

SIP “Enhancement of Social Resiliency against Natural Disasters” supports the development of a new technology for disaster management by the local government and the implementation and spread of research products in society.

◆ For more information ◆

Weather Radar MP-PAWR

Remote Sensing Laboratory
National Institute of Information and
Communications Technology (NICT)
Nakagawa
Tel : +81-42-327-5378
E-mail: MP-PAWR-NICT@ml.nict.go.jp

Torrential Rainfall, High Wind, Lightning Prediction

Storm, Flood and Landslide Research Division
National Research Institute for Earth Science and
Disaster Resilience (NIED)
Iwanami
Tel : +81-29-863-7767
E-mail: iwanami@bosai.go.jp

Inundation Prediction

River Department
National Institute for Land and
Infrastructure Management (NILIM)
Itagaki, Kawasaki
Tel: +81-29-864-2211
E-mail: nil-suigai@mlit.go.jp

◆ SIP “Enhancement of Social Resiliency against
Natural Disasters” HP ◆

<http://www.jst.go.jp/sip/k08.html>



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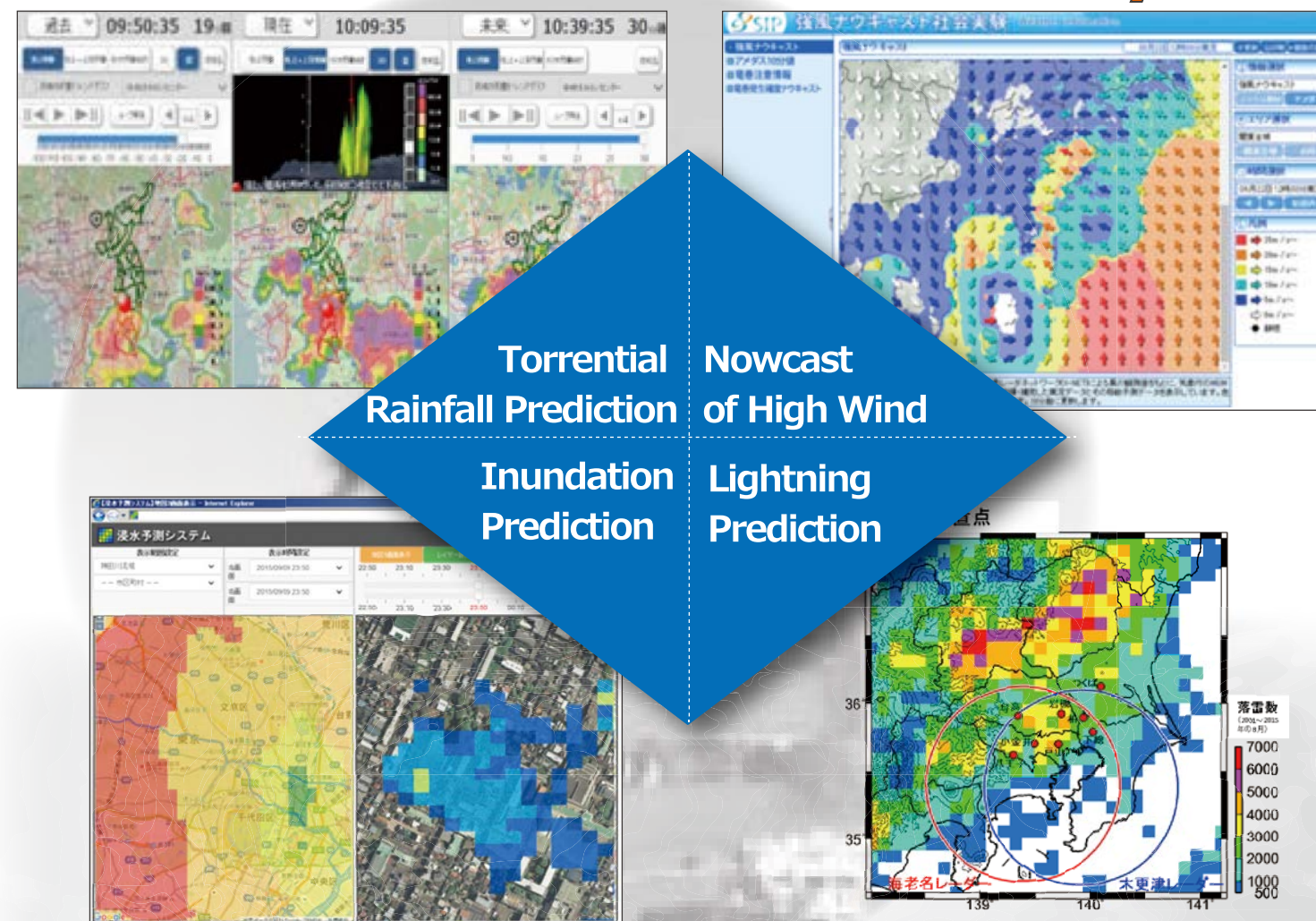
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High
precision

