

Plio-Quaternary tectono-sedimentary development of the Campanian margin (Tyrrhenian Sea). Preliminary report.

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Some preliminary results of a marine geologic survey carried out along the Campanian margin from Ventotene Is. to Policastro Gulf are briefly discussed. During the cruise 29 cores and 9 dredgings were performed as well as about 800 n.m. of 3.5 kHz subbottom profiles.

The surveyed area occupies the subsided portion of the Campanian Apennines from the shelf-break to the -2000 m isobath. It shows a morphology of great complexity mainly due to (Savelli & Wezel, 1979) steep, generally arcuate escarpments, bathymetric terraces, short ridges and canyons. The dominant feature is an alignment of NW-SE striking scarps which extends from Ponziane Is. to Palinuro Volcano.

The *geologic structure* of the area is made up of a transgressive Plio-Quaternary sequence which lies over Cenozoic and/or Mesozoic structural-stratigraphic units (Ippolito *et al.*, 1975). These units are widely extended on the shelf (Bartole, in press) and probably over the whole examined area as demonstrated by two seismic sections (MS-3 and MS-4) and by the numerous samples recovered during CNR cruises (see: Lithologic and stratigraphic map of the Italian seas, CNR, 1982). (Fig.3).

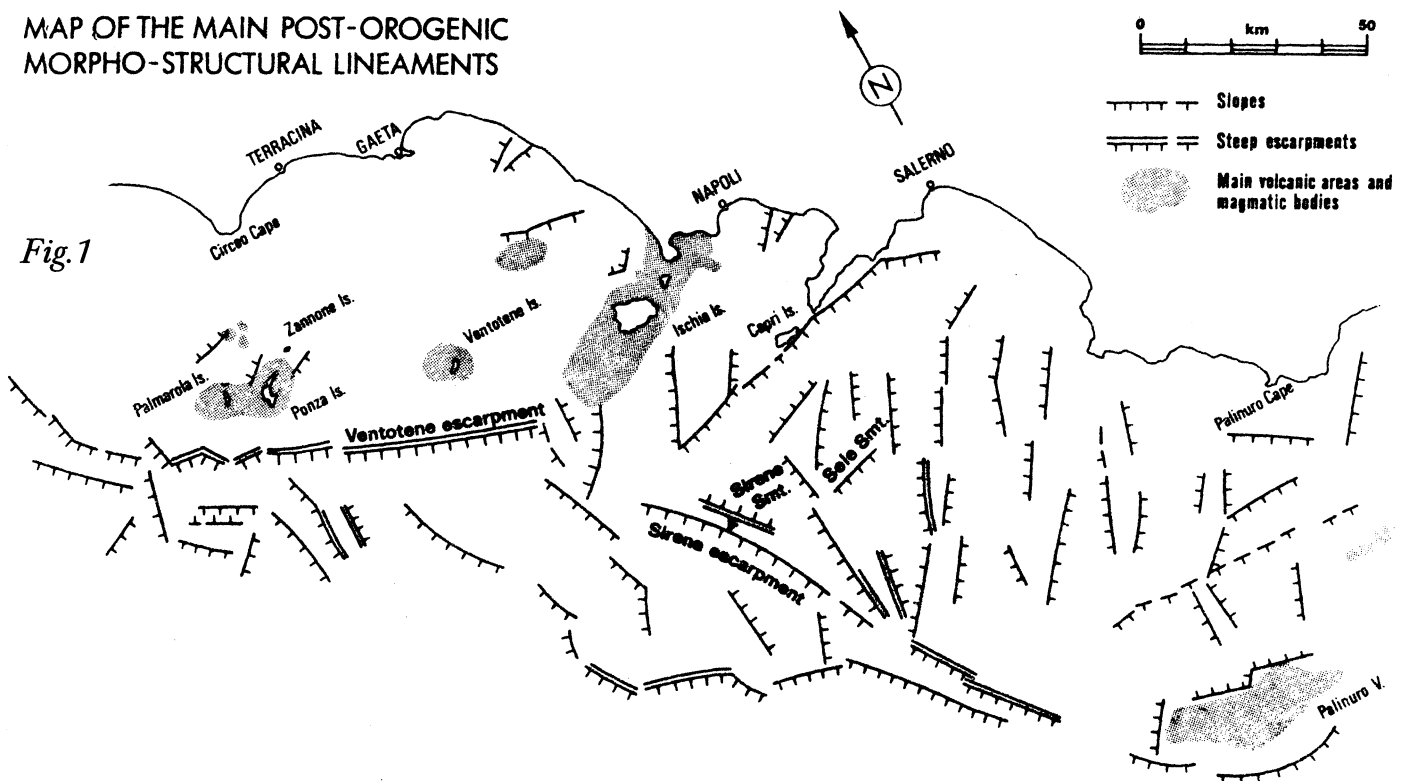
During the pre-evaporitic Miocene, the area underwent strong compressive tectonic phases which folded and overthrust the units. The effects of orogenic deformation are well recognizable on the shelf area (Bartole, in press), while they are completely masked on the slope by the superposition of post-orogenic extensional movements which began in the Pliocene.

