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Modeling of the 3-D subsurface structure around damaged area due to the 1909 Anegawa earthquake using gravity survey

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ABSTRACT It is important to understand the detailed 3-D subsurface structure to estimate the strong ground motions. For this purpose, we will confirm the usability of the gravity survey and propose a process from modeling the ground structure to estimate of the strong ground motions.
The gravity survey has been carried out to estimate the 3-D subsurface structure around the damaged area due to the 1909 Anegawa earthquake. Steep slopes of the bedrock are located around the severely damaged area. On the basis of the estimated 3-D subsurface structure, the strong motions are numerically simulated by using the finite-difference method (FDM). From the results of the simulations, it is shown that the peak ground velocity correspond to the collapse ratio of the wooden structures except for some cases.

Key words: gravity survey, 3-D subsurface structure, estimation of strong ground motions, 1909 Anegawa earthquake

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