

Precise distribution of seismic intensities of the Iwate-Miyagi Nairiku Earthquake in 2008 by questionnaire survey

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A vibration characteristic for strong motions of earthquakes depends on the source rupture process, propagation path process and subsurface geological structures. At a local city, the density of strong motion observation sites has been small. Then, we cannot obtain the information of strong motion characteristics at the narrow area of the local city. To clarify the precise vibration characteristics of the Iwate-Miyagi Nairiku Earthquake in 2008, the survey of seismic intensity was done using questionnaires at Ichinoseki City, Oshu City and Kitakami City, the southern area of Iwate Prefecture. JMA reported that the maximum value of the seismic intensity were six strong at the observation site of Koromogawa, Oshu City, Iwate Prefecture. The questionnaire revised by Ohta et al. (1998) was used for calculating seismic intensity. 5,859 questionnaires were distributed for parents of students of 18 elementary schools of Kitakami City, 6,412 were distributed for those of 28 elementary schools of Oshu City. 2,742 were distributed for those of 7 elementary schools at the central area of Ichinoseki City. Totally, 8,913 were retrieved and 6,183 were available. The seismic intensities estimated from questionnaires were averaged for 1km, 500m and 250m square meshes to clarify the distribution of seismic intensity. To avoid differences among individuals for questionnaire survey, the effective mesh where the number of the questionnaire was more than three was used for analysis. The number of the effective mesh was 308. The seismic intensities were ranging from 3.6 to 5.6, and the average was 4.6 for 1km mesh. As a result, it was revealed that the seismic intensity at the west area of Ichinoseki City and Oshu City was five strong, the one at the east area was five weak. The results show that the seismic intensity distribution depends on the distance from the earthquake fault.