

The Romanian Shoreline Response to Erosion Factors

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The paper presents the erosion factor action on the Romanian shore. The coastal balance, erosion rates and storm effects are analysed.

Comparison of the beach profiles shows that the coastline retreated about 180-300 m between 1962-1991, in the northern sector (Sulina - Vadu). The beach surface lost about 2200 hectares, that is 77 hectares/yr but the accumulation amounted only 169 hectares, that is 6 hectares/yr. Some details are given in the figure 1.

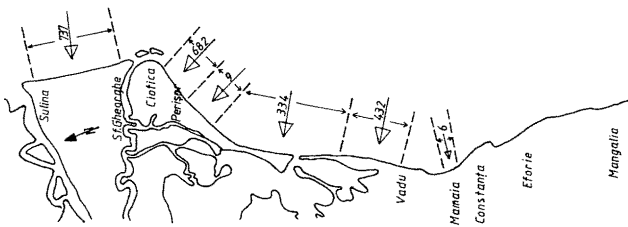


Fig. 1 The Romanian littoral - the eroded surfaces (hectares)

Between the dynamic forces, wind and solid material there is a fragile equilibrium which determines the Romanian littoral to be an open system. Its instability is obvious when there is a moderate agitation but specially under stormy weather. These conditions determine the erosion to propagate in time. Thus, even if a period without storms follows moderate waves continue to erode the shore with great values. There were situations when shore erosion rates were equal with the retreat of the coastline under storm weather. This is explained by the new environment conditions in which the dynamic factors action: a new shoreline position, steeper submarine profiles and a poorer sediment stock. The above mentioned instability is very important when there are many storms in a year.

Annual average rates are not so much in relation with other zones from other littorals, but they are very important for the Black Sea coast where the tide is negligible.

Some zones are continuously eroded. This evolution shows the future consequences. For a few portions this evolution caused a complete erosion of the beach. Some examples are in figures 2. Hydrotechnical constructions and artificial nourishment were necessary to stop the erosion and the destruction of the touristic buildings.

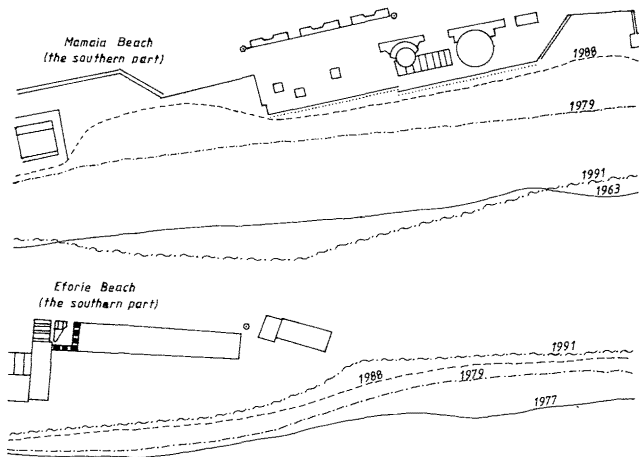


Fig. 2 The coastline evolution

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