

7-13 - PLATE TECTONICS IN THE AREA OF GREECE AS REFLECTED IN THE DEEP FOCUS SEISMICITY -

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Deep focus seismicity in the Southern Aegean Sea along two belts, two hundred kilometers wide, trending N 60° E and N 30° W, was projected on the median vertical planes ; the planes are perpendicular to each other and to the strike of the Hellenic Island arc and run across the large zones of positive and negative gravity anomalies in the concave and convex side of the arc. From the slopes of the African plate in the two cross-sections, as reflected in the deep focus seismicity, it was found that the true dip of the African plate is nearly 20°; the strike of the plate is N 58°W. The direction of maximum slope being perpendicular to the strike is N 32° E.

Calculation was confirmed by plotting deep focus seismicity along the direction of maximum slope of the African plate.

The dip of the African plate found from the two cross-sections in the Southern Aegean Sea is of the same order of magnitude with that found tentatively for the whole area bounded by the 19° and 29° Meridians and the 34° and 42° Parallels. From the small slope of the African plate under the Hellenic Island arc one might dare to speculate that the underthrusting of the lithospheric slab in the eastern Mediterranean is much younger in comparison to that observed under the Calabrian Island arc in the western Mediterranean and/or the margin of the plate in the eastern area is comparatively lighter, i.e. hotter.

There is further evidence that disruption of the African plate in two segments along the Cretan furrow might account much better for the anomalous distribution of hypocentres of intermediate earthquakes in the area of Greece. It is assumed that underthrusting and tearing of the African plate beneath the Eurasian was accomplished by a compression acting from southwest due to the opening of the Atlantic in Jurassic and Upper Cretaceous.