

## Relationship between Specific Surface Area and Bulk Properties of Particulates - Investigation in the Northern Adriatic

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Geochemical and sedimentological investigations of particulates (suspended matter and sediments) in the northern Adriatic Sea revealed direct relationship between surface properties of particulates (specific surface area, SSA) and granulometric and mineralogic composition. Suspended matter samples, collected by sediment traps, have a mean size between 3 and 10  $\mu\text{m}$ , large quantities of aluminosilicates, and SSA between 7 and 23  $\text{m}^2/\text{g}$ . Investigated sediment samples (surface samples and core samples up to 2 m deep) vary in size between 5 and 180  $\mu\text{m}$ , have carbonate share between 2 and 50 %, and SSA between 1 and 15  $\text{m}^2/\text{g}$ .

Mineralogic composition and grain size distribution are interrelated indicating that samples having more clay minerals (either sediments or suspended matter) are always fine-grained. On the other hand coarse sediments have more quartz and carbonates.

It was found that the SSA is apparently most dependent to grain size'. However, laboratory investigations show that mineralogic composition is the most important factor that governs the SSA of the inorganic core of particulates.

Organic matter found in large concentrations in investigated samples (up to 16.5 %) considerably changes the SSA of investigated samples<sup>2</sup>. In the investigated samples organic matter present in sediment samples usually increases the SSA, whereas the surface of suspended matter is usually blocked by the organics.

### References

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2. Jednačak-Biščan, J. & Juračić, M. (1987): Organic matter and surface properties of solid particles in the estuarine mixing zone. *Mar. Chem.*, 22, 257-261.