

Shape- and lattice-preferred orientation of orthopyroxene in the Horoman peridotites: a comparison with 3D simulation

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Orthopyroxene porphyroclasts in peridotite mylonites are elongated to variable extent and this variation is related to the crystallographic orientation of grains. We simulate the development of lattice- and shape-preferred orientation of orthopyroxene grains in peridotites using three-dimensional geometrical model and compare with a natural example from Horoman peridotites. In this model, the grains are assumed to deform by superposition of simple shear parallel to the unique slip system and rigid rotation. We can examine the relation between the shape and the crystallographic orientation of each grain with this model and estimate the kinematics of peridotite deformation from this relation.