



Late Quaternary piedmont stratigraphy and paleoenvironments of Eastern Bolivia

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Paleoenvironmental research is essential for the understanding and reconstruction of past climate changes. Regional investigations are needed to explore poorly studied areas, and can complement and expand the information contained in high-resolution proxy data. Particularly in marginal and transitional environmental regions, climate changes should be recorded sensitively in appropriate archives. The Andean piedmont in Eastern Bolivia is located at the transition between wet tropical and semi-arid subtropical climate regimes. It receives its sediments from relatively small catchments in the Subandean ranges. The sedimentary history should thus reflect local to regional climatic changes.

Therefore, we use paleosol-sediment-sequences as archives for the reconstruction of landscape evolution and paleoclimatic conditions in Eastern Bolivia. Along the piedmont of the Eastern Andes many sequences cover the entire Holocene, some of which extend back before Last Glacial Maximum (LGM). Marked shifts between morphological activity with sedimentation and/or erosion and periods of soil formation are characteristic for all of them.

Coarse sediments form the base of most sequences and are indicative of generally drier environmental conditions characterized by highly seasonal climate, probably before and during the LGM. During the Lateglacial, the grain size generally decreases from gravels to predominantly sands. Only the Lateglacial to Holocene transition in Eastern Bolivia was characterized by stable landscapes, extensive forest cover and soil formation under wetter environmental conditions. In contrast, forest cover was significantly reduced during the Mid-Holocene causing the widespread accumulation of fluvial and fluvio-aeolian sands. The subsequent onset of wet environmental con-

ditions similar to today occurred at around 4 ka BP. In addition, evidence for climatic changes during the last millennium is preserved at some locations.

On these shorter timescales, various mechanisms seem to control the environmental conditions in the Eastern Bolivian lowlands, whereas the South American summer monsoon seems to be the dominant control on longer timescales during the Late Quaternary.