Geophysical Research Abstracts, Vol. 9, 11463, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-11463

Hazard-related seafloor features in the Bay of Napoli, Campania, Southern Italy.

C. Violante

IAMC_CNR, Calata Porta di Massa, Napoli, Italy (crescenzo.violante@iamc.cnr.it)

The Bay of Napoli develops in the southern part of a wide coastal tectonic depression - the Campania plain - characterized by volcanic and seismic activity since the Plio-Pleistocene. Major geohazard features resulting from marine investigations carried out in this area include: (1) extensive landslide deposits and associated hummocky topographies offshore the Somma-Vesuvius volcano and the Ischia volcanic island; (2) seafloor instabilities in shelf areas and (3) erosional morphologies at the canyon heads. Other hazard-related structures consist of flood-dominated fan-deltas and hyperpycnal flow deposits developed at mouth of steep coastal rivers in the Sorrento peninsula, a carbonate monocline that bound the Bay to the South. Morphologic and stratigraphic features of submerged volcano-related landslide deposits indicate catastrophic coastal failures able to trigger tsunami events as the displaced material enter into the sea. They well correlate with slope instability affecting the volcanic structures onshore, suggesting a terrestrial initiation of the landslide phenomena. Shelf instabilities include wavy and lobate seafloor morphologies resulting from creep deformations and slumps, partly associated with earthquakes that frequently hit this region. Minor slope failures with a complex evolution also affect the edges of coastal sedimentary prisms at very shallow depth ($<$ 20 m). Further seawards, arcuate lineaments at the heads of canyon systems, often associated with rills and channels in the mid-upper slope, suggest incipient retrogressive failures of the shelf-break. Erosional processes also occur along the canyon axes mostly as slump phenomena. Finally, the morphology and stratigraphic features of fan-delta systems offshore Sorrento peninsula can be related to catastrophic river floods inducing temporary seaward shift of coastline of some hundred meters. These events occurred since Roman times, and in the last century caused heavy damages and many casualties to the coastal communities historically located at river mouths or along the paths of the flowing waters.