

6-4. - THREE MEASUREMENTS OF HEAT FLOW IN CALABRIA, ITALY

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Three boreholes have been drilled on the ionian side of the Calabria. The holes have been sited in marly clays of Pliocene age and are 108 m deep at S.Demetrio, 160 m at Cutro and 120 m at S.Maria. The observed mean temperature gradients in each hole are respectively 33; 24;

30 °C Km<sup>-1</sup>. The conductivity measurements have been carried out on twenty-one samples - just cored - with the needle-probe method. It has been obtained the mean conductivity 3.5 mcal cm<sup>-1</sup>sec<sup>-1</sup>°C<sup>-1</sup>, with very little variations from hole to hole. The resulting heat flow values are 1.16; 0.85; 1.04 cal cm<sup>-2</sup>sec<sup>-1</sup>. These values, if considered together with the available data in surrounding areas (fig.1) define a strip of separation between the geothermal area with low heat flow in the Eastern Mediterranean and that with high flux in the Western Mediterranean which probably starts from Sicily up to the Apennines.

On the other side, the geological structures show an evident continuity along the Apennines, the calabrian arc and the northern Sicily chain; moreover, the alignment of the neogenic outcrops of the foredeep outlines clearly southwestward the apulian plate pointed out by Lort.

Apart from the existence and the eventual siting of a boundary between the african and apulian plates, the distribution of the heat flow values shows a subduction of these under the southern Apennines chain, the calabrian arc and probably the northern Sicily chain (fig.2).

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PAPAZACHOS - Between Ionian Islands and Calabria there is a very active area. Hellenic arc motion is from NE to SW. There is a transform fault between 2 arc systems.

Réponse : Heat flows measurements indicate a North Sinking of the Ionian Sea.

BITTERLI - Low heat flow was confirmed by drilling in the Adriatic Sea. There is a very low geothermic grade. Your "Apulian plate" would be related with low heat flow.

SCHUILLING - You interpret low heat flows in relation with sinking. Does it mean that the Tyrrhenian Sea is rising.

Réponse : High heat flow here is due to volcanism, specially in the Tyrrhenian Sea.