

The consequences of hydrological events on steep coastal watersheds: the Costa d'Amalfi, eastern Tyrrhenian Sea

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Abstract Mitigating the adverse impacts of extreme hydro-meteorological events such as floods requires a multi-hazard approach that integrates land and water resources development in a river basin. For this aim, geological data combined with historical and direct field investigations play a major role both for basin and flood analysis, especially in poorly monitored systems. In steep, rocky watersheds with ephemeral fluvial discharge, the scarcity of suitable networks of instrument stations and the importance of erosional processes claim the use of different data sources for predictive water models that include hydrological analyses. The advantages of an integrated approach is discussed within the case of the Costa d'Amalfi, a stretch of rocky coast with small and high-elevation drainage basins punctuated by rapid and catastrophic floods. The elevated bed load transport occurring in conjunction with rainstorms strictly associates with sediment supply by slope erosion that clearly excludes any kind of clear-water flows in favour of hyperconcentrated flows.

Key words multi-hazard approach; rain storm; stream flow; rocky coast