Study Project

Sediment transport in meandering streams

Background
“In nature, different meandering streams exhibit different geometric characteristics, grain size distributions, flow regimes, etc., and in any given stream the conditions vary from one meander loop to another. Owing to this reason, scientific studies aimed at a general formulation of meandering processes are usually undertaken using abstract idealized meandering streams.” (Da Silva et al. 2006)

Objectives
The solid transport simulation model HYDRO_FT-2D expands HYDRO_AS-2D to transport processes. It solves numerically the equations for the transport of solids (suspended matter and bed load) as well as for the bed level changes according to Exner. The HYDRO_GS-2D modules calculate the sediment load according to the extended Meyer-Peter-Müller formula. The model takes into account the influence of river bends, the bottom shape and the longitudinal and transverse inclination of the riverbed. In this study project, HYDRO_FT-2D simulations will be used to remodel and evaluate the software’s ability to reproduce the findings of Da Silva et al. (2006) and later works.

Work Packages
- Literature study
- Developing of a processing methodology
- Model setup and calculations
- Data comparison