

SSS029-P05

Room:Convention Hall

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## Influence by teflon contamination on the fault slip behavior during high-speed friction experiments

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There are many natural fault zones including clayey fault gauge. It is important to understand coseismic slip behavior of fault gauge because it has a great influence on frictional strength.

When we conduct high velocity frictional experiments on fault gauge, we generally use a Teflon sleeve which covers the fault to confine the gauge in the fault during shearing. As a preliminary experiment, we conducted high velocity frictional experiments on illite powder samples, using a rotary shear, high speed frictional testing apparatus. We considered the illite powder to be fault gauge. The gauge sample was put between a pair of gabbro cylinders. When we conducted thermogravimetry and differential scanning calorimetry on gauge samples after experiment, the contamination of more than 10wt% Teflon into gauge samples during shearing was recognized. This weight of Teflon contamination increased with increasing normal stress and displacement. Because frictional coefficient of Teflon is low compared with a rock, Teflon contamination into gauge sample is considered to have influence on frictional strength. In order to investigate this influence, we conducted experiments using 0wt%, 10wt%, 20wt%, 30wt%, 40wt%, 50wt% Teflon contaminated beforehand into gauge samples. We evaluated the slip behavior by Teflon contamination from this experiment result.

Keywords: slip behavior, high-velocity friction experiments, teflon, differential scanning calorimetry, thermogravimetry