

## Stress fields around the central and southern part of the Itoigawa-Shizuoka Tectonic Line inferred from seismological observations

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The Itoigawa-Shizuoka Tectonic Line (ITSL) is considered to be one of the most active fault systems in the Japanese Islands. In order to reveal stress accumulation process of this fault system, we investigate the stress field based on focal mechanism solutions of microearthquakes.

We have made temporary observations in the central and southern part of the ITSL during the period from September 2005 to July 2006. The events were recorded at sample rates of 200 Hz in continuous mode and by off-line recording with GPS clock. In the case of microearthquakes, it is difficult to obtain a unique focal mechanism solution, because the number of stations detecting events decreases and their azimuthal coverage becomes poor. In this study, we determined the focal mechanism solutions using absolute P and SH amplitudes and P-wave polarity. The actual procedures of this analysis are as follows: We first determined focal mechanism solutions of earthquakes where the number of P-wave polarity data was ten or greater. We then calculated the logarithmic average of the ratios between the observed and theoretical amplitudes of these events, which was used as the amplitude station correction at each station. Using the amplitude station corrections, we redetermined the focal mechanism solutions. In total, we obtained 276 solutions of earthquakes that occurred in the present studied area.

Using the focal mechanism solutions determined above, we estimated stress fields by applying the stress tensor inversion method of Michael (1984). The direction of the maximum compressive principal stress is nearly ESE-WNW, which conforms to the general tectonic trend in this area. The stress field changes from the thrust-faulting regime around the ISTL to the strike-slip faulting regime around the Median Tectonic Line. This agrees well with the slip sense along these faults that were estimated by trench excavations, geological and geomorphological surveys.

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