RECENT DEVELOPMENT ON THE EARTHQUAKE INFORMATION SYSTEM AT KSU TO CULTIVATE HAZARD MITIGATION ACT IN THE LOCAL COMMUNITY

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SUMMARY

KSU (Kyushu Sangyo University) Earthquake Data Acquisition System with a seismic ground motion accelerometers network deployed in the Fukuoka prefecture, Japan has been improved as a real-time earthquake information system for the local communities in the prefecture since the establishment of the system in 1999. Based on the technical achievement of KSU system, the NPO (Non-profitable Organization) involved in voluntary acts soon after a disaster appearance and researchers on hazard mitigation study in the area collaborate to make information from the system more comprehensible.

INTRODUCTION

KSU (Kyushu Sangyo University) Earthquake Data Acquisition System with a seismic ground motion observation network was introduced in 1999 to help earthquake engineering education for the university students. The author et al [1] [2] have developed the system into a small-scale earthquake information system for the local governments in the area.

The seismic ground motion network consisted of the ten accelerometers deployed in the northern Fukuoka prefecture at the beginning of KUS system, then more than ten times as many accelerometers deployed in the whole area of Fukuoka prefecture has been networked for KSU system. A subsystem to estimate seismic intensity for each grid of 250 x 250 square meters in the prefecture has been added. In this presentation the technical improvements and performance of KSU system are outlined.

Floods occur frequently in the area, however, the probability of a devastating earthquake is not very high so that the government officials as well as people in the area hardly acknowledge the necessity of earthquake hazard mitigation. Earthquake engineers and researchers should keep collaboration with people involved in hazard mitigation acts, as well as the professionals against the natural and artificial disasters that occur more frequently than earthquakes in order to add the earthquake damage scenarios and probabilities into the hazard map of the area.

Based on the technical achievement of KSU system, collaboration between the NPO involved in voluntary acts soon

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after a disaster appearance and researchers on hazard mitigation study in the area has been starting to make the earthquake information from KSU system more comprehensible.

CONCLUDING REMARKS

The ground motion network of KSU system consisted of two stations of KSU and the additional eight K-NET stations belong to NIED (National Research Institute for Earth Science and Disaster Prevention, Japan) at the beginning those are deployed in the northern Fukuoka prefecture, Kyushu Island, Japan. A subsystem was developed to estimate seismic intensity at each grid of 1 x 1 square kilometer in the area after the observed intensities at the ten stations, which has been operated with the main system since 2001.

KSU system has received the additional 109 seismic data from acceleration stations of Fukuoka Prefecture Seismic Intensity Network (see Fig.1) since April 2002. KSU Data Acquisition Center recognizes an event after receiving trigger reports from two or more acceleration stations, and then it starts to collect seismic data from the other stations via public telephone line. Processing time has been rather improved since April 2002, because Fukuoka Prefecture Network sends all of the data quickly to KSU via a telephone line.

Based on the observed intensities and ground motion amplification characteristics (see Fig.2) the subsystem estimate intensity of each 250 x 250 square meters grid in the prefecture, which gives 16 times as dense results as the national system in Japan. Collaboration between people and researchers in the area is going on according to the scenarios from the KSU system.

REFERENCES

1. Narahashi, H.; Development of the Kyushu Sangyo University Real-Time Earthquake Information System, Proc. of 6ICSZ, 2000, Palm Springs, USA. References start here