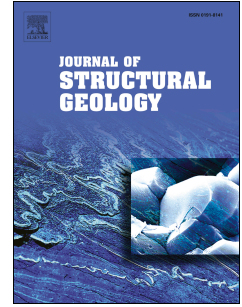


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Intracrystalline deformation of garnet, wollastonite and pectolite grains during development of a crenulation cleavage in the sheared skarn

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1 **Intracrystalline deformation of garnet, wollastonite and pectolite grains during**
2 **development of a crenulation cleavage in the sheared skarn.**

3
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15 **Abstract**

16 This study focuses on a mylonitic skarn at the margins of a harzburgite of the Neyriz mantle
17 diapir, Iran. The studied sample contained garnet porphyroclasts in a wollastonite and pectolite
18 matrix. The microstructures of porphyroclasts and matrix are analyzed using electron backscatter
19 diffraction (EBSD). Detailed analysis of garnet porphyroclast distortions and subgrain boundary
20 trace analysis suggests that (110) <110> dislocation control intracrystalline deformation of
21 garnet grains. Wollastonite and pectolite crystallographic preferred orientations (CPOs) are
22 dominated by (100) parallel to foliation plane and <010> parallel to lineation. However, a
23 dominance of low angle misorientation axes parallel to <010> precludes <010> dislocations
24 from significant involvement in intracrystalline deformation. Schmid factor analysis also shows
25 this slip system does not have high integrated Schmid factor. These observations suggest that

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