

Observation of Ocean Bottom Crustal Deformation at the Kumano Basin

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We started monitoring of ocean bottom crustal deformation at the Suruga bay in 2002 [Tadokoro et al., 2003]. The Kumano basin is located inside of the focal area of Tonankai earthquake. We started the monitoring of ocean bottom crustal deformation also at the Kumano basin in 2003. In this paper, we report the results of the repeated observation at the Kumano basin.

We installed at two sites, the northern and southern sites, on the Kumano basin, on June and July of 2003, respectively. Each site is composed of three sea-bottom units with an interval of about 1.2 nm. The first measurement was performed at the time of installation. The second measurement at the northern site was performed in July of 2003. The observation periods are three and five days at the measurements of June and July, respectively. We measure travel times of acoustic signal using their waveforms by means of cross-correlation method. The travel time data with cross-correlation coefficients larger than 0.61 were used for the sea-bottom positioning. The number of travel time data is 800-2100 for each sea-bottom unit. Yada [2003] and Okuda [2003] reported that temporal and spatial variations of sound speed effect on the errors of sea-bottom positioning. For this reason, we measure the sound speed structure 11-14 times during each observation period using the CTD profiler. The data are used for the sea-bottom positioning. We determined the sea-bottom position with a horizontal and vertical errors of 5 cm and 7 cm using the data acquired in July. We will report the result of the repeated measurement.