DEEP SEISMIC SOUNDINGS BY OBS IN TYRRHENIAN SEA

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Deep Seismic Soundings have been recorded in the Central and Southern Tyrrhenian Sea within an international working group formed by the I.P.G. (Paris), the I.f.G. (Hamburg) and the Italian Explosion Group and partly sponsored by the CNR Finalized Projects (Energy, Oceanography and Geodynamics). Both land stations and Ocean Bottom Seismographs (by the I.P.G. and the I.f.G.) have been employed. The seismic source has been realized with dynamite charges ranging from 50 to 250 kg. The preliminary results of profile 2-'79, profile 5-'79 and profile 5-'80 are here presented. Along profile 2-'79, nearly 500 km long and including also a land station located in Corsica, 7 OBS have been deployed and around forty shots of 250 kg unit charge fired at approximately 12 km interval. From each OBS a system of reversed and overlapping profiles have been obtained from the Moho discontinuity whose true velocity has been considered constant all along the profile and taken equal to 8.0 km/s. A deepening of the Moho towards Corsica has been found with maximum depth of nearly 30 km. The crust continuously thins up from Corsica to the Baronie M.ts first to a depth of 22 - 20 km and finally more rapidly to a depth of 10 km nearby the Maniaghi V.. A thickening of the crust (15 to 16 km) follows towards the SE, but a sharp discontinuity within few kilometers thins the crust again to

values of nearly 11 km in the Marsili V. region.
The daya obtained from profile 5-'79 from Bellavista C.(Sardinia) to Latina indicate a crustal thickness of nearly 24 km towards Sardinia. East of the Baronie M.ts the crust thins up to nearly 22 km and the transition from thinned continental structures to those of oceanic type takes place. Towards the Latium coasts Moho depths around 24 km are indicated by wide-angle reflection from a more complex lower crust structure correlable to that found in the Tuscan - Latium geothermal areas. Land stations located in Latium show thicknesses from 25 to 30 km and structures typical of that continental margin.
Along profile 5-'80, running from Vavilov V. to Naples, 5 OBS have been deployed and a high resolution profile has been obtained covering an area with complex tectonics. The Moho shows depths from 9 to 10 km under the bathyal plain. Further on towards the coast it gains an up and down structure with depths ranging from 10 to 14 km that the authors tentatively connect to listric faults systems. Between Ischia Isl. and the Campanian coasts the Moho reaches depths of 25 km.
In conclusion the crust in the bathyal plain does not confirm the existence of an ocean with a simple ridge even if it appears to be of oceanic thickness. According to the Bouguer anomalies and to the heat flow features two main sectors have been observed, the former in the region of the Maniaghi and Vavilov V., the latter towards the Palinuro and Marsili V., where the Moho depth is close to 10 km. Moreover strike-slip faults systems with main NW - SE and NE - SW trends seem to have played an important role during the evolution of the basin.