

110. Uplift of the eastern and central Anatolian plateau; New insights from thermal modeling

J.B. Bartol MSc,; R Govers; M. J. R. Wortel,
Utrecht University

In the Middle to Late Miocene (13-5 Ma) several seemingly unrelated events occurred nearly simultaneously in eastern and central Anatolian, Turkey; (1) onset of widespread volcanic activity (2) disruption of a late Oligocene-lower Miocene palaeo drainage system in the Western Taurus and (3) significant increase of erosion in the Bolkar mountains (south-east Turkey). These observations suggest a sudden uplift (>1000 meters) of the eastern and central Anatolian plateau by a mechanism which also triggered widespread volcanic activity. One mechanism that may have caused these events is delamination of the lithospheric mantle. If true, delamination is expected to have caused an isostatic response of the surface. Using a three-dimensional thermal and flexural model, the flexural/isostatic uplift of the central and eastern Anatolia plateau in response to delamination of the lithospheric mantle is calculated. Our model results show that the present day elevation of the both plateaus can be explained by delamination of the lithospheric mantle. Moreover, the heatflux and geotherm predicted by our model is in agreement with the observed heatflux and with the low seismic velocities (P_n , P, S waves) observed underneath both plateaus.