

Crustal deformation and stress accumulation process in and around the Atotsugawa fault system

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I introduce recent two extensive surveys conducted in and around the Atotsugawa fault system. First is the joint seismic observation by university group during 2004 to 2008. With this seismic data, I have estimated the focal mechanisms of small earthquakes and tectonic stress field by using stress inversion methods. Second is to estimate the inter-seismic crustal deformation with very high spatial resolution using GNSS and InSAR time series analysis. The estimated stress rotation can be explained by a viscoelastic dislocation model assuming cumulative slip deficit relative to surrounding part up to several tens of meters. On the other hand, the geodetic data indicate strain concentration near the fault trace, which may require a minor change of the fault model. However, the velocity fields still include systematic error coming from atmospheric and/or tropospheric disturbances. Farther noise reduction is required to constrain the physical model.

Keywords: Atotsugawa Fault, Stress Field, GNSS, InSAR