Torrential Rainfall and High Wind Prediction by using Advanced Weather Radar

MP-PAWR multi-parameter phased array weather radar

Wide range of usage from **Events management**
to **Daily life**



Providing prediction of torrential rainfall and
strong wind with efficient lead time contribute to flood damage
prevention and evacuation advisory to area.

previously **「After」** countermeasures against a strong wind and torrential rainfall
prediction of torrential rainfall and strong wind enables **「Prior」** Prevention Activities
 with enough lead-time for warning and evacuation.

case 1

Torrential Rainfall Prediction

- ◆ The “20-minutes prediction of torrential rainfall” information is quite useful for sewerage and park management.
 ⇒ Confirmed the effectiveness of the Social Experiment alarm at the time of the sudden flood in the urban river basin (**in Osaka Prefecture**)
 ⇒ Email-based “short-term torrential rainfall prediction” demonstration experiment

(Jul ~ Oct, 2018 **social experiment with 2,000 people**
Japan-Korea Exchange Festival 2018 (Sep 22nd, 23rd, 2018)



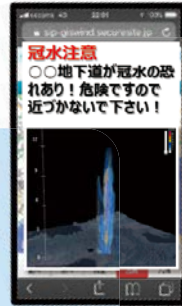
The torrential rainfall prediction system was used for actual event management. It was effectively utilized for the event management.
 The Tokyo Olympic and Paralympic Games are good targets for the application of this system.

Call for evacuation to visitors by the broadcasting



※ From Osaka prefecture

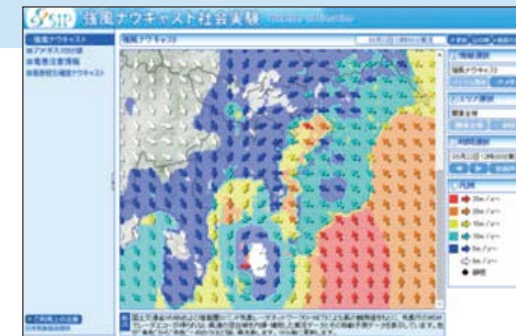
We observed the cumulonimbus developing in the sky. Please be careful about **sudden heavy rain** and take measures such as moving to a place with a roof. Also, the observed cumulonimbus clouds may cause **lightning**; please move quickly to a safe place such as in a building.



case 3

Nowcast of High Wind

- ◆ High wind predicted over preset speed within 30-min.
 ⇒ Push notification of strong wind information at registration point to mobile phone

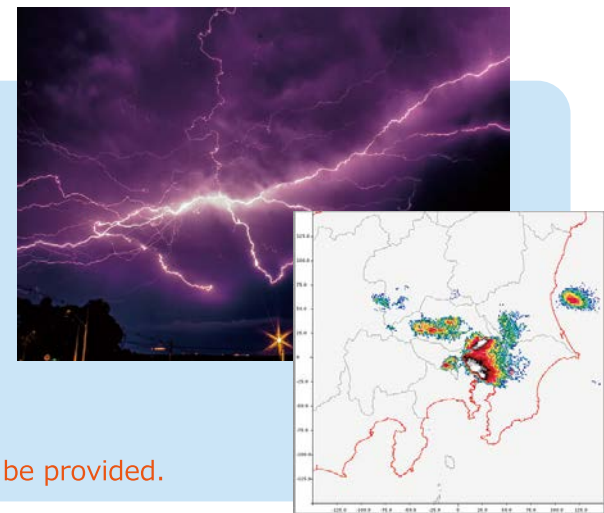


case 4

Lightning Prediction

- ◆ Prediction of cloud-to-ground lightning by extracting lightning-related information (e.g., updraft, graupel) using MP-PAWR
 ⇒ Safety for outdoor events and construction sites, damage prevention in precision instrument factories

※ This application case is not a research product of SIP but can be provided.



case 2

Inundation Prediction

- ◆ The system is capable of delivering an Early Warning on urban flooding as of 40 to 50 minutes before and the alert mail distribution.
 ⇒ Preparation for water sealing plate, traffic regulation, guiding users in underground malls



multi-parameter phased array weather radar

30sec observation for 3-D structure of cumulonimbus!

Advanced Weather Radar MP-PAWR

- ◆ MP-PAWR is installed at Saitama University, Saitama City to overview the Tokyo metropolitan area and cover the many competition venue of the Tokyo Olympics and Paralympic Games in 2020.
- ◆ 3D Recording by a Round of Gyration every 30 seconds enables accurately forecast the rainfall before more than 10 minutes.
- ◆ Rainfall was predicted before 20 min. before, with a precise prediction of precipitation rate.



comparison with existing techniques

introduction effect

