

SIT039-01

会場: 101

時間: 5月26日09:00-09:15

前弧マントルウエッジは含水化しているか？

Is the fore-arc mantle wedge hydrated?

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Subduction of oceanic plates at the trench carries water into the earth in the form of hydrous minerals. Hydrous minerals become unstable with increasing pressures and temperatures, and consequently dehydration reactions take place accompanied by the release of fluids to the surroundings. Geodynamic modeling and experimental petrology (e.g., Schmidt and Poli, 1998; Hacker et al., 2003) have predicted that dehydration occurs in the subducting oceanic crust at depths shallower than 100 km for the Pacific slab beneath NE Japan. However, how the fluids released from the slab migrate in the mantle wedge remains debated. Here we review our recent seismic observations (seismic velocity, attenuation, and anisotropy structures) around the Japanese Islands and discuss the circulation of fluids in the fore-arc mantle wedge. Our results suggest that a large volume of fluids exists in the fore-arc mantle of Izu-Bonin but is almost absent in the fore-arc mantle of NE Japan, even though the same slab is subducting beneath the both regions.