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Estimating typical sediment yields and sediment concentration probability density functions for European rivers

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This research project is focused on sediment yield estimation in major European catchments and investigations into how sediment yield is related to catchment characteristics and suspended sediment concentrations in rivers.

Soil erosion and sediment yield modelling at larger scales often means excluding physical models based on mathematical description of these processes. Most of them were developed on a plot or field scale. That means that they mostly provide small-scale estimates. Nevertheless there are still a number of different empirical approaches. This study uses the PESERA (Pan European Soil Erosion Risk Assessment) approach as an estimate of soil erosion rate at pan-European level. PESERA is based on evaluation of three erosion potentials. Soil erosion is not only source of sediment which has been taken into an account. Risk of bank erosion will be estimated using soil characteristics and flow regime for a particular river.

The main focus of the work is on the estimation of sediment yield. Several relationships to various catchment characteristics have been reported in the scientific literature. Sediment yields have been related to catchment area, slope of the main channel, relief-length ratio, mean annual precipitation, soil characteristics and others. Many such approaches are being tested and will be compared with data obtained from a number of field sites. Relationships with typical sediment concentration probability distribution functions are also being investigated.