

Possibility of the Microtremor Observation and Structural Health-Monitoring by using IT Kyoshin seismometer

ITO, Takamori^{1*}, SHIDA, Ryutaro², TAKANO, Kiyoshi³

¹ERI, The University of Tokyo, ²GSFS, The University of Tokyo, ³ERI, The University of Tokyo

In order to reduce the seismic disaster, it seems to be the usefulness to investigate the seismic vibration of our familiar buildings such as housing, companies, schools, etc. in small earthquake, examine the weak point and improve the earthquake resistance of these building effectively. For this purpose, we devised IT strong motion seismometer as a new type self install strong motion seismometer.

In order to promote widely usage, the development of the IT strong motion sensor was performed with emphasis on lowering a price rather than the sensor sensitivity.

Therefore, it was thought that we could not use it for the microtremor observation.

However, in Shida et. al (2011), it was shown that the same peak frequency was detectable by using the IT strong motion sensor as the high-sensitive sensor when it was set an upper-layers story.

We could recognize that we are able to use IT strong motion sensor for microtremore observation of the building, and for structural health monitoring also.

Thereby, we have checked the change of the building vibration characteristic due to the 2011 off the Pacific coast of Tohoku Earthquake for the buildings which were installed IT strong motion sensors.

It was confirmed that a natural frequency of buildings is changed at the 2011 off the Pacific coast of Tohoku Earthquake in many buildings. We will report some changes by the repair of the damaged buildings also.

Keywords: IT Kyoshin (Strong Motion) Seismometer, Structural Health Monitoring