



Strain analysis and vorticity of flow in the Qatrouyeh deformed conglomerates, Iran: implications for kinematics of an oblique convergence event

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Finite strain analyses were carried out in the Qatrouyeh deformed conglomerates in the HP-LT Sanandaj-Sirjan Metamorphic rocks affected by a polyphase tectonic history. Several methods are used to determine the tectonic finite strain of these deformed conglomerates. Using R_f/ϕ technique for two-dimensional strain analysis shows that the finite strain of XZ plane is $R_S=5.2$. The calculation of the harmonic mean from the axial ratios of the extracted pebbles and plotting these data in the Flinn diagram resulted in K parameter between 0.4 -1.9. Kinematic vorticity analysis of deformed pebbles shows that W_K parameter varies from 0.4 to 0.7 (i.e. pure-shear dominated non-coaxial flow). The results quantitatively support the observations of a dextral transpressive segment along the Zagros orogenic belt resulted from oblique collision between Afro-Arabian continent and Iranian microcontinents with angle of convergence equal to $\alpha=25^\circ$;