



Sedimentary transfers evolution and hydrological modifications in small sahelian watersheds

E. LE-BRETON (1), I. MAMADOU (1), C. COSANDEY (1), I. BOUZOU MOUSSA (2), E. GAUTIER (3), and L. DESCROIX (4)

(1) LGP UMR 8591 CNRS, Université Paris 1, Paris, France (eric.le-breton@cnrs-bellevue.fr), (2) Université A. Moumouni, Niamey, Niger, (3) LGP UMR 8591 CNRS, Université Paris 8, Saint-Denis, France, (4) IRD Niamey, LTHE, Grenoble, France

The area of Niamey (Niger) is composed of a mosaic of small endorheic watersheds. Since 1950, this region is undergoing both the consequences of an exceptional drought and a sharp increase of anthropogenic pressure. This is reflected in the disappearance of the tiger bush which covered naturally the crusted table-land and widespread planting of slopes. These changes generate a strong rise in runoff coefficients producing a change in local hydrology and an increase of sediment transfers.

The aim of our study is to highlight the hydrological changes induced by these sedimentary transfers. For that, we monitored different areas on two small experimental watersheds during the AMMA experiment. From topographical, hydrometrical and sedimentary surveys, we put forward the environmental changes (water supplying changes of groundwater, segmentation of ponds, ponds mobility, deflection, etc.).

Monitoring the progress of erosion/sedimentation forms allows the emphasis on increasing water flow and sediment in two main areas. The first one is formed by areas of sedimentary deposits growing at mid-slope, allowing the storage and infiltration of runoff. The second area is formed on the downstream ponds with modifications of water and sediment supplies which change the pond's dynamic.

Keywords: erosion; hydrology; environmental changes; anthropic pressure; Sahel; Niger; AMMA