The main *orogenic tectonic features* are represented in the *Gaeta-Ponza Is. area* (Fig.2) by:

- an E-W trending N-verging overthrust here named "*Zannone-Volturno Line*" which belongs to the important regional trans-Tyrrhenian lineament for the first time described and called "*41st parallel Fault*" and interpreted as transcurrent by Savelli & Wezel (1979). This major lineament should be recent because of its morphostructural effects. Its importance is confirmed also by the recent magnetic map of AGIP (1981). This line is paralleled to the north by southward facing normal faults.
- a NE-SW trending overthrust with right-lateral transcurrence, here called "*Palmarola-Terracina Line*", belonging to a vaste allochthonous sheet which culminates at the Circeo. Allochthonous flysch units are also present in the

shape of a very chaotic mass thrust toward the north and the east. The two overthrust fronts delimitate an E-W elongated basin filled with Neogene-Quaternary sequence (up to 1800 m thick).

MAP OF THE MAIN POST-OROGENIC MORPHO-STRUCTURAL LINEAMENTS



In the *Salerno-Policastro Gulf area* (Fig.2) by:

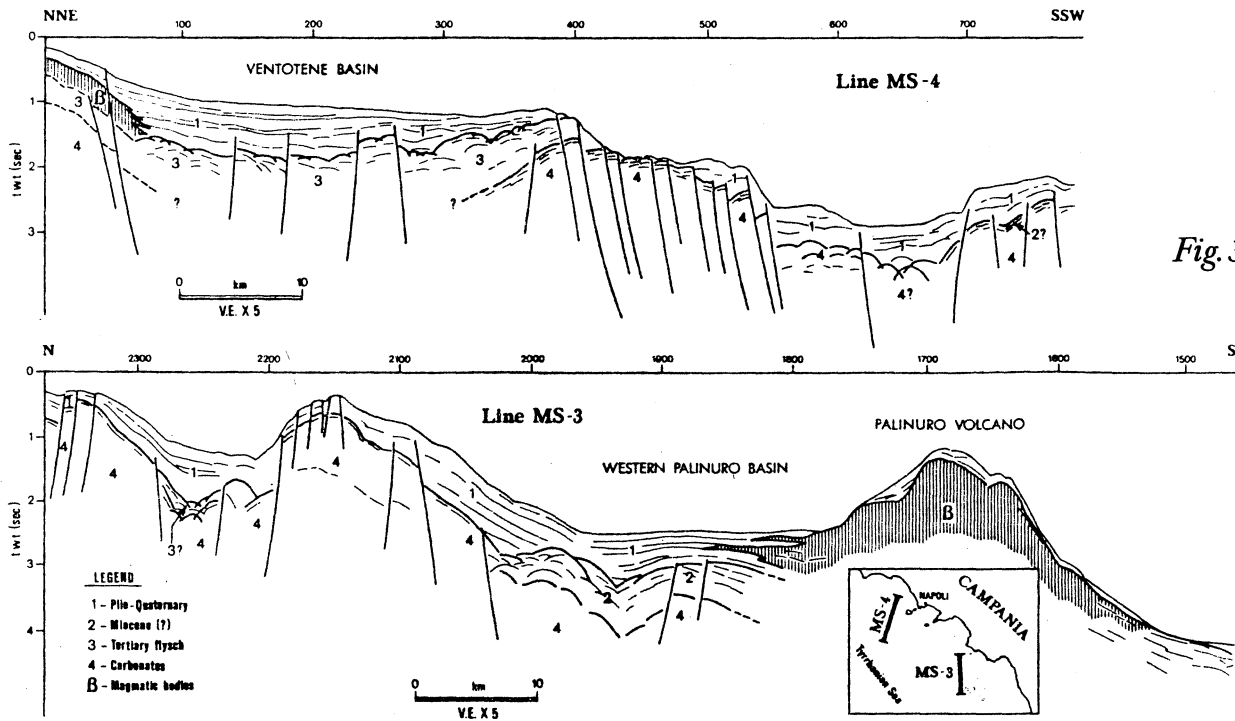
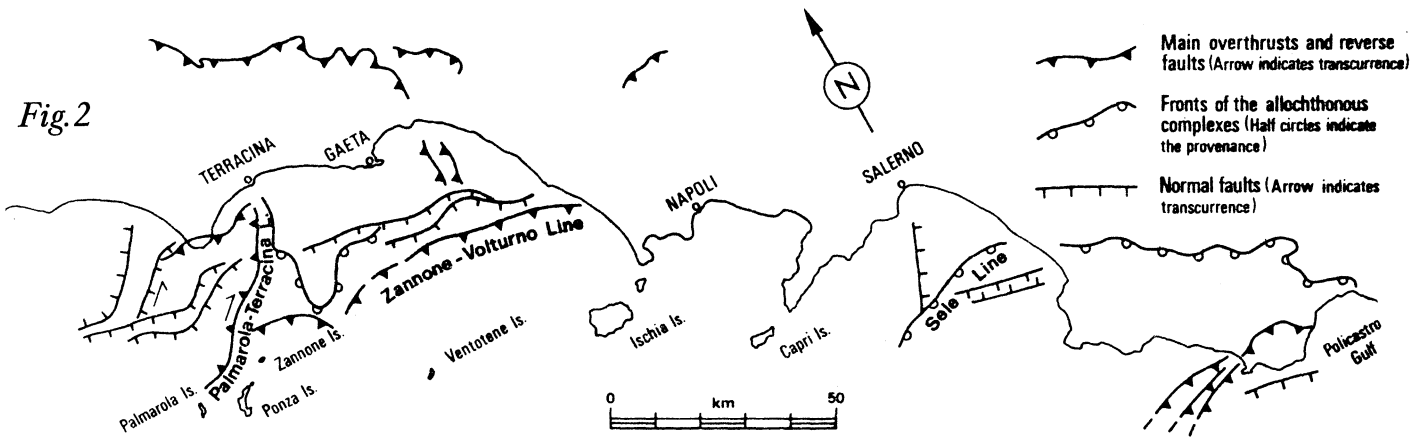
- a deep WSW-ENE elongated depression filled with a very thick (up to 3300 m) Neogene-Quaternary sequence, to the south paralleled by
- the seaward extension of the "Liguride allochthonous complex", here termed "*Sele Line*";
- some ENE-WSW trending reverse faults off the Bulgheria Mt. structure.

