

Geotectonic evolution in and around Toyama Trough, Japan Sea

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This paper re-analyzed the geologic structure and its development along the eastern margin of Japan Sea, involving the southeastern Japan Basin, the eastern Yamato Basin and Toyama Trough, based on the recent data sets of seismic investigations for resource-exploring and earthquake disaster prevention. The obtained results corroborate a two-stage model of the back-arc spreading with large shear zone in a north-south trend along the eastern border of Japan Basin and Yamato Basin. The new findings were as follows:

- 1) Regional geologic structure became clear, including the present-day active faults and the suspended Miocene faults in the back-arc region of Honshu arc.
- 2) The N-S striking faults, one of three fault trends observed in the present Toyama Trough, was traced northerly up to the eastern termination of Yamato Basin.
- 3) The Toyama Trough shear zone had been spread out with being accompanied by left-lateral strike-slip faulting in a NW-SE trend.
- 4) As for neotectonics in central Japan, the shift to a convergent regime from a divergent one in the Japan Sea was quite revolutionary. Such a conversion was different in style and time: E-W trending thrust/fold structure in the Late Miocene on SWJ side, probably due to the commencement of subduction of Philippine Sea Plate. The NE-SW trending fault/fold structure characterizing NEJ side is further delayed to become conspicuous after 4Ma, probably due to commencement of eastward motion of Amur Plate.
- 5) The Present strain concentration belt in Honshu extends along the Japan Sea side on NEJ side through inland on SWJ side, intersecting with the Itoigawa-Shizuoka tectonic line. Its manifestation in the late Quaternary period could be called as "revival Honshu arc" as a behavior of coalesce of the two island arcs, NEJ and SWJ, concerning the interaction of the subducting Pacific Plate with the hanging two plates.

Keywords: Japan Sea, Toyama Trough, Amur Plate, neotectonics, tectonic inversion

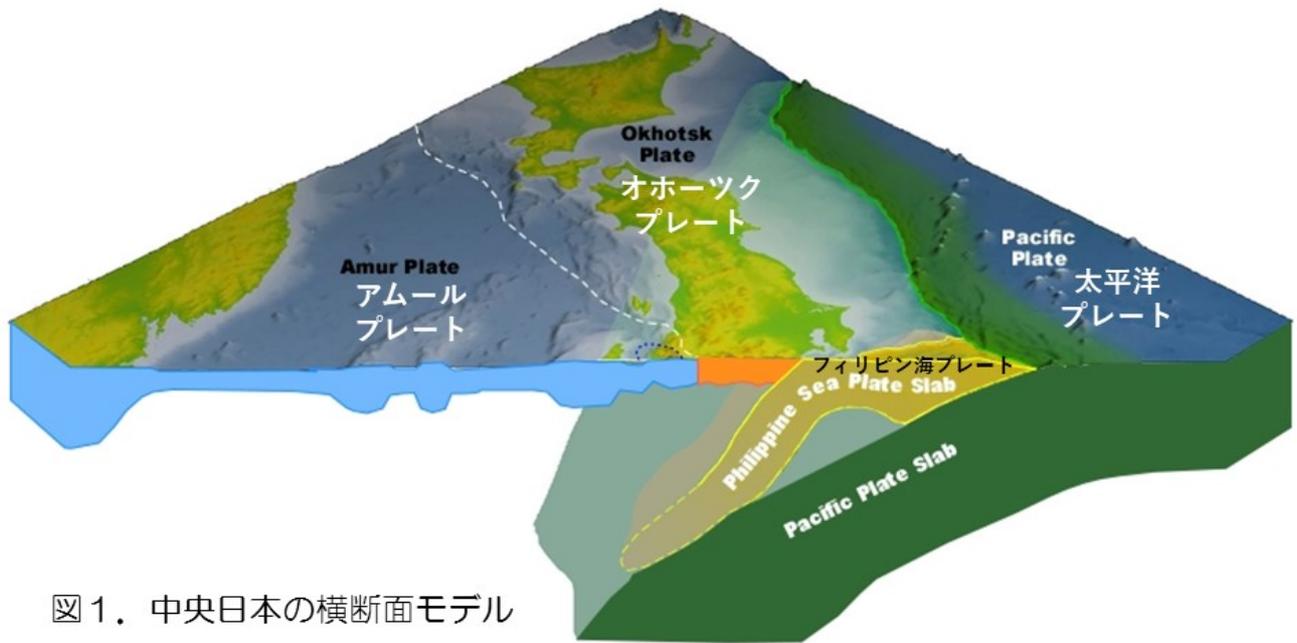


図1. 中央日本の横断面モデル