

U004-P08

Room: Convention Hall

Time: May 24 17:15-18:45

Major and Trace element and Sr isotope compositions of fault rock in Kure out-of-sequence thrust

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Out-of-sequence thrusts (OST) play an important role in tsunami generation around subduction zone. To understand seismic slip mechanism, important, we analyzed major and trace element components and Sr isotope of pseudotachylyte-bearing thrust, developed around the Kure Melange in the Shimanto Belt.

Matrix of the black fault zone has lower SiO₂ and higher Al₂O₃, TiO₂ and MgO components than those of the host rock. This indicates that proportion of quartz crystals that survived melting and remained as fragments was greater than that of other rock-forming minerals. Although pseudotachylyte is enriched in incompatible elements (Zr, Nb, Ti, REE, Y, Be, W, Pb, Th, U etc), Li, Rb, Cs are depleted.

These element anomalies probably resulted from melting and coseismic fluid-rock interactions.

Keywords: accretionary complex, fault, pseudotachylyte, weakening mechanism