Transient sediment transport in a sedimentary catchment during a flood - A case study in São Paulo State, Brazil

[1]REDA, A.L.L., [2]JAQUIÊ, L.C.L. and [2]COELHO, T.A.F. [1]Escola de Engenharia de Lins, Fundação Paulista de Educação e Tecnologia (FPTE), Lins, Brazil (also: Escola de Engenharia da Universidade Presbiteriana Mackenzie, São Paulo; Escola de Engenharia Mauá, São Caetano do Sul, and Universidade Bandeirante, São Paulo); [2]Escola de Engenharia de Lins, FPTE, Lins, Brazil.

A 60.7km^2 catchment is studied in the Adamantina group of sedimentary soils, São Paulo State, Brazil, in order to identify the importance of storms as a cause of soil erosion and river sediment transport. A 1.10km stretch of its main watercourse, the Campestre Creek in the municipality of Lins, is being sampled for streamflow rate and water quality during floods conveying the stormwaters from a combined use, urban and rural, area.

In the preliminary phase of this project (which, as its broader objective, aims at setting the conditions for water-quality modelling in the Campestre Creek), an event was monitored in June 1999 which produced records of flow rates and suspended solid concentrations such as to allow for the derivation of mass-flow graphs along its duration.

Based on these graphs, the analysis of suspended solid transport and its comparison with the original and unique records of other water-quality determinands gathered, in this project, along the same flood event drive to important conclusions in the paper. In particular, in the light of the knowledge of the type of soil in the studied area and its susceptibility to stormflow erosion, they quantitatively demonstrate the importance of storm events in causing soil erosion and transporting the solid material therefore conveyed through the catchment watercourses.