

Press Release

July 26, 2021

National Research Institute for Earth Science and Disaster Resilience
National Institute of Information and Communications Technology
Japan Weather Association
Tokio Marine & Nichido Fire Insurance Co., Ltd.
Tokio Marine dR Co., Ltd.
Mitsubishi Estate Co., Ltd.

Proof of Concept Offered for Up-to-the-Minute Sudden Downpour Prediction System for Outdoor Events and More

**Providing information for Marunouchi Street Park 2021 Summer
Event Manager & Visiting Attendees**

The National Research Institute for Earth Science and Disaster Resilience (NIED; Haruo HAYASHI, President), the National Institute of Information and Communications Technology (NICT; Hideyuki TOKUDA, President), Japan Weather Association (JWA; Ken HARUTA, Chairman), Tokio Marine & Nichido Fire Insurance Co., Ltd. (Shinichi HIROSE, President), Tokio Marine dR Co., Ltd. (Taizo SHIMAKURA, President & CEO), and Mitsubishi Estate Co., Ltd. (Junichi YOSHIDA, President & CEO) will conduct a proof-of-concept experiment to provide responsive weather forecasts with a 30-min lead time for event managers and attendees during the Marunouchi Street Park 2021 Summer event held from August 2nd to September 12th.

■ **Objective**

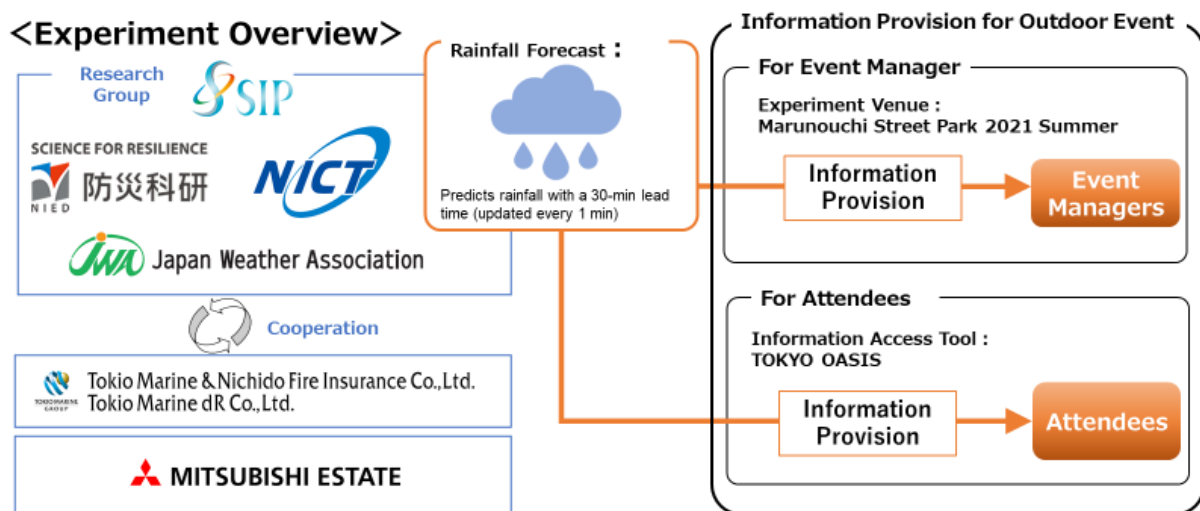
In recent years, the frequency of heavy localized rainstorms (hereinafter “sudden downpour”) in summer season has been increasing, posing an increased risk of sudden weather changes during outdoor events. Therefore, event planners and managers desire for up-to-the-minute weather forecasts. As such, we will conduct a proof-of-concept experiment to provide weather forecasts to event managers and attendees during the Marunouchi Street Park 2021 Summer event^{*1}. This experiment will examine 1) the methods to overcome the risk of sudden downpour for outdoor events and 2) how rain forecasts affect and change outdoor activities.

This proof-of-concept experiment will utilize the “up-to-the-minute downpour prediction system” in response to sudden severe rainfalls, which was developed by NIED, NICT, and JWA (hereinafter “the research group”) in the Cross-ministerial Strategic Innovation Promotion Program^{*2}(SIP). Specifically, the system will use observation data from multi-parameter phased array weather radar (MP-PAWR)^{*3}, which is one of the most advanced weather radars in the world and operated by NICT capable of assessing the three dimensional (3D) structure of cumulonimbus clouds in 30 seconds to analyze cumulonimbus clouds using the method developed by NIED and distribute rainfall forecast information

from JWA with lead times of 10 min, 20 min, and 30 min. This proof-of-concept experiment will try to develop new methods of utilizing MP-PAWR prediction technology in social applications.

