), Prof. Anike and Dr. Mrs. Meludu.

- Four Working Groups were formed to develop topical research priorities: 1) Lake Sediments as Archives for Paleoclimatic Changes; 2) Coastal Sea Level Changes; 3) Ecosystem Changes and Human Livelihood; 4) Archeology and Paleontology.
- The papers presented during the workshop will be prepared for publication in a special volume in *Quaternary International*.
- The next WAQUA workshop will be held in Cotonou, Republic of Benin, in 2010.

Acknowledgements

The organizers would like to thank the following sponsors for their support of this meeting: The International Union for Quaternary Research, PAGES, Paleontological Scientific Trust, and HaalTech Quarrying and Construction Company Nigeria Limited.

References

- Bouimetarhan, I., Dupont, L., Schefuß, E., Mollenhauer, G., Mulitza, S., Zonneveld, K., 2009: Palynological evidence for climatic and oceanic variability off NW Africa during the late Holocene, *Quaternary Research*, **72**: 188-197.
- Mohammed, M.U., Legesse, D., Gasse, F., Bonnefille, R., Lamb, H., Leng, M. and Lamb, A., 2004: Late Quaternary Climate Changes in The Horn of Africa. In: Battarbee, R., Gasse, F., Stickle, F. (Eds) *Past climate variability through Europe and Africa*, Kluwer Academic Press.

PAGES Calendar 2010

🌀 Australasia 2k Workshop: Towards data synthesis

31 May - 2 June 2010 - Melbourne, Australia
<http://www.pages-igbp.org/science/2k/aus2k/aus2kmeeting2010.html>

🌀 PAGES Regional Workshop Japan

5 - 6 June 2010 - Nagoya, Japan
<http://www.pages-igbp.org/calendar/>

SCAR Open Science Conference: Witness to the past and guide to the future

3 - 6 Aug 2010 - Buenos Aires, Argentina
<http://www.dna.gov.ar/scar2010/index.htm>

🌀 Paleo-ocean acidification and carbon cycle perturbation events

26 - 28 Aug 2010 - Catalina Island, USA
<http://www.pages-igbp.org/calendar/>

10th International Conference on Paleoceanography

29 Aug - 3 Sep 2010 - La Jolla, USA
<http://icp10.ucsd.edu/>

🌀 2nd PAGES Global Monsoon Symposium

13 - 15 Sep 2010 - Shanghai, China
<http://www.pages-igbp.org/calendar/>

🌀 Regional Integration of human-environment interactions: Climate change "hotspots"

13 - 15 Sep 2010 - Southampton, UK
<http://www.pages-igbp.org/calendar/>

🌀 PAGES International Floodplain Lakes Workshop

16 - 19 Sep 2010 - Arkansas, USA
<http://comp.uark.edu/~shausman/PAGESworkshop/floodplain.html>