



## **Widespread electrical conductor beneath Hasandağı volcano imaged by three-dimensional magnetotellurics**

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The electrical resistivity structure of Hasandağı stratovolcano at Central Anatolia that last erupted in B.C. 6200, is investigated by utilizing thirty-eight wideband magnetotelluric stations that were collected within an NSF-funded multidisciplinary project entitled “Continental Dynamics/Central Anatolian Tectonics”. Phase tensor ellipses that provide a distortion-free information, were benefited to examine the dimensionality of the study area. Furthermore, three-dimensional numerical modeling algorithm, ModEM, was used for developing the final electrical resistivity structure to a depth of 40 km. The existing frequency table was used in two different stages; in the first stage, the highest 30 frequencies (320 Hz – 0.01 Hz) were evaluated to find an answer to the depth extent of the surficial ignimbrites. This modeling attempt also tried to shed some light on the potential contact between these ignimbrites and basaltic layers found in the proximity of the peak. The second group of inversions attacked to the deeper structure by considering the lowest 30 frequencies (10 Hz - 0.0005 Hz) resulted in a widespread conductive feature found beneath the volcano. This anomaly potentially corresponds to a hydrothermally active zone that may have developed due to in excess melting at deeper structure.