The Tokio Marine & Nichido Fire Insurance Co., Ltd. and the Tokio Marine dR Co., Ltd. will also cooperate with the research group to analyze the changes in behavior of the event participants prompted by the high-accuracy weather forecasts and consider the potential for new products and services.

Furthermore, the Mitsubishi Estate Co., Ltd.'s participation in the executive committee of the Marunouchi Street Park 2021 Summer event enables the experiment to be used not only to find new potential applications for this technology in outdoor urban spaces but also to examine the new status quo for Marunouchi Naka-Dori.



Proof-of-concept experiment overview

■Conducted by:

National Research Institute for Earth Science and Disaster Resilience (NIED)
 National Institute of Information and Communications Technology (NICT)
 Japan Weather Association (JWA)
 Tokio Marine & Nichido Fire Insurance Co., Ltd.
 Tokio Marine dR Co., Ltd.
 Mitsubishi Estate Co., Ltd.

■Survey Assistance:

Green Tokyo League

■Experiment Period:

August 2nd to September 12th, 2021

(held in conjunction with the Marunouchi Street Park 2021 Summer event)

■ Information Recipients:

(1) Event Managers

Weather prediction information provided for Marunouchi Street Park 2021 Summer management staff

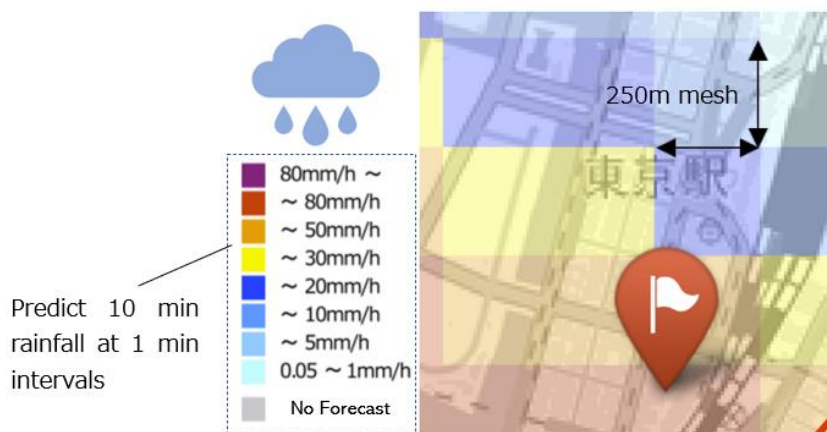
(email alerts, customized webpage display of prediction information)

(2) Attendees

Weather prediction information for area visitors using climate data and delivered via the TOKYO OASIS^{*4} web service, designed to help ensure a comfortable walking experience

■ Weather prediction information:

Rainfall predictions with a lead time of 10, 20, and 30 min delivered at 1-min intervals and at a grid interval of 250 m, based on observation data from the MP-PAWR.



■ Study Contents:

1) Methods to overcome the risk of sudden downpour during outdoor events

(Event Managers)

• Examine the optimizing management operation of equipment and furniture that require protection from rain.

• Examine the operation to regain the bustling event as the rain stops.

2) The impact of rain forecasts on outdoor activities

(Attendees)

