A DATABASE OF THE SEA CAVES IN THE CENTRAL MEDITERRANEAN

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ABSTRACT

The Mediterranean Sea is bordered by about 23.000 km of rocky coasts (Furlani et al. 2014). The latter allow the development of coastal landforms, such as the sea caves (Figure 1). Such landforms attracted the attention of geoscientists, biologists, but also tourists. Sea caves can be grouped in two major types: sea caves *sensu stricto* and flooded caves (Antonioli and Forti, 2003). The first ones include caves formed by marine processes, such as wave attack, abrasion, etc. The others include caves developed by means of different processes, such as karst, eolian, tectonic or volcanic caves formed in dry conditions and before the Holocene marine transgression. Mylroie and Carey (1990) recognized a third group, called flank margin caves, that are dissolutional features that form by water mixing as sealed chambers. The formation of sea caves is mainly controlled by geological weakness, such as bedding planes, joints and faults along sea cliffs. Coastal caves along the present-day coastline are partially submerged and their longitudinal profiles are usually increasing in elevation toward their inner part (Gracia et al. 2001).

The surveys carried out within the Geoswim Project allowed to map and study sea caves, but sometimes also to discover new caves, such as at Favignana (Egadi, Italy) or Gozo (Malta). We present the first attempt to build a database at Mediterranean scale of the sea caves starting from these data. Until now, we recognized and studied 122 sea caves in 6 sites in the central Mediterranean, in correspondence of different lithologies, such as limestones and effusive rocks. Researches on sea caves are improved with hydrological, geological, geomorphological and ecological studies.

Further researches on rocky coasts and improvements to the database are in progress.

Fig. 1: Sea caves along the rocky coasts of Favignana.

REFERENCES

ANTONIOLI F., FORTI P. (2003). Geologia e genesi delle grotte marine. In AA.VV., «Grotte marine: cinquant'anni di ricerca in Italia». Ed. CLEM, Ministero dell'Ambiente, Sezione Difesa Mare, 505 p

FURLANI S. ET AL. (2014). Results of the Geoswim Project: Timing of the emergence of the Europe–Sicily bridge (40–17 cal ka BP) and its implications for the spread of modern humans (2014) Quateranry International.

GRACIA F., CLAMOR B., LANDRETH R., VICENS D., WATKINSON P. (2001). Evidencies geomorphologiques del canvas del nivell marì. In: Pons G.X. & Guijarro A. (Eds): «El canvi climatic: Passat, present I future». Monografias Sociedad de Historia Natural de Balears, 9:91-119.

MYLROIE J.E., CAREW J.L. (1990). The flank margin model for dissolution cave development in carbonate platforms. Earth Surface Processes and Landforms, 15, 413-424.