



Tectonic Evolution of Jabal Tays Ophiolite Complex, Eastern Arabian Shield, Saudi Arabia

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Microstructural analysis is important for investigation of tectonic evaluation of Jable Tays area. Furthermore, the Jable Tays ophiolite complex is effected by Al Amar –Idsas fault. The nature of the Al Amar-Idsas fault is a part of the Eastern Arabian Shield, which was subjected to multiple interpretations. Through fieldwork investigation, microscopic examination, and microstructural analysis, we aim to understand the evolution and tectonic setting of the Jable Tays area. Finite-strain data displays that the Abt schist, the metavolcanics and the metagranites are highly to moderately deformed. The axial ratios in the XZ section range from 1.40 to 2.20. The long axes of the finite-strain ellipsoids trend NW- SE and W-E in the Jable Tays area while, their short axes are subvertical to subhorizontal foliations. The strain magnitude does not increase towards the tectonic contacts between the Abt schist and metavolcano-sedimentary. While majority of the obtained data indicate a dominant oblate with minor prolate strain symmetries in the Abt schist, metavolcano-sedimentary and metagranites. The strain data also indicate flattening with some constriction. We assume that the Abt schist and the metavolcano-sedimentary rocks have similar deformation behavior. The finite strain in the studied rocks accumulated during the metamorphism that effected by thrusting activity. Based on these results, we finally concluded that the contact between Abt schist and metavolcano-sedimentary rocks were formed during the progressive thrusting under brittle to semi-ductile deformation conditions by simple shear that also involved a component of vertical shortening, causing subhorizontal foliation in Jable Tays area.