

## Deformation processes and compositional changes within serpentinite: An example from the Franciscan Complex, Gorda, California

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Serpentinite bodies within the Franciscan Complex, a Mesozoic accretionary prism located in California, U.S.A., display a unique form of deformation, with the recrystallization of chrysotile, producing a block-in-matrix structure. The phacoidal-shaped blocks have a preferred-orientation, and result from the local replacement of serpentine minerals (lizardite and antigorite) by chrysotile grains that are aligned parallel to ductile shear planes such as S-C foliation; eventually, the rock evolves into chrysotile schist. The platy chrysotile records ductile rather than brittle deformation; this indicates the type of *in situ* replacement that typically occurs during a solid-state reaction. A preliminary chemical analysis of serpentine minerals revealed that Si, Al, and Fe contents in the blocks are relatively high to those in the matrix, indicating distinct compositional changes during the recrystallization of chrysotile. The deformation processes might be attributed to the slip style that occurs in aseismic regions in subduction zones in areas shallower than the stability field of antigorite.