

## Long-period signals accompanied by low-frequency tremors in the Bungo channel region

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Recently, Ito et al. (2006; 2007) have reported that low-frequency earthquakes are accompanied by low-frequency tremors in southwest Japan. They are observed as long-period signals with a period of about 20 seconds, so that they cannot be detected by short-period seismometers.

Hiburi Island locates in the Bungo channel, where activities of low-frequency tremors occur approximately every two months, and each activity usually continues several days. We have installed an STS-2 broadband seismometer on Hiburi Island, and we can utilize continuous data with a sampling frequency of 100 Hz from Sept. 2004. In the present study, we have analyzed the broadband seismic data to study if long-period signals are always accompanied by low-frequency tremors with large amplitudes in this region.

In order to find long-period signals, we plotted filtered waveforms with pass bands of 2-10 Hz and 0.02-0.05 Hz. The former band is for the low-frequency tremors and the latter for the long-period signals. To exclude surface wave signals from large ordinary earthquakes, we referred the Harvard CMT solution catalogs. By visually inspecting waveform figures, we have found clear long-period signals accompanied by low-frequency tremors for 9 activities from among a total of 16 activities.

Although it is not certain that all of the observed long-period signals is originated from low-frequency earthquakes since this study used records from only one seismic station, it is very likely that a considerable part of low-frequency tremors with large amplitudes involves long-period signals in the Bungo channel region.