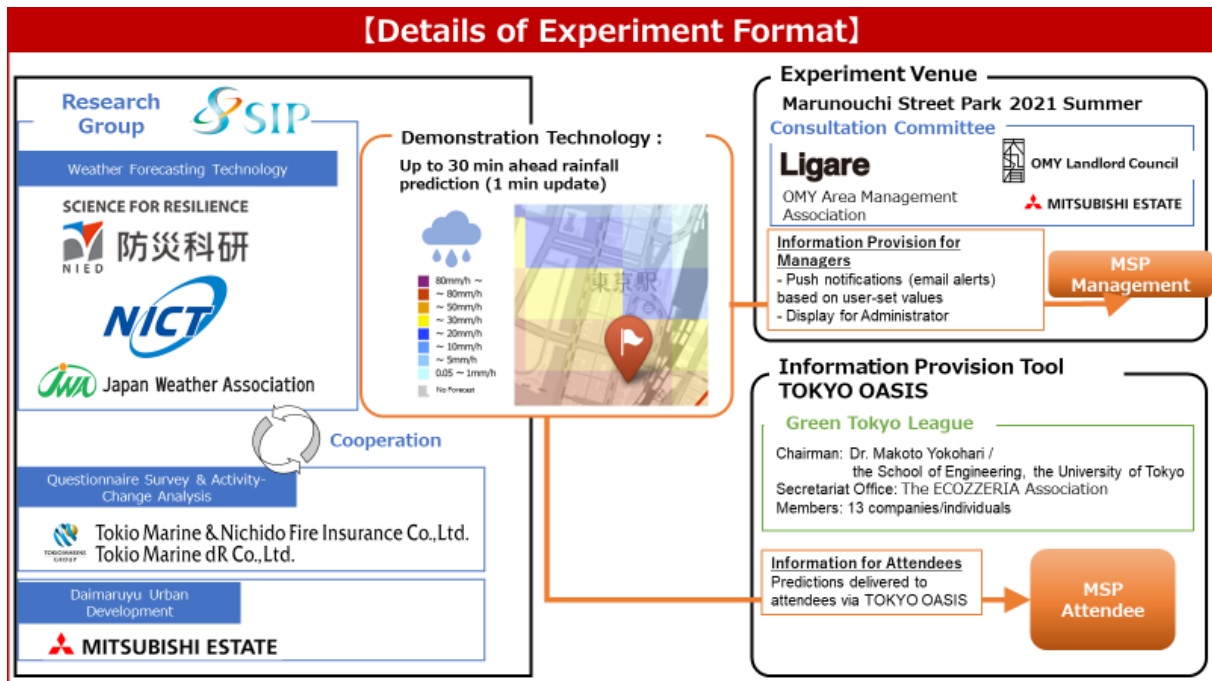
• Behavior in response to receive rainfall forecasts (with lead time of 10–30 min).

• Psychological impact on how people spend their time with knowing that they can have up-to-the-minute rain forecasts.

* This experiment will be conducted with measures to prevent the spread of COVID-19, with staff to clean and install disinfectant solution in Marunouchi Street Park.

Moreover, the signs will be posted requesting attendees to follow masking protocols while dining, avoid shouting while gathered for dining or meetings, and avoid gathering in large groups, in addition to other social-distancing protocols.

*The event may be cancelled if the COVID-19 pandemic is not brought under control.



Notes

*1 Marunouchi Street Park 2021 Summer event overview

Sponsor: Marunouchi Street Park 2021 Summer event committee

OMY Area Management Association

The Council for Area Development and Management of Otemachi, Marunouchi, and Yurakucho

Mitsubishi Estate Co., Ltd.

Event duration: August 2nd to September 12th, 2021

U R L : <https://marunouchi-streetpark.com/>

*2 The Cross-ministerial Strategic Innovation Promotion Program (SIP)

The “SIP” stands for the “Cross-ministerial Strategic Innovation Promotion Program.”

The program was founded in 2014 to encourage the Council for Science, Technology, and Innovation to use its own command capabilities to fulfill a proactive management leadership role that goes beyond the traditional frameworks of government ministries and divisions of scientific fields. A second period of the program was launched in

2018.

(Overview: https://www8.cao.go.jp/cstp/panhu/sip_english/sip_en.html)

*3 Multi-parameter phased array weather radar (MP-PAWR)

The MP-PAWR combines the functions of phased-array weather radar (PAWR) capable of high-speed 3D rain cloud observations at 30-s to 1-min intervals with a multi-parameter (dual-polarization) radar capable of high-precision rainfall measurement. Developed at the first period of SIP, it is currently operated by NICT.

*4 Green Tokyo League/TOKYO OASIS

In September 2019, Dr. Makoto Yokohari of the School of Engineering, the University of Tokyo, assumed chairmanship of the Green Tokyo League, founded through cooperation between the government and private enterprises involved in green and GIS technology, urban weather, and green infrastructure. The committee's goal is to enhance the comfort of Japan's cities in a variety of ways, creating real-time visualizations and simulations in the Otemachi, Marunouchi, and Yurakucho ("Daimaruyu") areas and using the TOKYO OASIS web service, which distributes information on pleasant & comfortable spaces (routes and spots). Started in July 2020 as a social experiment, an upgrade of the TOKYO OASIS service will be launched this summer. (URL : <https://tokyooasis.com>)