

## Japan Meteorological Agency information on long-period ground motion

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An earthquake generates seismic waves with various periods, and earthquakes with larger magnitudes generate stronger long-period ground motions. When the natural period of a high-rise building is close to the predominant period of ground motion, resonance happens and the building is severely shaken longer than surface of the Earth. Today, more and more people spend time in high-rise buildings especially in metropolitan areas. If great earthquake occurs, many people in high-rise buildings will be affected by long-period ground motion.

To notify people of such situations and facilitate effective countermeasures, JMA started to provide information on long-period ground motion from March 28th, 2013. Based on questionnaires to tenants of high-rise buildings, it has become clear that difficulty of people's activities depends on the velocity of floor movement, and we classified the intensity of long-period ground motion into four on the basis of velocity. To get the classification, we use wave forms observed by JMA seismic intensity meters on the surface of the Earth which are automatically sent to the JMA system. To estimate shaking at higher floors from wave forms on the surface of the Earth, we simulate the shaking of buildings by absolute velocity response spectrum of the period between 1.5 and 8.0 seconds which causes a significant resonance of buildings with 45 meters or higher. The information is available on the JMA website, with various kinds of contents such as absolute velocity and acceleration response spectrum.

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