



## **Tectonics Study of West Central Alborz with the use of SRTM 90m data and TM images**

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The study area is part of the western Alborz Mountains and south west of the South Caspian Basin. Based on the structure of the area, the trend changes that have taken place in this part, and the shortening, the movements and displacement could not have been the same. Therefore, there must be areas with a different degree of movement and displacement there. For such displacement to occur along the mountain ranges there should be certain Transfer Zones within these areas. In order to detect such structures, the Morphological analysis of topographic shapes, especially the lineament that have been used in tectonic and structural studies for a long time and are the basis of tectonic analysis, has been applied. Detecting and enhancing these features in an area such as the western part of the Alborz, which is covered by plant life, was made possible through the use of SRTM 90 m data and TM images. To extract lineaments, various methods of image processing and enhancement techniques and three different approaches of manual, semi-automatic and automatic lineament extraction and geomagnetic maps are used. The lineament layers obtained from these methods were overlaid to produce a final lineament maps afterwards. This map was analyzed and researcher was able to detect and enhance lineaments and prepare density, intersection and orientation maps through the use of GIS software, which helps provide a good view of the structural geology of the area. According to this study, as a result of the rotations several fault blocks have been created in western Alborz and in the boundaries of these blocks exist Transfer zones that have caused different displacements. Continuance of these Transfer zones along the Southern Caspian Basin can be a suitable place to access the Hydrocarbon sources of that area. Because of rotation, trend changes and existence of thrust faults and transfer zones, an Asymmetric, positive, flower- structured model for that area is proposed