



Sediment budgets in mesozoic mountains: a case study

H. Förster, P. Houben, J. Wunderlich

Institute of Physical Geography, Frankfurt/Main, Germany

(h.foerster@em.uni-frankfurt.de / Fax: +49 69 798-28382 / Phone: +49 69 798-28450)

In the last decades sediment budgets for fluvial basins has become a focus both in hydrology and geomorphology. The results of investigations in agriculturally used lowland catchments show remarkable results: the amount of eroded material which left the catchments through the fluvial systems is unexpectedly low. However, colluvial and alluvial storage can be up to ten times higher than the sediment yield of the streams (Houben in prep, Trimble 1983).

However, long term sediment budgets for low altitude mountain areas with an elevation difference of more than 400 m have so far not been attempted. Land use of these low mountain ranges differs clearly from intensively and continuously used agricultural lowlands since the colonisation and cultivation of such areas are erratic in time and space. Due to the steeper slopes the dynamic of re-sedimentation, preservation and relocation of eroded material is certainly different from lowland areas.

The study area, which meets the above criteria, is situated in the Palatinate Forest, a low altitude mountain range on the left side of the river Rhine, north of France in the Rhineland-Palatinate region in Germany. The objective of the study is to calculate the sediment budget with the help of available data sets. Sediment budget studies for agricultural used catchments (Houben in prep.) have shown that these data have to be corrected with field data. Therefore additional field work will be done.

The underlying assumption is to calculate soil truncation at a maximum soil depth of 100 cm for Luvisols and at 60 cm soil depth for the main solifluction sheet. Using both OSL and ^{137}Cs and historical maps to date the sedimentation/erosion phases, a model of the sediment fluxes in the Speyerbach catchment will be established.