

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



SSS023-P18

Room:Convention Hall

Time:May 24 16:15-18:45

## Regional characteristics of the long-period ground motion observed at the super-dense seismic observation network

Hiromitsu Nakamura<sup>1\*</sup>, Takashi Kunugi<sup>1</sup>, Shin Aoi<sup>1</sup>, Hiroyuki Fujiwara<sup>1</sup>, Hideki Nishiyama<sup>2</sup>, Akihiko Watanabe<sup>2</sup>, Masafumi Iwata<sup>3</sup>, Atsuko Nakai<sup>3</sup>, Toshihiko Hayakawa<sup>4</sup>

<sup>1</sup>NIED, <sup>2</sup>MELTEC, <sup>3</sup>Mitsubishi Electric Corporation, <sup>4</sup>MSS

The 2003 Tokachi-oki earthquake caused great damage to oil storage tanks in Tomakomai about 250km away from the epicenter. The damage was found to be caused by sloshing excited by long-period ground motion. The 2004 Niigata-ken Chuetsu earthquake caused damage to many elevators of skyscraper buildings in Tokyo Metropolitan area some 200km away from the epicenter since the long-period ground motion resonated with these buildings. These types of earthquake damage confirmed the importance of countermeasures for long-period ground motion. The earthquake-proof elevator guideline for the skyscraper buildings recommended the elevator control systems that respond to long-period ground motion. However, these systems are not adequately installed to the existing skyscraper buildings because the costs of their installation and maintenance are expensive. On the other hand, since the long-period ground motion is less affected by the local site effects, the warning system of long-period ground motion for the skyscraper buildings will be developed inexpensively by using data observed around these buildings (around-site warning system). For the purpose of the development of the around-site warning system, we evaluate the regional characteristics of the long-period ground motion response observed at the super-dense seismic observation network (SUPREME).

Keywords: strong motion observation, long-period ground motion, K-NET, skyscraper, elevator, warning system