



## **Isostasy, Lithospheric Dynamics and Crustal Behaviors in the Eastern Mediterranean, Turkey and Black Sea**

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The Central Anatolian Plateau (CAP) is among the most recent frontiers in the exploration of orogenic plateau formation, with relatively scant research compared to its larger counterparts in Tibet, the Altiplano, and Colorado. Nonetheless, recent work along the CAP's margins has greatly improved our understanding of plateau-margin processes, mainly over geological timescales, involving several 10<sup>6</sup> to 10<sup>5</sup> years. For example, it has been shown that the northern plateau margin is closely associated with activity of the North Anatolian Fault and may constitute an active orogenic wedge with a northward polarity and positive flower-structure geometry. In contrast, the southern margin appears to record ongoing uplift associated with broad upwarping above a lithospheric slab break-off. In the interpretation of gravity anomalies of the Eastern Mediterranean Region, one of the most important questions which should be considered is the inverse relations between the anomalies and the normal isostatic conditions. Continental crust forms from structurally thickened remnants of oceanic crust and overlying sediments, which are then invaded by arc magmatism. Understanding this process is a first order problem of lithospheric dynamics. The Eastern Mediterranean Basin, having 100-milligal gravity value lower than other isostatically compensated oceans, it is in general overcompensated. Normally the Eastern Mediterranean Basin should rise under its present isostatic condition. It is known, however, that the Eastern Mediterranean Basin with its thick sediment-filled basins is actually sinking. Anatolia, having 100 milligals gravity values higher than other isostatically compensated zones of the world, is in general undercompensated. Normal isostatic conditions require that Anatolia should sink. It is known, however, that Anatolia, with the exception of local grabens, is rising. While the Black Sea, having 100-milligal lower gravity value than other isostatically compensated oceans, it is in general overcompensated and The Black Sea basin with very thick sedimentary cover is actually sinking.