Transport, deposition and distribution of the sediments and suspended matter on marine coastal area (Ligurian Sea)

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An environmental research was conducted by ENEA on the ligurian coastal area. The most rilevant factor which characterize this area are the presence of the Centa mouth, the turistic harbour of Alassio, the large town of Albenga and the island of Gallinara.

This study examines the processes which are responsible for the transport and deposition of sediments and particulate matter on the marine platform and represents an example of research aimed to the determination of the influence of local natural inputs and anthropogenic activities on the coastal environment.

During the summer were sampled alluvial and marine sediments as well as suspended matter from surface and bottom waters (Fig.1). Subottom profiles provided morphological descriptions of the submarine area (CORRADI *et al* 1984).

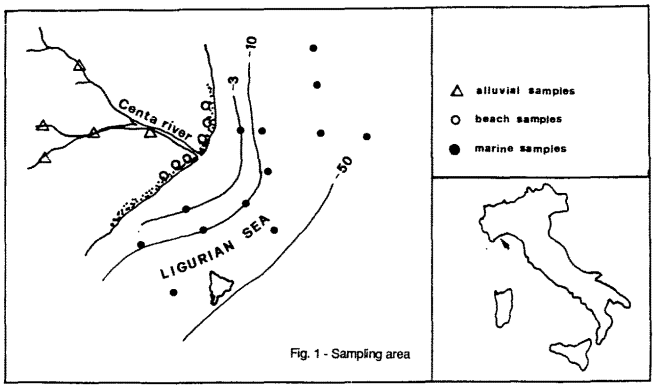

Fig. 1 - Sampling area

All samples were analyzed for granulometric and mineralogical parameters by the Coulter Counter, X-Ray diffraction and Electron Microscopy (COCITO *et al.*, 1985).

Two main alluvial inputs, reflecting the different limestone, flysh and crystalline rocks of the source basins, were identified.

The homogeneous dispersion of sediments in the cone area of the river may, in this case, point to a negligible influence of the longshore current.

Textural and mineralogical characters of suspended matter, however, exhibited an eastward drift (PAPA, 1980).

The heaviest effects of anthropic activity were observed on the beaches near the river mouth, in the areas close to the large urban centres and in the area including the harbour.

The coastline pattern and the peculiar morphology of the shelf are the main factors controlling the settlement of all sedimentary material entering the sea which is of natural as well as of anthropogenic origin.

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Contributions to the structural evolution of Perithyrrhenian basins : The example of the Gulf of Naples (Southern Italy)

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The Gulf of Naples is one of the marginal basins, formed on the western Tyrrhenian margin as a consequence of the extensional tectonics, affecting this area after the end of the building up of the Apenninic chain.

Compression began in Southern Apennines in Lower Miocene in the inner zones of the chain; with time compression shifts toward outer zones, where it is active till Plio-Pleistocene. The main shortening of the chain can be dated to Langhian-Tortonian (MALINVERNO and RYAN, 1985).

The Tyrrhenian basin began to extend after the end of the rotation of the Sardo-Corso block (19 Ma; MONTIGNY *et al.*, 1981), that is in the Middle and Upper Miocene. Extension produced the formation of little oceanic basins in the Southern Tyrrhenian Sea, such as Marsili and Vavilov basins (KASTENS, MASCLE *et al.*, 1990).

From this overview it is clear that extension in the Tyrrhenian domains results contemporaneous with crustal shortening in the Apenninic chain and with flexure of the foreland.

The Gulf of Naples, located in the inner zones of the Apennines, was interested through time by both types of tectonics; extensional tectonics, which attenton is focused on, is morphologically more evident, being more recent. Morphology and bathymetry of the gulf and neighbouring areas point out the recent formation of relief: in about 30 km relief goes from + 1,131 m (Faito Mount) to - 1,000 m (Dorhn Canyon, S of the city of Naples).

At least two phases of extension can be identified, based on a structural survey on the mainland, supported by bathymetric, single channel and multi channel seismic data.

The first phase is represented by faults striking about N-S. A N-S fault can be inferred from bathymetry on the western side of Capri, producing a scarp of at least 100 m. Many others direct faults, striking mainly N-S (Fig.1), have been identified in the gulf through single channel seismic reflection profiles. Furthermore, along a N-S lineament six volcanic and subvolcanic bodies developed (Fig. 1), ranging in age from Pliocene to Quaternary. This phase shows the same strike of faults and the same axis of extension (about E-W) as that of the opening of Tyrrhenian Sea, in particular the Central Fault (REHAULT *et al.*, 1987).

The second phase is represented by some spectacular submarine scarps (at least 800 m) (Fig. 1), trending about E-W, which can be interpreted as direct faults. Of particular interest are the ones which border the southern side of the Sorrentina Peninsula; in multichannel seismic profiles they show a step structure, dislocating the sedimentary basement. The axis of maximum extension of the second phase strikes N-S. In the Tyrrhenian Sea no structure compatible with a N-S extension have been reported in literature, so this phase seems to be characteristic of marginal Tyrrhenian basins, such as the Gulf of Naples and the Pontine Island, where a recent N-S extensional phase have been described (PANTOSTI e VELONA, 1986).

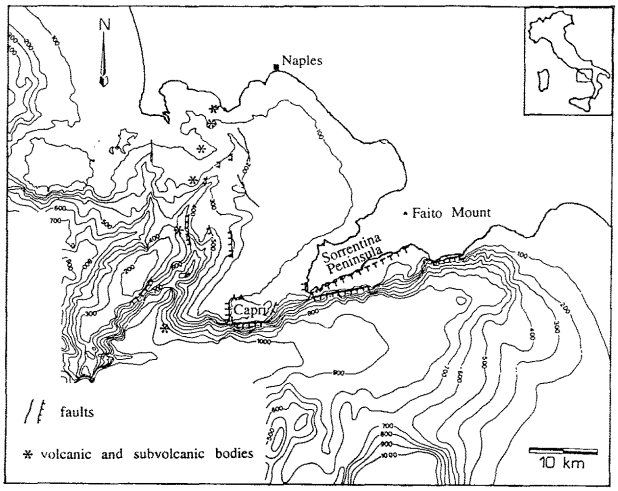

Fig. 1 - Structural sketch-map. Isobaths in m

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