



## 5<sup>th</sup> AIGEO NATIONAL CONFERENCE

Geomorphology for Society  
*from risk knowledge to landscape heritage*

Cagliari, 28-30 September 2015

# A NEW LEGEND FOR COASTAL GEOMORPHOLOGICAL MAPPING: THE CASE OF SOUTHERN LAZIO

Alessio VALENTE<sup>1</sup>, Micla PENNETTA<sup>2</sup>, Corrado STANISLAO<sup>2</sup>, Carlo DONADIO<sup>2</sup>

<sup>1</sup> *Department of Sciences and Technology, University of Sannio, [valente@unisannio.it](mailto:valente@unisannio.it)*

<sup>2</sup> *Department of Earth Sciences, Environment and Resources, University of Naples, "Federico II"  
[pennetta@unina.it](mailto:pennetta@unina.it); [donadio@unina.it](mailto:donadio@unina.it)*

In the revision process of the legend for geomorphological "maps (1: 50.000 – 1: 10.000) of the coastal environment, in order to use them for application, several initiatives were proposed. Among these a new legend, shared by many researchers, is being validate in several Italian coastlands. In this case the legend is applied along the southern coast of the Lazio, between the towns of Sperlonga and Minturno. In this sector a great variety of coastal forms are focused: in the northern sector the alternation of promontories with limestone cliffs, jutting out to sea, and small bays filled by sands, dominates; in the southern one low coast morphotypes are prevalent. However, the heavy urbanization has significantly obliterated or altered the original coastal features.

Therefore, the symbols used in the northern sector are useful to describe in detail the forms of sea cliffs and beaches, developed mostly in coves, with certain forms related to runoff and gravity spread on the slopes near the coast. More precisely, about the cliffs it was specified the profile shape, the slope, the characters of the rim and the depth of its foot, but also the presence of caves and sea notches. Some parameters (*e.g.*, RQD Index) are also given useful for evaluating the cliff stability. About the beaches it was shown the sediment grain size (along the beach face and at the depth of closure) and the character of emerged and submerged profile (*e.g.*, slope, berms and bars). With regard to the dunes, which are present only as relic form, the typical vegetation rooted in was highlighted. Such a feature, similar to that of plants rooted into rocky cliffs, is already subject to the protection of Natura 2000. Also the meteo-marine data (wave parameters, longshore current direction, fetch, tidal range, etc.) reported in the map are significative for the understanding of active marine processes.

In the southern stretch the mapped forms are essentially related to low coasts (*e.g.*, beaches, estuaries), as well as to human forms (*e.g.*, underwater pipeline, nourishment, Roman age *piscinae*). Such forms not only highlight the recent exploitation of coastline, but also the interest of this area since Roman times. Actually, in this zone the evidences of historical and archaeological interest are significant and numerous. As regards the symbols of the human forms were indicated the reclaim, used for the waterfront of Gaeta and the port facilities. The latter, also with different types, are spread all along this coast. Moreover, along the beach to the East of Formia seamlessly breakwaters are arranged.

In conclusion, the new legend is applied in this coast to define correctly forms and processes, and to provide geomorphological information necessary to contribute most effectively to waterscape planning, such as the protection of the coastal system, the integrated use of the coastland and the geomorphological hazards (landslides, floods, etc.).

