# Technological Study on Introducing Application Systems using Early Earthquake Warning

# Hiroshi Asahara[1]; Tsuneo Ohsumi[2]

[1] ASTOM R&D; [2] Nippon Koei Co., Ltd. R&D

http://www.astom.co.jp/

Japan Meteorological Agency (J.M.A.) made a test installation of Early Earthquake Warning in 2004, then started a service to area for controlling equipments in August 2006. In 2007, this information will be officially operated. For example, TV or radio broadcasts this information to protect people's lives.

Early Earthquake Warning is an early warning announcing the location, origin time and magnitude of an earthquake occurred, possibly seconds before the arrival of seismic waves. Recent advances in seismographic network, data communication, computer technology and determination algorithm of focal parameters make it possible to give rapid notification for mitigating seismic hazards: protecting human lives or reducing damages to socioeconomic activities.

The logic is important which judges which control is the best or whether the control is proper, in order to put Early Earthquake Warning into practical use in the area which tries damage mitigation by controlling equipments before S wave reaches; controlling train service, stopping fuel in chemical plants, or stopping elevators.

In order to make proper criteria, it is necessary to carefully consider various terms as follows:

(1) Understanding characteristics of controlled equipments,

(2) Simulating Early Earthquake Warning which will be announced for envisined damaging earthquakes,

(3) Analyzing Early Earthquake Warning which actually announced for past large earthquakes,

(4) Defining in advance allowable range for errors of shaking intensity estimated by Early Earthquake Warning to observed intensity.

In this study, subjects need to be examined are organized before introducing seismic hazard mitigation systems mainly for controlling industrial equipments. We pick out common problems for widespread fields and try to examine solutions to those problems.