



## **Sediment yield estimation in mountain catchments of the Camastra reservoir, southern Italy: a comparison among different empirical methods**

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Sedimentary budget estimation is an important topic for both scientific and social community, because it is crucial to understand both dynamics of orogenic belts and many practical problems, such as soil conservation and sediment accumulation in reservoir. Estimations of sediment yield or denudation rates in southern-central Italy are generally obtained by simple empirical relationships based on statistical regression between geomorphic parameters of the drainage network and the measured suspended sediment yield at the outlet of several drainage basins or through the use of models based on sediment delivery ratio or on soil loss equations. In this work, we perform a study of catchment dynamics and an estimation of sedimentary yield for several mountain catchments of the central-western sector of the Basilicata region, southern Italy. Sediment yield estimation has been obtained through both an indirect estimation of suspended sediment yield based on the Tu index (mean annual suspension sediment yield, Ciccacci et al., 1980) and the application of the Rusle (Renard et al., 1997) and the USPED (Mitasova et al., 1996) empirical methods. The preliminary results indicate a reliable difference between the RUSLE and USPED methods and the estimation based on the Tu index; a critical data analysis of results has been carried out considering also the present-day spatial distribution of erosion, transport and depositional processes in relation to the maps obtained from the application of those different empirical methods.

The studied catchments drain an artificial reservoir (i.e. the Camastra dam), where a detailed evaluation of the amount of historical sediment storage has been collected. Sediment yield estimation obtained by means of the empirical methods have been compared and checked with historical data of sediment accumulation measured in the artificial reservoir of the Camastra dam.

The validation of such estimations of sediment yield at the scale of large catchments using sediment storage in reservoirs provides a good opportunity: i) to test the reliability of the empirical methods used to estimate the sediment yield; ii) to investigate the catchment dynamics and its spatial and temporal evolution in terms of erosion, transport and deposition.

### References

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