Seismicity off Tokai by repeating OBS observations and feature of the subducting Philippine Sea slab

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The source region of the next great Tokai Earthquake is estimated in land and sea area around Shizuoka prefecture of Tokai district in the central part of Japan. It is important to know the seismicity around the source region in detail, for understanding of characteristic and occurrence potential of the Tokai Earthquake. However, at a sea area, the detection capability of earthquakes is low and hypocenter determination is no good, because permanent observation net inclines toward a land area. An observation by ocean bottom seismograph (OBS) is effective to improve detection capability and hypocenter determination. To investigate the real seismicity off Tokai, we have repeatedly observed by pop-up type OBS since 1999. We show the result of 7 times observations in the past 5 years in this study.

Investigating the seismicity off Tokai by repeating OBS observations, we found:

1) We could determine many hypocenters not detected by JMA routine.
2) Along the Zenisu ridge that is parallel to the Nankai trough, seismic active zone extends in NE-SW direction.
3) On the other hand, in the region of land side from trough, seismic activity is low.
4) The focal depth determined by OBS tend to be shallow as compared with JMA routine off Tokai.
5) The depth distribution of the hypocenters off Tokai extends along the subducting Philippine Sea slab.

By the way, many earthquake data have been recorded by four cable type OBSs off Tokai since 1978. We re-determined hypocenters for 25 years. The distribution of the hypocenters extends along the subducting Philippine Sea slab. We estimate the feature of Philippine Sea slab off Tokai from this distribution.

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