

Comparison between geologically determined fault slip and seismologically determined stress along the Atotsugawa Fault

Norio Shigematsu^{1*}, Makoto Otsubo¹, Ayumu Miyakawa¹, Ryosuke Doke², Masakazu Niwa³, Takashi Azuma¹, Kazutoshi Imanishi¹

¹Geological Survey of Japan/AIST, ²GEOSCIENCE RESEARCH LABORATORY Co., Ltd., ³Japan Atomic Energy Agency

We compared fault-slip data observed at outcrops and seismologically determined stress tensors along the Atotsugawa Fault. The seismologically determined stress tensors show the maximum principal stress orient horizontally WNW-ESE, and depth dependence of the solutions (Imanishi et al., 2011).

We obtained fault slip data at four outcrops located at eastern, middle and western part of the fault. The fault slip data obtained at three of four outcrops are consistent with the seismologically determined stress tensor, especially that for deep part of the fault. The fault slip data obtained at the other outcrop are not consistent with the seismologically determined stress tensor.

The fault slip data obtained at the Atera fault are also consistent with the seismologically determined stress tensor (Tonai et al., 2011). Therefore, the comparison between fault-slip data observed at outcrops and seismologically determined stress tensor is possibly useful to identify if a fault is active. Topographical analysis is necessary to understand the inconsistent fault slip data with seismological data at one outcrop.

Keywords: Atotsugawa Fault, stress tensor inversion, fault slip data, microearthquakes, active fault