The Aegean region is tectonically a complex area characterized mainly by the subduction of African oceanic lithosphere beneath the Aegean continental lithosphere including extensional subbasins and mantle driven block rotations. In this study, spatial distribution of earthquakes, b-value distribution, and heat flow data have been analyzed to reveal the deep structural features of the Aegean region. b-value distributions show two low NE-SW and NW-SE trending b-anomaly zones in the western and eastern side of the Crete, implying slab tear within the Aegean slab. Earthquake foci distribution indicates that the Aegean slab steepens in the eastern side of the Crete, compared to its western side. Earthquake foci reach maximum depth of 180 km along the Cycladic arc axis, suggesting northward subducted slab geometry. The low seismic activities and high b-value anomalies within Aegean basin, except North Aegean Trough, can be compared to higher heat flow. We concluded that collisioninduced westward mantle flow beneath Turkey followed by hard collision between Arabian-Eurasian continental plates played a major role in the evolution of clockwise rotational retreat of the Aegean slab and slab steepening to the east of the Crete.