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A multi-proxy study of present-day aeolian terrigenous particles deposited between 2006 and 2008 at M'Bour, Senegalese coast

Charlotte Skonieczny (1), Aloys Bory (1), Viviane Bout-Roumazeilles (1), Wafa Abouchami (2), Steve Galer (2), Xavier Crosta (3), Aboubacry Diallo (4), Thierno Ndiaye (4), Celine Liorzou (5), and Claire Bassoullet (5)

(1) FRE/CNRS 3298 GEOSYSTEMES, Université Lille 1, Villeneuve d'Ascq, France (charlotte.skonieczny@ed.univ-lille1.fr), (2) MPI für chemie, Mainz, Germany, (3) UMR 5805 EPOC, Université Bordeaux 1, Talence,France, (4) IRD Dakar, M'Bour station, Senegal, (5) IUEM UMS 3113, Université de Bretagne, Plouzané, France

The Sahara-Sahel region is the most important source of mineral dust, which is mainly transported westward over the North-Eastern Tropical Atlantic Ocean. The study of aeolian terrigenous deposits in the marine sedimentary records enables to document changes in aridity and wind patterns, therefore contributing to reconstruct paleoclimatic scenarios in this region.

However, we are often unable to interpret these paleorecords fully because of our incomplete understanding of the mineralogical and geochemical proxies. Present-day investigations may thus provide invaluable clues in order to calibrate those proxies, particularly in terms of changes in source area and main transport systems. Yet, the existing database is very insufficient, likely due to the inherent difficulty in measuring dust deposits, and also to the fact that it is a logistical challenge to establish perennial observational stations in remote arid areas.

Within the frame of the African Multidisciplinary Monsoon Analyses (AMMA) program, a CAPYR-type dust collector was deployed at M'Bour, on the Atlantic coast of Senegal, early 2006 and has been operating since, providing a unique pluri-annual record of weekly dust deposits in that region. We will present the preliminary results of a multi-proxy study, including deposition fluxes, grain size distribution, clay mineralogy, major and minor elements, Strontium and Neodymium isotopes and the fresh-water diatoms, of the dust deposited at M'Bour during the 2006-2008 dry and humid seasons. This study will benefit from complementary optical and atmospheric data measured simultaneously at the M'Bour station.