MASS MOVEMENTS OF SEDIMENT AND RELATED RISKS IN THE LIGURIAN BASIN

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The recent geological history of the Ligurian Sea has been characterised by two main distinct but cross-related processes that have affected the continental margins: the particularly high terrigenous supply and fault reactivations. Furthermore, in the upper Pleistocene these processes have led to: - an increase in the steepness of continental slopes, where the step-faults activity affects the equilibrium of unconsolidated sedimentary masses; - the reactivation of grabens, transversal to the slope and coinciding with the main submarine canyons. These, are often characterized by a recent renewal of erosion, that followed a period of sedimentary filling. The recent evolution of the Ligurian Margin produced conspicuous and widespread gravitative movements of sedimentary masses, more active in the Alpine margin (near Imperia and Savona) and in the Portofino marine area. Medium and high resolution seismic profiles show many examples of gravitative processes that are characterised by different styles of mass movement, different mechanisms and causes. In a preliminary classification we have distinguished the following cases: - slumps that involve a considerable thickness of the Pleistocene sedimentary layers on the shelf; - rotational or translation slides on the slope that move the largest sedimentary masses (e.g.: the Portofino slide); - gravitative collapses of variable geometry along the slope; - gravitative mobilization connected with the sedimentary dynamics of the submarine canyons. Seismic data have been used for mapping the main zones of gravitative instability and to plan further focalized investigations in areas of maximum risk. In fact, a sudden submarine mass movement can cause small tsunami (e.g. the Nice landslide), which have dangerous effects for any man-made structure founded or placed on seabottom.