

Physical characteristics of fault gouge

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Some kinds of experimental study were made to understand the behavior of fault gouge under the earthquake focal process. Many fault gouge samples were collected from some outcrops of the typical active faults, such as Atotsugawa-, Yanagase-, Nojima-, Gosukebashi-Faults and Median Tectonic Line, in Japan Arc Island. The kinds of measurements for the sample are of mechanical analysis, tri-axial compression test, composition analysis and plastic strain analysis using by X-ray diffraction, seismic wave velocities under confining pressure, and electric potential changes induced during the shear deformation.

Some results obtained from the experimental studies on the fault gauges were as follows:

1. The particle size distribution is plotted considerably wide ranges.
2. The large plastic strain was significantly detected in fine quartz grain in fault gauges.
3. The seismic velocities increase rapidly with confining pressure to near common fault rupture velocity.
4. The dilatancy of gauge specimen was observed during the shear deformation under high confining pressure.