



Seafloor and sub-seafloor landslide evidences. GIS data model focused on geohazards

Ricardo Leon, Julia Gimenez, Teresa Medialdea, Luis Somoza, and Francisco Javier Gonzalez
Instituto Geologico y Minero de España, IGME. C/ Rios Rosas 23, 28003 Madrid, Spain,

The wealth of landslide-information preserved over seafloor and inside stratigraphic horizons should be appropriately structured and modeled so that its storage in GIS format can be directly applied in the geohazard analysis. The main aim of risk analysis is to answer the “where, when and how” questions. In this sense, parameters related to: (i) geographical location, (ii) shape and magnitude of the event, (iii) age of event/s - period of recurrence; shall be carefully analyzed to be stored in an interoperable and accessible GIS structure that can be directly applied in the risk analysis. It is important that the above parameters will be stored separately of the trigger information (sedimentation rate, earthquakes, faults locations, seabed geology, etc...) but with a strong related link. The appropriate geographical representation of the landslide event inherits problems of the geomorphological maps and the standardized submarine geomorphological legend. This gives rise to considerations on how to represent-and store a landslide-event.

We present a GIS submarine landslides catalogue of the Spanish continental margin and adjacent areas. It comprises the Atlantic and Mediterranean continental margins as well as hot-spot type volcanic islands and seamounts (Canary Archipelago). The catalogue, implemented in a geographic information system, stores a total of 317 submarine landslides and compiles information such as name, location, typology, age, volume, source, and lithology and published references. It is conceived as a first step in the submarine risk analysis, although other applications such as sedimentology, tectonic or volcanic studies or basin evolution are also taken into account.