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Morphologic and Morphotectonic Characteristics of the Nazımiye Fault Zone, Eastern Turkey

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The right lateral Nazımiye Fault Zone (NFZ) has a length of 65 km between the North Anatolian Fault Zone (NAFZ) and the East Anatolian Fault Zone (EAFZ). The NFZ is comprised of three sub-parallel segments, which have strikes of N65-80W and E-W. The 65 km-long Northernmost Segment is elongated in N65-75W / E-W orientation. We measured 2m to 6 km beheaded streams, pressure ridges, hot springs and small travertine bodies, which are clear geological and geomorphological evidences for the active faulting. First 25 km part of the middle segment has an orientation of N70-80W, while the other part is oriented in E-W direction. Both field and remote sensing studies show that Middle Segment is the most clear features of a strike-slip fault system. Munzur and Pülümür rivers are displaced 19 km and 7 km respectively along the Middle Segment. The southernmost segment of the NFZ also presents very identical strike-slip characteristics such as 25 km offset travertine bodies. We observe the maximum slip along the Southern Segment, and the minimum slip at the Northern Segment. As a result of morphotectonic analysis we put forward the Southermost Segment is tectonically quiescent, whereas the northernmost one is tectonically active. Although NFZ deformation zone has about 30 km width, morphotectonic analyses of Quaternary structures and their slip distribution is the evidence of the Northernmost Segment of the fault zone accumulates the biggest portion of the strain in the Quaternary. We concluded that the NFZ migrates from south to the north and develop as an antithetic fault between the NAFZ and the EAFZ.