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Reconstruction of hazard-related geomorphic events from mixed-volcanoclastic sequences in the Campanian coastal area (Eastern Tyrrhenian Sea)

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Sudden emplacement of large amount of pyroclastic material from explosive eruptions represents a significant interference with the geomorphic system, both for inland and coastal areas. Large volcanocalstic activity can induce sediment overburden and consequent return to the equilibrium profile by means of land degradation and erosional processes. Volcaniclastic resedimentation and generation of mass flows and floods are common phenomena affecting wide areas near the volcanic vents, occurring either soon after volcanic eruptions and during inter-eruption periods. In volcanic coastal areas volcanic debris can enter the sea in the form of avalanche deposits, hyper-concentrated flows or as the underwater continuation of subaerial flows and surges. Rapid accumulation at sea of tephra deposits from explosive eruptions can led to seafloor failure or act as weak layers for successive gravity deformations. Yet, part of volcaniclastic material can be stored in the catchments and be available for erosion a long time after an eruption.
In the study area sediment availability strictly relate to massive and intermittent volcaniclastic delivery, largely responsible for aggradation/progradation of the coastal area during the Quaternary. The discussed hazard-related sedimentary features include large aprons of avalanche deposits off volcanic structures, steep sedimentary progradations at mouth of bedrock streams and small rivers, sediment re-mobilization in pro-delta areas, and shallow slides. Marine geophysical surveys and sea-land correlations led to associate such features with volcanic processes including the Mt. Epomeo uplift at Ischia island, the collapse of the Somma-Vesuvius caldera and the emplacement of pyroclastics from Phlegrean Fields and Somma-Vesuvius.