



An investigation into the geometry and kinematics of the North Tehran fault, Central Alborz, Iran

N. Mozaffari Amiri (1), M. Pourkermani (1), M. Shahpasandzadeh (2) and E. Dowlat (1)

(1) Faculty of Geosciences, Shahid Beheshti University, Tehran, Iran (2) International Institute of Earthquake Engineering and Seismology, Tehran, Iran (nasim_mozaffari_sbu@yahoo.com / Phone: +98 911 114 3359)

The Alborz Mountain is located between the Caspian Sea and the Iranian Plateau which is strongly affected by Arabia-Eurasia convergence. The North Tehran fault with about 108 km length is immediately accommodated in the north of Tehran megacity and extended to farther west along the southern edge of Central Alborz. Eastern part of the fault striking ENE-WSW is dipping north to northeast while the western part trending NW-SE has northeast dip direction.

According to our geological observations in the North Tehran fault zone including faults, folds, striations, tension cracks and S-C fabrics, before Neogene the fault has had right-lateral movement accompanied by normal component while afterwards its mechanism changed to oblique-slip which in the part trending ENE-WSW, the left-lateral strike-slip component is more noticeable, whereas in the western part trending NW-SE, the reverse component dramatically dominates. Based on the geological markers in the northcentral of Tehran city as an exception, seems that in this segment of fault the right-lateral strike-slip mechanism has stayed longer and it was not influenced by the recent left-lateral strike-slip mechanism until 4000 years ago just after settling the Tehran alluvial formation. Following our observations, we prefer to subdivide the eastern part of North Tehran fault at least into three individual oblique-slip segments and introduce the western part of it as a reverse fault.