

## Seismotectonics beneath Kanto: A review of recent seismological studies

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The Kanto region, surrounding the Tokyo metropolitan area, has been hit by disastrous M8-class earthquakes and numerous intensely damaging M7-class earthquakes throughout recorded history (e.g., Utsu, 1979, 1999; Usami, 2003). For example, the 1923 Kanto megathrust earthquake (M7.9), which occurred along the upper surface of the Philippine Sea slab (Figure 1b), was one of the most destructive earthquakes of the 20th century, causing severe damage to the Tokyo metropolitan area and resulting in 105,000 fatalities. Earthquake Research Committee (2004) evaluated the probability of the occurrence of an M7-class earthquake beneath southern Kanto, based on the assumption that the five most recent M7-class earthquakes since 1885 occurred randomly as a Poisson process. The evaluation revealed a 70% probability that such an earthquake will occur in the next 30 years.

Here we review our recent seismological observations in Kanto and present geometries of the Pacific and Philippine Sea plates, the lateral extent of a contact zone of the two plate, relationship between heterogeneous structure in the Philippine Sea plate and three of the five M7-class earthquakes (1921, 1922, and 1987 earthquakes) used in the evaluation of Earthquake Research Committee (2004).

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