



Natural and anthropic roles on the sediment processes evolution at the catchment scale: numerical modelling and geomorphologic inference

C. Del Grande (1), F. Dottori (2), C. Elmi (2), M. Ghirotti (2), **M.L.V. Martina** (2)

(1) Ambiente Terra, Via Andreoli 22, San Lazzaro di Savena, Bologna, 40068, Italy, (2)
Department of Earth and Geo-Environmental Sciences, University of Bologna, Piazza di Porta
San Donato, 1, Bologna, 40126, Italy (carlo.delgrande@ambienteterra.it)

Erosion, sediment transport and deposition are processes strongly controlled by the climate, the hydrology and the geomorphology of the catchment. Along physical features and natural factors, the human management of the land/water resources can play an important role on the catchment energy, water and sediment balances. To assess the evolution of these dynamic equilibriums and understand the physical processes involved, two parallel approaches are often implied: numerical modelling or geomorphologic inference. On one hand modelling can be a tool for data investigation and hypothesis testing, on the other hand only a geomorphologic analysis leads to a deeper physical processes explanation and land shapes interpretation. In this work we explore the potentialities of the two approaches combination in the framework of a real world application. The Conca catchment (160 km²) in Italy is a clear example where a combination of natural and anthropic factors is rapidly changing the sediment balance and the landscape evolution. These effects can be understood only if the analysis is carried out at the catchment scale since it is showed of crucial importance the reciprocal dependency of the hillslope, channel and littoral systems.