

14. - PRELIMINARY REPORT ON THE SEISMIC REFRACTION PROFILE GARGANO -  
SALERNO - PALERMO - PANTELLERIA (1971)

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In 1971, a deep seismic sounding refraction profile was carried out in Southern Italy in order to investigate the transition between the continental and the oceanic crustal structure. The recording stations were located in Central Italy -between the Gargano promontory and the Gulf of Salerno- on Sicily -between Palermo and Menfi at the Southern coast- and on the island of Pantelleria. The shots were fixed in the Tyrrhenian Sea and in the Channel of Sicily, being spaced 5 km on an average. By aid of some refraction buoys, laid out in the Tyrrhenian Sea, attempts were made to get near surface information of the oceanic crust. This research program was carried out in close co-operation of Italian and German geophysical institutions under participation of a French group. Between Pantelleria and the southern coast of Sicily, a typical continental crust is existing, indicated by a strong velocity increase from 6,3 to 8,0 km/sec in a depth range between 20 and 21 km. A moderate crustal low velocity layer showing a maximum decrease of about 1.0 km/sec could be detected. The maximum crustal thickness is reached under Sicily with about 35 km (8 km/sec).

The crustal velocity distribution changes significantly under the northern coast of Sicily. The number of waves recorded here increases but with decreasing intensity of amplitudes, and a clear distinction between crust and mantle becomes difficult. At the transition to the deep sea region of the Tyrrhenian Sea, velocity values of 7 - 8 km/sec (crust/mantle boundary) were measured in 20 - 25 km depth.

The cross section between the shelf edge and the coast near the Gulf of Salerno shows a crustal thickness of about 20 km. Because of the existence of a crustal low velocity layer and an upper mantle velocity of about 8.0 km/sec, this part of the crust can be classified as a continental one.

When moving in NE-direction, the typical previously observed crust/mantle reflections become less clear, but a later distinct phase in greater distances appears, indicating a deeper interface in about 40 km depth. These two high velocity layers (20 - 25 km and 40 km) are separated by an intensive low velocity zone. A structure similar to that of the Ivrea zone seems to exist here. Before conclusions can

be drawn, however, further evaluation of the present data and those obtained in 1972 will be necessary for the confirmation of this first result or for its rejection.

The internal crustal structure under the depression of NE-Puglia near Foggia, situated between the Apennine and the Gargano promontory, remains unknown due to the unfavourable distances between shotpoints and receivers. The total crustal thickness is about 35 - 40 km. Under the Gargano promontory, a velocity distribution is assumed similar to that in the platform of Puglia where a typical continental crust of 32 km thickness has been found.

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TARLING - When you were talking of the variation of Pn arrival did you notice any effective reabsorption of the S waves ?

Réponse : No ! compressional waves only were taken into account.