口頭発表 | セッション記号 S （固体地球科学） | S-SS　地震学

[S-SS28_2AM2]リアルタイム地震情報システムの発展と利活用

コンビーナ:*中村 雅基(気象庁)、山田 真澄(京都大学防災研究所)、干場 充之(気象研究所)、鶴岡 弘(東京大学地震研究所)、青井 真(独立行政法人防災科学技術研究所)、山本 俊六(鉄道総合技術研究所)、荒谷 博(気象庁地震火山部管理課)、座長:中村 雅基(気象庁)

2014年5月2日(金) 11:00 〜 12:45　312 (3F)

揺れのリアルタイム予測である緊急地震速報は、2007年の一般提供開始以降、実際の発表事例を重ね、またテレビやラジオ、携帯電話による提供によって一般社会への認知度が向上してきている。それと同時に、改めて予測の迅速化、および精度向上のための改良が求められている。本セッションでは緊急地震速報の迅速化、精度向上、防災への利活用に関する発表を歓迎する。

12:30 〜 12:45

[SSS28-P08_PG]Regional Earthquake Early Warning Applications in Marmara Region Based on KOERI Seismic Network

ポスター講演3分口頭発表枠

*PINAR Ali[1]、COMOGLU Mustafa[1]、ZULFIKAR Can[1]、TUNC Suleyman[1]、ERDIK Mustafa[1] (1.Bogazici University, Kandilli Observatory and Earthquake Research Institute, Istanbul, Turkey)

キーワード：EEW sygnal, Virtual Seismologist, PRESTo, end users, IGDAS, Marmaray

KOERI (Kandilli Observatory and Earthquake Research Institute) operates a seismic network in Marmara Sea region (NW Turkey) consisting of 40 broadband and 30 strong motion inland and OBS stations which has a good topology for regional EEW studies. Data transmission between the remote stations and the base station at KOERI is provided both with satellite and fiber optic cable systems. The continuous on-line data from these stations is used to provide real time warning for emerging potentially disastrous earthquakes.

The Virtual Seismologist in SeisComP3 and the PRESTo regional EEW (earthquake early warning) softwares are the two regional EEW algorithms that have been recently setup at KOERI data center to generate the EEW sygnal. Onsite EEW application are underway for more than a decade.

The early warning sygnal is communicated to the appropriate servo shut-down systems of the receipent facilities, that automatically decide proper action based on the alarm level. Istanbul Gas Distribution Corporation (IGDAS) is one of the end users of the EEW signal. IGDAS, the primary natural gas provider in Istanbul, operates an extensive system 9,867 km of gas lines with 550 district regulators and 474,000 service boxes. State of-the-art protection systems automatically cut natural gas flow when breaks in the pipelines are detected. IGDAS uses a sophisticated SCADA (supervisory control and data acquisition) system to monitor the state-of-health of its pipeline network. This system provides real-time information about quantities related to pipeline monitoring, including input-output pressure, drawing information, positions of station and RTU (remote terminal unit) gates, slum shut mechanism status at 581 district regulator sites. The SCADA system of IGDAS receives the EEW signal from KOERI and decide the proper actions according to the previously specified ground acceleration levels. Presently, KOERI sends EEW signal to the SCADA system of IGDAS Natural Gas Network of Istanbul.

The EEW signal of KOERI is also transmitted to the serve shut down system of the Marmaray Rail Tube Tunnel and Commuter Rail Mass Transit System in Istanbul. The Marmaray system includes an undersea

railway tunnel under the Bosphorus Strait. Several strong motion instruments are installed within the tunnel for taking measures against strong ground shaking and early warning purposes. This system is integrated with the KOERI EEW System. KOERI sends the EEW signal to the command center of Marmaray. Having received the signal, the command center put into action the previously defined measures. For example, the trains within the tunnel will be stopped at the nearest station, no access to the tunnel will be allowed to the trains approaching the tunnel, water protective caps will be closed to protect flood closing the connection between the onshore and offshore tunnels.