



## Source location of secondary microseisms in Japan

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Non-linear interactions of ocean swells generate secondary microseisms. Although observation of microseisms have been established well in several decades, source locations of secondary microseisms remain difficult to determine well. In the present study, we try to locate dominant microseism sources observed in the Japan islands using Hi-net records. In order to locate microseisms source, we first estimate back azimuths of Rayleigh waves in the period of 4-8 s based on polarization analysis. Since fundamental Rayleigh waves generally have retrograde particle motions, back azimuth of incident Rayleigh wave can be determined without uncertainty of 180 degrees from three component records at single stations. We estimated locations which can explain the back azimuth distribution and picked up source locations with small location errors. The microseism sources mainly distribute in two specific regions: 100-200 km off the coast of Fukushima in the Pacific and off Tottori in the Sea of Japan. The off Tottori sources dominate in the winter season whereas the off Fukushima sources are detected stationary. The off Tottori and off Fukushima sources are located at an ocean basin with the depth of 1000-2500 m and at shelf slope with the ocean depth of 2000-6000 m, respectively. The oceanic depths are close to the resonance depth of 1500-3000 m for the period of 4-8 s. Improving source locations and investigating their frequency dependence may deepen our understanding of mechanism of microseisms.