

Focal mechanisms around the northwest margin of the Kanto Plain (Kanto-heiya-hokuseien) fault and Tachikawa fault zones

Reiken Matsushita¹, Kazutoshi Imanishi^{1*}, Yasuto Kuwahara¹

¹Geological Survey of Japan, AIST

We investigated stress field around the northwest margin of the Kanto Plain (Kanto-heiya-hokuseien) fault zone and Tachikawa fault zone based on focal mechanisms of microearthquakes. Focal mechanisms have been determined from P-wave polarity data as well as body wave amplitudes for about 400 microearthquakes that occurred around those fault zones between June 2002 and December 2011. The main results are summarized as follows:

(1) Most of earthquakes show a reverse faulting mechanism, while earthquakes with strike-slip faulting components are also occurring throughout the region.

(2) A stress field suddenly changes across the Kanto-heiya-hokuseien fault zone. P-axes on the northeast side of the fault zone are oriented in the E-W direction, which is consistent with an overall stress regime in northeast Japan. In contrast, those on the southwest side are oriented in the NE-SW direction.

(3) The region with P-axis of NE-SW direction is estimated to extend to at least 50 km away from the surface trace of the Kanto-heiya-hokuseien fault zone.

On the basis of the above features, we discuss the relation of the present-day stress field with the geologically estimated slip sense of both fault zones.

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Keywords: the Kanto Plain (Kanto-heiya-hokuseien) fault zone, Tachikawa fault zone, microearthquake, focal mechanism, stress field