

Quantitative evaluation about environment for installation of seismic intensity meters

Yuji Nishimae[1]; Takahito Nishimiya[1]

[1] JMA

1. Introduction

The seismic intensity meters of Japan Meteorological Agency and municipalities are installed all over the country, and the total number exceeds 3000 sites. The activities for disaster prevention are performed based on the seismic intensity information issued by Japan Meteorological Agency. However, in order to perform suitable disaster prevention, it is necessary to avoid a place which seismic intensity locally become large or small. We performed quantitative evaluation about environment for installation of seismic intensity meters.

2. Implement and result

The amplitude of a seismic wave is amplified at the upper end of a slope. We performed the simulation by the two dimensional finite difference method. The influence of the slope decreases if the seismic intensity meters are installed off 2 times of the slope height from the edge. It is thought that amplification of seismic wave does not occur because the height of low landfill is small enough compared with the wavelength of seismic wave. But we thought that seismic intensity meters should not be installed at the end of the landfill in order to avoid the effect the edge.

Elastic waves generate by vibration of a pole, a tower or a tree. New elastic waves generate by incidence of seismic waves and it is possible to affect seismic intensity with vibration of the structures. We estimated amounts of the influences by the easy simulation.

In the case of installation of the seismic intensity meters in the inside of a building, it is necessary to consider the influence of the building. We calculated seismic intensity using the waveform data actually observed at the inside and the outside of the building and compared the both intensities. Seismic intensity at the first floor and the basement of a building is smaller than GL intensity.