

# MORPHOLOGY AND EVOLUTION OF COASTLINES AND SEABEDS

The session "*Morphology and evolution of coastlines and seabeds*" has faced a theme that is becoming increasingly important because coastal areas are characterized by high-anthropic pressure, relevant socioeconomic interests besides being very sensitive to the effect of climate changes.

The title of the session aims to underline how the coastal areas are a multifaceted system constituted by both emerged and submerged areas that are in continuous and mutual evolution.

Although the symposium starting date had unfortunately fallen during the Covid-19 emergence, several international and national researchers have brought their contributions to the session.

The issues addressed, mainly concern a series of case-studies (Italy, Spain, Turkey and Croatia) illustrating coastline changes along the time and, in some instances, their relationships with beach nourishment or coastal defenses. Studies about the influence of fluvial sedimentary supply on the offshore area and the effects of intensity water circulation in strongly anthropized areas are also presented. The acquisition of data of the scientific contributions derives from different approaches:

- i) analysis of aerial and satellite images,
- ii) laboratory analyses of samples collected in the study area,
- iii) experimental tests.

Gomes da Silva et al. show how the use of automatic co-registered Landsat and Sentinel-2 satellite images allows them to obtain accurate shoreline series in the Tordera Delta area (Spain).

A complementary approach is proposed by Pagán et al. that analyses aerial images spanning from 1956 to 2019 and reconstruct the coastal evolution along the Alicante coast (Spain) testing the impact of beach nourishment that occurred since the 1990s.

Similar is the methodological approach proposed by Kadri and Atroune to evaluate the diachronic evolution of the Bordj El Kiffane coastline (Algeria) with respect to the presence or absence of protection structures.

Piccioli-Resta et al. have utilized a remotely piloted aircraft systems (RPSA) along the Lecce coast (Italy), for the monitoring of the beach dunes and the nearby shorelines.

A similar technique was also utilized by Bedini et al., to monitoring the *Poseidonia oceanica* meadows evolution in the Follonica and Baratti gulfs (Italy). The drone-survey has evidenced the unsuitability of the coastal defenses used up now.

A direct sedimentological approach is proposed by López et al. to investigate, within three beaches located in Spain, the relationship between sediment wear and shoreline evolution through the use of the accelerated particle wear test (APW).

Pikelj and Furčić analyze several seabed samples collected in front of a coastal cliff subjected to erosional processes at the Vrgada Island, in Croatia. The data furnish new

information about the impact of cliff erosion on coastal sediments supply and on their longshore redistribution.

Di Leo et al. present a sedimentological and geochemical-based study to establish the influence of the Sarno river on the present-day sedimentation in the Naples (Italy) bay evaluating grain size, the presence of organic matter, and the pollution degree of the sediments samples collected in the offshore area of the bay.

Bulkan et al. use a stratigraphic perspective to infer the depositional coastal evolution of the Lake Bafa area (Aegean coast, Turkey), which occurred during the last 3,5 ka. Through the study of six cores, they document the succession of four phases, from the earlier marine-dominated stage to the present-day isolated lacustrine stage.

Finally, Di Natale et al. by means of the implementation of experimental tests of a three-dimensional physical model, carry out an evaluation of the intensity water circulation within marinas and defense structures located in relevant sites of Italy (Salerno and Ischitella stretch of coast along with the harbors of Fiumicino Manfredonia and Castelvolturno).

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