

Ultra high density questionnaire seismic intensity survey and the shallow S-wave velocity structures

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To clarify the vibration characteristics in central Maesawa Town of Oshu City, Iwate Prefecture, the dense survey of seismic intensity was done using questionnaires for the 2011 off the Pacific coast of Tohoku Earthquake and the aftershock occurred at April 7, 2011. This earthquake was the aftershock of the 2011 off the Pacific coast of Tohoku Earthquake. JMA reported that the seismic intensities at the Maesawa Town of Oshu City were 6 weak for the main shock and same for the aftershock. The questionnaire revised by Ohta et al.(1998) was used for calculating seismic intensity. The seismic intensities estimated from questionnaires were averaged for 250 m square meshes to clarify the distribution of seismic intensity in the central area of Maesawa Town. 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 mesh that seismic intensity was 6 strong were found for the result of the aftershock. The results shows that the seismic intensity was large at the area where houses were damaged. Microtremor observations with a single and/or array sensors were also carried out in this area. Results of microtremor H/V shows clear peaks in the damaged area, namely Gojunin-machi area, but do not in other area. Estimated shallow S wave velocities from microtremor array survey are small, e.g. about 100 m/s in the damaged area but not in other area.

Keywords: the 2011 off the Pacific coast of Tohoku Earthquake, aftershock at April 7 in 2011, Questionnaire Seismic Intensity Survey, earthquake damage, Maesawa Town, Oshu City, Iwate Prefecture, microtremor array survey