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THE INTERPLAY OF EROSION, INSTABILITY PROCESSES AND CULTURAL HERITAGE AT SAN NICOLA ISLAND (TREMITI ARCHIPELAGO, SOUTHERN ITALY)

ABSTRACT: LOLLINO P. & PAGLIARULO R., *The interplay of erosion, instability processes and cultural heritage at San Nicola Island (Tremiti Archipelago, Southern Italy)*. (IT ISSN 0391-9838, 2008).

The cliffs of the Tremiti Islands, which are located in the Adriatic Sea in the north of the Apulian coastline (Southern Italy), are affected by severe instability processes. From the geological point of view, the Tremiti Islands are made of a sequence of bioclastic limestone, dolomitic limestone, calcilutite and calcarenite, with the age ranging from Paleocene to Middle Pliocene. These rocks are covered by a calcareous crust and loess deposits (Upper Pleistocene- Holocene). The structural set up of the major islands of the Tremiti (San Nicola and San Domino) is controlled by predominant NE-SW and E-W fault systems, which mark the coastlines of the islands. Along the cliffs, severe erosive processes are produced by different factors, as the climate and sea actions, and the effects of these processes are worsened by the seismic activity which affects the evolution of the cliff stability with time.

Deeper instability processes are also observed at the Island of San Nicola as an effect of the presence of weak and low-cemented rock formations that are composed of dolomitic calcarenites, at the top of the island, and calcilutites. These processes are mainly represented by block topplings, slidings, rockfalls and roto-translative mass movements in some limited areas.

These processes mainly threaten the cultural heritage buildings located on the island, as the Santa Maria Abbey, which have already suffered significant damages in the past. This study has represented the background for the engineering design of both the restoration works of the monumental area and the stabilization works of the cliffs below.

KEY WORDS: Geomorphology, Tectonics, Rock cliff erosion, Landslides, Cultural heritage, Tremiti Archipelago.

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