



Integrated geological approach to assess rocky coasts prone to landslide

Stefania Da Pelo, Antonio Funedda, Maria Teresa Melis, Paolo Emanuele Orrù, Giacomo Deiana, Mattia Alessio Meloni, Luca Naitza, and Andrea Sulis

University of Cagliari, Department of Chemical and Geological Sciences, Cagliari, Italy (sdapelo@unica.it)

Cliffs instability affects most coastal environment worldwide. Different approaches have been applied to understand the dynamics of erosive phenomena to respond to planning needs of risk-mitigation, mainly where coastal retreat implies an economic impact. In this study an integrated geological approach is proposed, which considers the emerged and submerged environments as a single system of evolutionary dynamics of the coastline. The study is in the framework of the MAREGOT Project (“Managing the Risks of Coastal Erosion and Cross-border Governance Actions), funded under the Programme: 2014 - 2020 INTERREG V-A Italy - France (Maritime), which aims at the joint prevention and management of the risks arising from coastal erosion in the cooperation area. The proposed approach envisaged the fine-tuning and the integration of fieldwork and survey methods for the characterization of morphological and geological features, diagnostic of coastal evolution. The pilot sites for the application of such methodologies are located along the Sardinian coastline that is characterized by a high lithological and structural variability, which corresponds a high variability of geomorphological as well as gomechanical features and different landslide phenomena. Survey protocols aim to define the instability model through the acquisition of i) multitemporal analyses, ii) wave dynamics, iii) geomechanical feature on the base of geological, hydrogeological and geomorphological surveys. All the analyses will serve to provide the monitoring program of the coast environments and will support the intervention design.