

The distribution of sediments in South Aegean Sea : A marine G.I.S. application

A. ANGELOPOULOS, A. ANDRINOPOULOS and E. ZIMIANITES

Institute of Geology and Mineral Exploration, ATHENS (Greece)

The data evaluation and the distribution of Sediments in the Southern Aegean Sea presented in this report, is part of the Marine Geological Geographic Information System (G.I.S.) of the Aegean Sea. The investigated area includes part of the Hellenic Volcanic Arc (Santorini, Milos islands) and the surroundings (Amorgos, Folegandros islands). The research was sponsored by the EEC, MAST I, project.

Geologically, the area comprises 3 units :

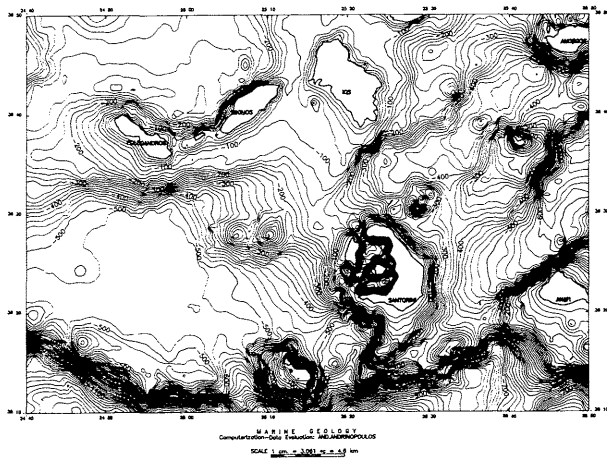
The first unit consists, mainly, of igneous rocks (Santorini, Milos), the second of metamorphic (Sikinos, Folegandros) and the third of sedimentary rocks (Amorgos).

As far as the sea floor is concerned, there are three sea-floor levels : the first one is appr. at 200m (Folegandros, Sikinos, Ios) the second one is at appr. 500m (basin in the west of Santorini) and the third one is deeper than 1000m (in the Southern area). These three levels are confined by faults of two main directions NW-SE and NE-SW.

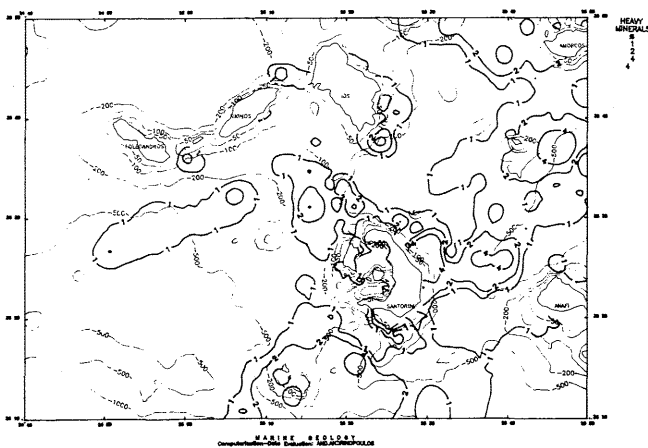
The granulometry and microscopic analysis of the seabottom sediments have shown the following :

- Standard Deviation : The values range mainly from 0.35 ϕ to 2 ϕ . The contour of 2 ϕ includes the most of the islands and the values decrease in a lot of areas, close to the islands.
- Heavy minerals : The distribution of the Heavy mineral values is irregular. In the Western part the values are very small, while in the Eastern (Santorini, Amorgos, Anafi islands) they are higher and locally around Santorini very high (>4%), probably due to the volcanic activity.
- Silt/Clay : The highest values (>4) are in the surrounding area of Santorini island.
- Quartz : High values occur Southernly of Sikinos and Ios. The highest ones in the area between Santorini and Anafi (>20%).
- Biogenics : The values have a uniform distribution between 20%-60% and particularly 80%.
- Iron Hydroxides : They appear in the area between Santorini and Anafi with concentration values >8% , probably due, again, to the volcanic activity.
- Carbonates : They have a normal distribution all over the studied area with values 20%-80%.
- Igneous Rocks : There are high concentration values in the Southern part of the studied area. The highest values appear among the islands Santorini, Anafi and Amorgos islands.

SANTORINI SHEET BATHYMETRY



SANTORINI SHEET



Foreland tectonics in the Southern Adriatic Sea

A. ARGNANI#, G. BORTOLUZZI#, P. FAVALI*, F. FRUGONI*, M. GASPERINI #, M. LIGI#, M. MARANI#, G. MATTIETTI*, G. MELE*

#Istituto per la Geologia Marina - CNR, BOLOGNA (Italy)
* Istituto Nazionale di Geofisica, ROMA (Italy)

The deformational patterns of the Adriatic area register the complex history of a changing geodynamic environment from a Mesozoic passive margin to a present-day foreland.

With the aid of newly acquired and the available multi-channel seismic reflection data tied in with wells in the public domain, gravity and magnetics we attempt to reconstruct the stratigraphic and structural evolution of the foreland region surrounding the Gargano Promontory. Particular attention is paid to the deformational styles, their temporal evolution and kinematic significance.

Two regional structural belts occur offshore the Gargano promontory. These belts have different trends and different ages of activity in the Tertiary and can also be linked to the recent seismicity recorded in the area.

Their structural style, combined with the stratigraphic relationships existing in the area, suggests that their origin can be linked to inversion tectonics processes affecting a Mesozoic extensional fault system. The timing of inversion appears to be related to the major tectonic pulses occurring in the adjacent fold-and-thrust belts (Dinarides and Apennines). The tectonic loading of these chains and the ensuing propagation of their peripheral bulges are major controls on the structural style of this foreland area.