Post-orogenic morpho-tectonic features (Fig.1) are constituted by normal faults generally affecting the sea-floor. On the basis of their orientation they may be distinguished in:

- an Apenninic (NW-SE) trending group particularly frequent along the Ponziane Is.-Sirene Smt.-Palinuro V. alignment;
- an anti-Apenninic (NE-SW) trending group very frequent off the Salerno Gulf and Cilento Peninsula. The main feature of this group is represented by the important fault south of the Sorrentina Peninsula and Capri Is.

On the basis of the 29 cores and the 3.5 kHz s.b.p. the studied area may be subdivided into three main zones characterized by different kinds and assemblages of the 9 lithofacies already recognized in the peri-Tyrrhenian basins (Wezel *et al.*, 1979 and 1981).

MAP OF THE MAIN OROGENIC FEATURES



The *southern zone* (between Palinuro V. and Sele Smt.) shows prevailing silty-clays, subordinate mud-turbidites (*lithofacies 6 and 5*, respectively) and rare sand-turbidites (*lithofacies 4*). This latter facies is confined in the Sapri B., while mud-turbidites characterize the Palinuro B. and Paestum B. depocentres.

The *central zone* (between Sele Smt. and Ischia), is predominantly characterized by sand-turbidites and pebbly sands (*lithofacies 2*) with abundant volcanic clasts and subordinate platform carbonates grains. Sand-turbidites alternated with pebbly sands have been found in the Salerno Valley. The Capri B. shows predominant pebbly sands with grain sizes commonly exceeding 2 cm

till the base of the Sirene Smt. (i.e., up to 65 km off the coast). In these coarse-grained sedimentation zones the Holocene brownish top mud is often reduced or even missing. Sedimentation clearly indicate a very high and young tectonic mobility of this area.

The *northern zone* (Ventotene B.) shows fine grain-sized sedimentation with silty clays or very distal mud-turbidites.

In all the three zones a few, generally buried slumps (*lithofacies 1*), are associated to the main morphostructures.

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