



Structural and Morpho-Tectonic Features of the Golbasi-Turkoglu Segment of East Anatolian Fault Zone

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East Anatolian Fault Zone (EAFZ) is a 580km. long left lateral active strike slip fault and the width of deformation zone is approximately 30km. Six different fault segments with length varying between 50km to 145km. constitutes the EAFZ. Historical and instrumental earthquake data reveals that, Golbasi-Turoglu segment of EAFZ is seismically dormant since last 500 years and also this segment is accepted as a seismic gap on EAFZ which has a potential to pose a seismic risk on nearby settlement areas. This study aims to determine the main active faults in the study area and determination of fault associated land surfaces by using geographic information system tools (GIS), remote sensing analysis and field observations.

The study is conducted in two phases. The initial phase can be defined as office work where extensive morphological analysis and data preparation were performed by using GIS software. The second and the last phase of the study consisted of extensive field surveys, data verification. In the first part of the study a 1/25.000 scaled digital elevation models and derived morphological maps and Landsat ETM and SPOT 5 PAN images were analyzed for the study area. Lineaments were also extracted from DEMs and satellite images and analyzed. Those analysis were correlated with field observations and Analgyph images of the fault zone. Main strike slip fault related landforms like alluvial fans, river offsets and landslides were determined from morphological analysis.

As the result of this study The active faults of the study area were delineated and mapped. This data is also used in the site selection of trenches for paleoseismological studies. Further steps will be the paleoseismological studies which will put definite outcomes for the seismic hazard evaluation of this segment and nearby region. It is noteworthy that GIS and remote sensing applications in geology, especially in tectonics and geomorphology, proposes practical practical and valuable solutions in determining the structural features of any area before applying extensive field studies.