

"

✂

✂

"

ID#

Location: Sunset Room (Eldorado Hotel & Spa)

Time of Presentation: Mar 22 1:45 PM - 3:15 PM

Category: Africa

"

High-resolution evidence of Holocene climate change in the Sahara and correlation to human-environment interaction

ÜÈS:4] ^|ä F LA ÈT ^||^• G LÄSæ|• G LÜÈS~ J ^|F

1. Institute of Prehistoric Archaeology - African Archaeology, University of Cologne, Köln, Germany.

2. Institute of Geology and Mineralogy, University of Cologne, Köln, Germany.

"

A recently extracted core from the bottom of Lake Yoa at Ounianga Kebir in remote Northern Chad (19°N-20.5°E) provides the first continuous record of climate variations in the Sahara from the onset of the early Holocene humid period to the present (spring 2010). Due to its geographical position at the exit of a mountain-bound corridor funnelling the dominant trade winds, Lake Yoa has acted as a sink for geological and biological proxies such as dust or pollen originating in the upwind regions of Northeast Africa including Libya, Egypt and Northern Sudan.

The c. 16m long sequence contains the most complete and detailed terrestrial climate archive in the earth's major desert. For the most part, it features varved lamination at subannual resolution. A previous 7.5m short core provided detailed data on the gradual desiccation of the Sahara and related aquatic ecosystem change during the past 6,000 years (Kröpelin et al. 2008) but did not allow, e.g., for correlation with archaeological evidence suggesting a major climate transition at about 7,300 years ago that caused the retreat of human occupation into ecological niches and the exodus to southerly regions (Kuper, Kröpelin 2006).

The new sequence extends the data base to the dawn of the "Green Sahara" which followed the late Pleistocene hyperarid desert. Ongoing multiproxy analyses open up various perspectives to correlate climate variations with socio-economic transformations of human societies from the early Holocene reoccupation of the Sahara to its possible current "regreening" as a consequence of global warming. The data will also be used to test the terrestrial impact of proposed abrupt climate incidents such as the "8.2 ka event"; to evaluate the concept of the so-called "African Humid Period" deduced from oceanic cores (deMenocal et al. 2000); and to better understand cultural transitions in the prehistory of the Eastern Sahara and in the subsequent predynastic and Pharaonic civilisations in the Nile valley.

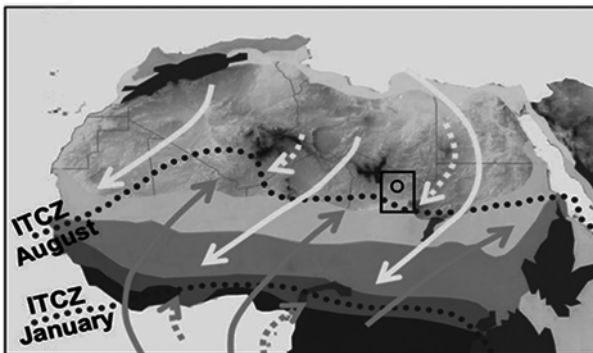
Kröpelin S. et al. (2008). Climate-Driven Ecosystem Succession in the Sahara: The Past 6000 Years. *Science* 320: 765-768. DOI: 10.1126/science.1154913

Kuper R., Kröpelin S. (2006). Climate-Controlled Holocene Occupation in the Sahara: Motor of Africa's Evolution. *Science* 313: 803-807. DOI: 10.1126/science.1130989

deMenocal P. B. et al. (2000). Abrupt onset and termination of the African Humid Period : rapid climate responses to gradual insolation forcing. *Quat. Sci. Rev.* 19, 347-361.

Contact Information

Stefan Kröpelin, Köln, Germany, 50823, [click here](#) to send an email



Ü|• ä| } Ä -Sä ^Ä| ää Ä @ Ä ä ä ä ä ä | ^ ç ä ä * Ä ä ä •