Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

SSS24-P07 Room:Poster Time:May 1 18:15-19:30

Microseismicity around the Nankai trough south off the Kii Peninsula

YAMAZAKI, Akira[1*]

[1]Meteorological Research Institute

The seismicity around the Nankai trough axis and its southern area, south off the Kii Peninsula, was not well understood, because most previous ocean bottom seismograph observations had been performed at landward from the trough axis. In order to investigate the seismicity around the region, Meteorological Research Institute conducted ocean bottom seismograph observations at around the Nankai trough axis and its southern area from 2005 to 2008, cooperated with Seismology and Volcanology Department, Japan Meteorological Agency (JMA). We conducted four observations, which period was approximately three months, using about ten pop-up type ocean bottom seismographs. As a result, we could detect a microseismic activity, which were not listed in the earthquake catalogue by JMA, around the trough axis.

The features of the microseismic activity are as follows. The depth of the hypocenters distributes around 10km to 25km. Since the depth of hypocenters determined by JMA at the region distributes around 30km to 40km, the true depth of the earthquakes is considered about 20km shallower than that of the JMA. There is a clear lower limit plane of hypocenters, and little earthquakes occur deeper than 25km. As a general tendency, the microseismic distribution has south incline at seaward from the trough axis, north incline at landward. The distribution of the hypocenters is not uniform, and we can detect some seismic clusters, liner arrangements and several seismic gaps of the 20km to 30km in diameter. It seems that seismic segment structures are formed within the Philippine Sea plate.

In general, seismic activity around a trough axis is causes by bending of oceanic plate. Moreover, the activity is affected by somewhat change of interplate coupling status at subduction zone. For instance, it is pointed out that the focal mechanism at outer rise region changes from compressional to tensional tectonic field by occurrence of large interplate earthquakes at subduction zone. We propose a possibility that the temporal change of the microseismic activity around the Nankai trough axis reflects a temporal change of the plate motion or a somewhat change of plate coupling conditions.

Keywords: ocean bottom seismograph, Tonankai earthquake, Nankai earthquake, Nankai trough, microseismicity, Philippine Sea plate