Sedimentologic and geochemical characteristics of the northern and central Adriati sediments

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This work was realized as a part of multidisciplinary studies of the northern and central Adriatic within the ASCOP project. Particular aim of this segment was to determine geochemical characteristics of the surface sediments. Therefore one had to reconstruct the sedimentation pattern of recent sediments. The samples were taken at 33 stations in the period from June 17th to June 30th 1990 by RV Salvatore lo BIANCO (Fig. 1.).
In this paper some sedimentologic and surface chemical characteristics of sediments such as granulometric distribution, mineral composition, carbonate share, organic matter and specific surface area (SSA) are reported. Granulometric composition of analyzed samples gave the sedimentologic pattern as shown in Fig. 1., confirming the data of PIGORINI (1968) and BRAMBATI *et al.* (1983).

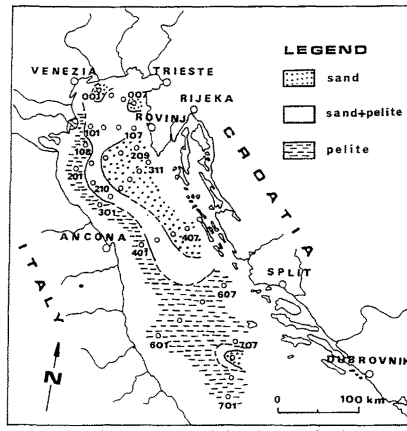

Figure 1. *Sampling stations and distribution of sediment types*

In the eastern part of the investigated area and at the stations 001 and 007 sandy sediments were found at the sea bottom. Toward west increases the pelite shear, so that the western region is characterized by pelitic sediments. Such pattern is typical for the northern Adriatic and 401-407 profile of the central Adriatic. Most of the central region is covered with pelitic sediments with an exception of the station 705, which is 90 % sandy.
Higher share of carbonate fraction is characteristic for sand type sediments, whereas clay minerals (aluminosilicates) are typical for pelitic sediments concentrated mostly in the western and southern part of the investigated region. With respect to surface chemical characteristics, pelites show significantly higher specific surface area compared to sandy sediments (VDOVIC *et al.*, 1991). In Fig. 2. the data specific surface area vs. mean grain size is presented, and data fit the exponential curve with the steep decrease of SSA for grain size classes up to 10 μm followed by continuous decrease approaching 2 m^2/g for classes larger than 50 μm.

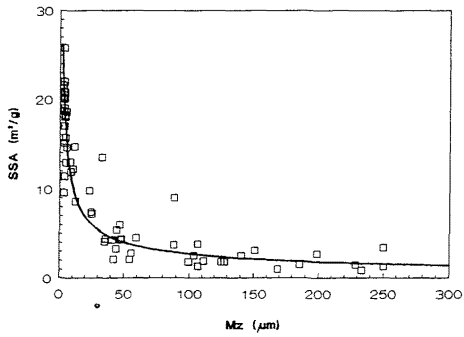

Figure 2. The dependence of the SSA on the mean grain size

The large SSA is not only due to simple geometrical reason (function of equivalent diameter) but more due to solid bulk characteristics, such as morphology and porosity. At the same time pelitic sediments are characterized by significant amount of organic matter which modifies the surface characteristics of the pristine mineral grains (BISCAN *et al.*, 1991). It is evidenced by significant change of SSA after stripping of the organic coating by the H2O2 and heat treatment. Such absorbing ability of pelite sediments is of importance for binding of pollutants. In this sense the presented results could serve for the prediction of role of sediments in transport of pollutants.

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