8.18 PROGRESS IN THE PROGRAM FOR EARLY DETECTION OF TORRENTIAL RAINFALL BY USING MULTI-PARAMETER PHASED ARRAY WEATHER RADAR IN JAPAN

N. TAKAHASHI[1], K. IWANAMI[2], M. KAWASAKI[3]

[1] Institute for Space-Earth Environmental Research, Nagoya University
[2] National Institute for Earth Sciences and Disaster Prevention
[3] National Institute for Land and Infrastructure Management
ntaka@nagoya-u.jp

The project named "Development of multi-parameter phased array weather radar (MP-PAWR) and the early detection/mitigation of torrential rainfall and tornado risks", was started in 2014 as a part of the Cross-ministerial Strategic Innovation Promotion Program (SIP) under the Council for Science, Technology and Innovation of Japanese government, and its overview is introduced in previous ERAD in Antalya, Turkey.

In this report, recent progresses of this project will be presented. The MP-PAWR was developed in 2017 and installed at Saitama University located about 30 km north of down town Tokyo. Until the MP-PAWR was completed, the project was weighted on the study how to provide information of the early detection of torrential rainfall as users requires. We have defined six major product regarding the disaster relating to the torrential rainfall, 1) early detection of torrential rainfall, 2) inundation prediction and nowcasting, 3) high wind and tornado warning, 4) river water level prediction, 5) sediment disaster prediction and 6) railway disaster mitigation system. Currently, the target users are disaster prevention section of local government and citizens. Even in the disaster prevention section, the requirements for lead time, spatial resolution and accuracy are different for the purposes such as sewerage management, park management and prevention of underpass inundation. We have refined our product by co-working with the users. For example, we have worked with the Osaka prefecture government to provide the early detection information of torrential rainfall using Phased Array Weather Radar (PAWR) which is single polarization radar. In this case, we provided warning system consists of warning light and PC to each local office. When the PAWR detect the torrential rainfall, it is notified the local office immediately, and the local officer takes an action based on the agreed procedure. Another example is the social experiment of a torrential rainfall warning system targeting about 2000 citizens. In this experiment, users get the warning of torrential rainfall of the registered location on their smart phone.

In the summer 2018, we are going to have experiment using MP-PAWR over Tokyo metropolitan area and demonstrate the effect of the MP-PAWR and its utilization of disaster mitigation.