



Depositional processes, vegetation dynamics and activity of fans in the Mucone river basin (Calabria, southern Italy)

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In the present paper preliminary results of a study concerning the dynamics of fans in the valley of the Mucone River, in the western slopes of Sila Massif, are presented. In the study area highly weathered pre-Palaeozoic and Palaeozoic crystalline rocks crop out, ranging from residual soils to moderately weathered rocks. Because of the rugged topography, steep slopes and relative abundance of weathered deposits, mass movements affect the great majority of the basins in the study area. The most common morphodynamic phenomena are represented by rotational slides, with subordinate rockfalls on steep to near vertical rock slopes. Debris-flow and debris-avalanche scars occur at the upper-middle reaches of many basins. Debris flows are usually channelized in the main canyon of the basin, and are caused by mobilization of colluvial and weathered materials during large storms. At the basins mouth, deposition of the landslide and debris flow material occurs, contributing to the building up of the fans. The steep slopes cause material to move downslope and be deposited directly on the fan.

Following previous studies, the morphodynamic evolution of the fans in the temporal range 1955-1996 was assessed by means of multi-year air-photo interpretation and field surveys. Moreover, field observations allowed to discriminate the type of fan deposits (debris-flows or water-flows dominated, mixed deposits) and the successional stages of vegetation cover. In the investigated temporal range, the alluvial fans were concerned by different activity and dissection modality, in addition to diverse evolution patterns in vegetation communities, according to the north/south faces. From 1955 to 1996, changes in land use in the whole catchment, involving a considerable

expansion of natural vegetation cover at the expense of cultivated lands could have had a major role in determining a progressive stabilisation trend of fans.