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NEW EVIDENCE ON PALAEOENVIRONMENTAL CONDITIONS IN SW CAMEROON SINCE THE LATE PLEISTOCENE DERIVED FROM ALLUVIAL SEDIMENTS OF THE NTEM RIVER

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ABSTRACT

By methods of geomorphological, physiogeographical and pedological research, the sub-project "ReSaKo (Rain forest-Savanna-Contact)" of the DFG-Project 510 "Ecological and Cultural Change in West and Central Africa" investigates the palaeoenvironmental conditions in SW Cameroon on the basis of alluvial sediments of the Ntem River. This innovative approach has identified fluvial and alluvial sediments of the Ntem River as an additional palaeoarchive for proxy data which contribute to the reconstruction of palaeoenvironment and palaeoclimate in western equatorial Africa. This will also help to complement the findings of the ECOFIT (ECOsystèmes et Paléoécosystèmes des Forêts InterTropicales) Programme (SERVANT & SERVANT-VILDARY 2000). By the interpretation of satellite imageries and topographical maps of SW Cameroon and geological as well as hydrogeographical references, an interior delta could be identified in the lower course of the Ntem River near the sub-prefecture Ma'an. Neotectonic processes may have initiated the evolution of a 'sediment trap' and occasionally lead to lacustrine conditions in this part of the Ntem's river sequence. Inside the delta, the Ntem has developed a multi-branched river system which contains 'stillwater locations' at several places. 96 corings at these locations have unveiled multilayered, sandy to clayey alluvia. During the recovery of these up to 420 cm deep alluvial sediments (with EDELMAN corer), embedded fossil organic horizons have been discovered in certain depths (2-4 m). Radiocarbon datings of these fossil organic soil horizons, which have been interpreted as palaeosurfaces, give a maximum ^{14}C-age of 48.230 yrs. BP (uncal.). The occurrence of such palaeosurfaces is partially associated with abrupt grain-texture changes. This lead to the assumption that the alluvia can give evidence for climatic and environmental fluctuations since the Pleistocene. These caused striking changes in hydrological, geomorphological and fluvial processes of the Ntem River. Stable organic carbon isotopic composition values (δ^{13}C) indicate that rain forest species may have persisted in the study area since at least 48.230 yrs. BP (uncal.). This provides further evidence for the existence of a rain forest refugium before and during the LGM as stated by MALEY (1987) and others.

Keywords: LGM, alluvial sediments, fossil organic horizons, palaeoenvironment

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