



Heavy mineral analyses as a powerful tool in fluvial geomorphology

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The Marneuli depression is a tectonic sub-basin of the Transcaucasian depression in eastern Georgia, filled with several decametres of fluvial, lacustrine and aeolian Quaternary sediments. In order to reconstruct past landscape evolution of the region we studied Late Quaternary fluvial sediments found along several rivers that flow through that depression. Whereas Holocene river sediments could generally easily be assigned to corresponding rivers, this was not always the case for older fluvial sediments. For this reason, we studied the heavy mineral contents of five recent rivers and of four sedimentary deposits of potential precursors. A total of 4088 analysed heavy mineral grains enabled us to set up the characteristic heavy mineral distribution pattern for each sample. Using these data, we were able to reconstruct the most likely source areas of the Late Pleistocene fluvial sediments and to link them with the catchment areas of recent rivers. This allowed us to identify and to substantiate significant Late Quaternary river diversions that could at least partly be assigned to ongoing tectonic processes.