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Noncoaxial Progressive Deformation of Pegmatoied dykes, Sanandaj Sirjan Zone, Iran

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The Sanandaj-Sirjan metamorphic zone experienced a polyphase deformation history, which is related to the Zagros orogenic belt. At the northwestern part of Sanandaj-Sirjan zone many pegmatoied dykes intruded in Jurassic phylite and schist. These dykes have various mineralogical compositions and textures. Various zones such as aplitic-bearing graphic texture and enclave, coarse-grained pegmatite, layered pegmatite, aplitice without enclave zones. Pegmatites contain albite, alkali feldspar, tourmaline, quartz and muscovite minerals. At the top of the pegmatites aplitic zone are formed that have enclaves with intergrowth of quartz and feldspar. According to the field observations and satellite images, pegmatoieds dykes have often trend NW-SE trend and some of dykes N-S and NE-SW trends. These have yary length, even more than one kilometer. They have variable thickness and have been viewed more than 10 meters. Dyke slip is variable but often high and almost vertical slip, but at a low angle dikes are observed at the field observations. Based on field studies and satellite images NW - SE trending dikes younger than other dikes and cut other trends of dikes. Internal structures of dikes clearly show e kinematics extension to formation of dykes. Internal structure such as orientation of tourmaline and layering are shown in these dykes. Tourmaline crystals oriented perpendicular to the wall and strike of dikes corresponding to the extension direction. Microstructure analysis of these dykes reveals these dykes are deformed. Quartz grains show migration boundary deformation and chess extinction. Deformation twining formed at the plagioclase. Other kinematic evidence is preserved in this area. Syn-taxial pegmatite veins, en echelon pegmatite vein and intersecting vein usually seen in this area. Some of vein are folded and some of veins are formed in multi stages. Orientation and deformation of dykes and other kinematic evidence suggested non-coaxial progressive deformation for this area. This deformation is exactly compatible to the dextral strike-slip deformation of the Sanandaj-Sirjan zone.

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