Geophysical Research Abstracts
Vol. 12, EGU2010-1386-1, 2010
EGU General Assembly 2010

Late Holocene paleoclimate records from Lakes Sibaya and Verlorenvlei, South Africa.

J. Curt Stager (1), Frank Neumann (2), Brian M. Chase (3), Michael E. Meadows (4), Jason Fitzpatrick (1), Matt Hazzard (1), Christiaan King (1), Jerome Madson (1), and Jay White (1)

(1) Natural Resources Division, Paul Smith's College, Paul Smiths, NY 12970, USA (cstager@paulsmiths.edu), (2) Bernard Price Institute for Palaeontology, School of Geosciences, University of the Witwatersrand, Johannesburg 2050, South Africa, (3) Department of Archaeology, History, Culture and Religion, University of Bergen, Postbox 7805, 5020, Bergen, Norway, (4) Department of Environmental and Geographical Science, University of Cape Town, Rondebosch 7701, South Africa

Detailed, continuous paleoclimatic records of the late Holocene are relatively uncommon in the southern hemisphere, and the environmental interpretations of some important southern records remain unresolved. Such issues have hindered the understanding of continental and hemispheric-scale climatic processes, including the roles of solar variability, ENSO, and latitudinal positions of key weather systems, in the long-term evolution of tropical climates. Sediment cores from two widely separated lakes on the South African coast now shed additional light on precipitation variability in the region as well as on the interpretation of existing records from other sites that are located farther inland. Lake Sibaya, in the northeastern sector, receives most of its rain during austral summers and can be influenced by latitudinal shifts in the position of the ITCZ; its climatic history may therefore be informative for the understanding of unusual precipitation patterns during the late Holocene that have been reported from equatorial East Africa. Verlorenvlei, in the southwestern sector, receives most of its rain during austral winters and is well situated to register latitudinal shifts in the positions of mid-latitude westerly storm tracks which, in turn, are sensitive to atmospheric and marine conditions around Antarctica. Comparing sedimentary records from these two sites can therefore be helpful in testing the hypothesis that synchronous changes in low- and mid-latitude weather systems have occurred during the late Holocene, presumably in response to solar variability or other disruptions of large-scale air and ocean circulation patterns. In this presentation, diatom, pollen, and sedimentological data from Sibaya and Verlorenvlei are used to address the nature and origins of climatic changes in tropical and southernmost Africa during the last 1500 years. In addition, because the variability of lacustrine conditions at these two sites appears to be primarily the result of rainfall fluctuations, their sedimentary records can shed useful light on the interpretation of paleoclimatic reconstructions from other sites in which the relative roles of temperature and precipitation are less clearly distinguished by the proxies under consideration.