



HAL
open science

Diatom-inferred paleohydrological changes in lake Abiyata (Ethiopia) at the termination of the African humid period (5.5 cal. kyr BP).

V. Roubéix, F. Chalé

► **To cite this version:**

V. Roubéix, F. Chalé. Diatom-inferred paleohydrological changes in lake Abiyata (Ethiopia) at the termination of the African humid period (5.5 cal. kyr BP).. EGU 2018, Apr 2018, Vienna, Austria. pp.1, 2018. hal-02607374

HAL Id: hal-02607374

<https://hal.inrae.fr/hal-02607374>

Submitted on 16 May 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Diatom-inferred paleohydrological changes in lake Abiyata (Ethiopia) at the termination of the African humid period (5.5 cal. kyr BP)

Vincent Roubeix (1) and Françoise Chalié (2)

(1) Irstea, UR RECOVER, Irstea, UR RECOVER, AFB-Irstea consortium on lake hydroecology, Aix-en-Provence, France (vincent.roubeix@irstea.fr), (2) Aix-Marseille Université, CNRS-UMR 7330, CEREGE UM34, Aix-en-Provence, France

Diatom remains in lake sediment are a powerful proxy of paleohydrological changes. The composition of fossil diatom assemblages gives indication on lake water level, through the proportion of benthic/pelagic habitat, and on water salinity which is related to the precipitation-evaporation balance. In this study, a sediment core from lake Abiyata (Ethiopia) was re-analyzed focusing on the termination of the African humid period which occurred around 5.5 cal. kyr BP and gave rise to the Sahara desert. The diatom assemblages of lake Abiyata revealed a clear period of transition lasting 500-600 years, between two relatively stable states corresponding to a large freshwater and then a shallow saline lake. The transition was characterized by a high variability of the assemblages and a short peak of conductivity inferred using a transfer function. In spite of the hypothesized interference of site-specific and ecological thresholds, the observed variations indicated an alternation of humid and dry periods during the transition rather than a continuous decrease in monsoon intensity. This variability in precipitation may have been an early warning signal announcing a climatic regime shift. Hydrological simulations on the lake basin could help to better understand the variations in diatom assemblages in response to climate fluctuations during this rather abrupt termination of the African humid period.