

Characteristics of Long-Period Ground Motions in Osaka Basin Generated by the 2004 off the Kii Peninsula Earthquakes (Part 2)

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It was pointed out that the main shock of the 2004 off the Kii Peninsula earthquake (9/5 23:57 ; MJ7.4) generated long-period surface waves, prominent in the period range about 5 to 6sec, as shown by the response spectra of records. In this study, by using the Fourier spectrum ratios of records at the sedimentary sites in Osaka basin to the records at the reference rock site, the author demonstrates that the long-period waves were grown before they arrived to Osaka basin and then the amplification effect inherent to the sedimentary basin amplified these waves.

The outline of the obtained result is as follows.

1. In all observation sites in Osaka basin, practically there are no a difference in the Fourier spectrum ratios in between the all earthquakes, both large and small.
2. The site amplification factors obtained from a series of the records off the Kii Peninsula earthquakes doesn't depend on the magnitude.
3. Amplitudes of the long-period surface waves, said to have been grown during the main shock, agree well with the common site amplification factors.
4. It is supposed that the amplification on the vertical component is due to the Rayleigh waves, which travel inside of the Osaka basin.

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