

Distribution of the Maximum Amplitudes of the Japanese Islands inferred from 3-D Structure Model

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The attenuation structure beneath the Japanese islands should be three-dimensionally complex as the case of the velocity structure. For example, anomalous distributions of ground motion amplitudes are often observed. It is thought that attenuation structure is important to explain the observed amplitudes as well as the velocity structure. Recently, the 3-D velocity and attenuation structures are estimated with tomography method [e.g. Matsubara et. al. (2006), Sekine et. al. (2006)]. We calculated the maximum amplitude distribution with these 3-D velocity and attenuation structures for the comparison with the observed amplitudes.

We use the three-dimensional velocity structure which is calculated by Matsubara et. al. (2006) and the 3-D attenuation structure by Sekine et. al.(2006). The grid interval of a three-dimensional structure is 0.33 degree in the horizontal direction, and 10 - 30 km in the depth. For calculating the ray paths, we adopt the pseudo-bending tracer Koketsu and Sekine (1998). And we use earthquakes mechanisms which are reported by NIED F-net.

We found that the characteristic of the spatial distribution of observed amplitudes are almost recovered. This method is useful for not only explaining the anomalous distributions, but also estimating the strong ground motions.

We will show the many examples of the amplitude distributions and examine the capability of this method.