



Large-scale mapping of submarine geohazard-related features: example from the Italian Project MAGIC (Marine Geohazards along the Italian Coasts)

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In very recent times, the impact of catastrophic tsunami at global (Indonesia, 2004) and local scale (Stromboli, 2002) has made evident the necessity of knowing the worldwide distribution of submarine geological structures responsible for their generation, with particular reference to seismogenic faults, volcanic activity, submarine and coastal landslides. More in general, marine geohazard derives from a vast variety of geological processes owing to the recent/modern seafloor morpho-dynamics, in the framework of the long-term tectono-sedimentary evolution of continental margins.

The capability to identify and characterize marine geohazards significantly improved because of the recent developments in seafloor imaging and mapping techniques. As a consequence, many research projects specifically designed for defining marine geohazard relative to human activity and infrastructures can be conceived based on extensive (regional-scale) seafloor mapping. In this view, the Italian Civil Protection Department promoted the national project MAGIC (Marine Geohazards along the Italian Coasts), aimed at acquiring multibeam morpho-bathymetry along the most geologically active margins of Italy; the acquired dataset will then be the basis for interpreting geomorphic features and identifying potential geohazard.

Marine geohazards, and their related potential risk have to be defined at different scales and level of detail and accuracy. As a starting point, geohazard mapping relies on the reconnaissance of the geohazard-related geological features, and is essentially regarded as the detection of their presence/absence and state of activity/non-activity; this reconnaissance issues is achieved through the interpretation of the morpho-tectonic and sedimentary dynamics shaping continental margins at diverse temporal and spatial scales.

We discuss some general aspects of geohazard reconnaissance and cartographic criteria relative to regional scale multibeam mapping, based on the experience arising from the Italian project MAGIC.