

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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SSS032-P02

Room:Convention Hall

Time:May 25 16:30-17:30

## A new method for evaluating fault activity based on fault gouge properties-Comparison of fault gouges in the aftershock

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We compared to examine mineralogical and geochemical studies of fault gouges in the aftershock area and the neighborhood of 2000 Tottori-ken Seibu earthquake, to establish a new method for evaluating fault activity of low activity faults. The fault gouges were conducted by powder X-ray diffraction analysis, sequential selective extraction tests and color measurements. As the results, the fault gouge in the aftershock area is mainly composed of illite and chlorite, and the gouge in the neighborhood is mainly composed of halloysite. Iron in the gouge in the aftershock area is mainly contained in illite, and iron in the gouge in the neighborhood is mainly contained in amorphous and crystalline iron oxide. Results of color measurements showed that negative  $a^*$  values from the gouge in the aftershock area indicated the presence of chlorite, and that positive  $a^*$  values from the gouge in the neighborhood indicated the presence of crystalline iron oxide. These results indicated that mineralogical and geochemical characteristics can distinguish clearly the fault gouges in the aftershock area and the neighborhood of 2000 Tottori-ken Seibu earthquake and that color measurements can be effective to distinguish these gouges.

Keywords: 2000 Tottori-ken Seibu earthquake, fault gouge, powder X-ray diffraction analysis, sequential selective extraction test, color measurement, crystalline iron oxide