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The pattern and magnitude of rotational piezomagnetic anomalies along the dip-slip Mosh fault, Northern Tehran, Iran.

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Several active faults affect the Central Alborz, Northern Iran. The main active faults in the region are the North Tehran and the Mosha faults and their westward continuation, the Taleghan fault. Among these the Mosha fault is one of the major active faults in Central Alborz.

The magnetization of titanomagnetite-bearing rocks varies under the mechanical stress and consequent time-dependent local magnetic anomalies. This phenomenon which is known as piezomagnetic field has been inspired by many investigations in earthquake prediction studies and has been reported in the literature. Several theories proposed for relating piezomagnetic anomalies in to magnetic signals accompanying earthquakes in the vicinity of a fault. Among all efforts, Sasai [1980] successfully developed what is called Green function method for calculating the piezomagnetic effects due to dislocations. Later, based on his theory, Utsugi, et al., [2000], derived an analytical solution for the elementary piezomagnetic potentials due to an inclined rectangular fault within a semi-infinite elastic medium. The low amplitude nature of piezomagnetic total field anomalies are imposing serious constrains on our ability for effectively detect this significant signals. Mostly they are below the noise level of the measurements. Therefore it seems necessary to use other methods such as measuring rotational anomalies in conjunction with total field studies which can provide us with new insight to the application of magnetic data as earthquake precursor.

Based on the above mentioned methodology and the recent magnetic data acquired

along the Mosh fault the pattern and magnitude of rotational piezomagnetic anomalies along this major active dip-slip fault has been estimated. The result of this estimation will be presented at the present paper.