

## Focal mechanisms of the small earthquakes in and around the Atotsugawa fault and stress accumulation process

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To understand the stress accumulation process in and around the Atotsugawa fault system with higher spatial resolution than previous reports (Katsumata et al., 2010; Imanishi et al., 2011), we examined the focal mechanisms for very small earthquakes in this region using the data observed from January 2005 to December 2008 with temporary deployed seismometers and permanent stations. We determined the focal mechanisms from P-wave first-motion polarities by the method of Maeda (1992). The P and S-wave arrival times, and P-wave polarities were automatically determined by the algorithm recently developed by Horiuchi et al. (2011). In most depth ranges, the obtained focal mechanisms correspond to various types of faulting (normal, reverse, and right-lateral strike slip). At the deepest part, on the other hand, the right-lateral strike slip seems to be dominant, which is consistent with Imanishi et al. (2011). We have checked the automatically picked P-wave arrivals by WIN system (Urabe and Tsukada, 1991) just in case. Finally, we estimated the stress field in and around the Atotsugawa fault system from the focal mechanisms by a conventional stress inversion technique (Gephart and Forsyth, 1984). The earthquakes less than 15 focal solutions were adopted as input data for the stress inversion.

Keywords: Atotsugawa Fault, focal mechanism, small earthquake, crustal heterogeneity, stress accumulation process