

SIT039-04

Room: 101

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## Deformation in the shallow hydrated mantle wedge

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It is a common view that the transition between creep and seismic rupture in subduction zones like Japan is controlled at great depth by various phenomena involving "hydrous" minerals. We have been working on the influence of major hydrous phases like serpentine on the mechanical stability of subduction, on its seismicity and on geophysical observations. Several properties of serpentine are noticeable: its formation along major deformation zones where fluids can circulate and react with dry mantle rocks; its low viscosity and high dehydration kinetics making it a "stabilizer" of stable creep or a source of seismic rupture if temperature raises above dehydration; its strong anisotropy that make it possible to track deformation patterns from seismology. I will review our current understanding of deformation of serpentine materials in the first 200 km of subduction and discuss some remaining questions on measurements and modeling of the behavior and properties of such complex systems.

Keywords: serpentine, deformation, subduction