

Members' technical presentations

- Japan-

Using Satellite Data for Flood Simulation and Risk Evaluation

**ESCAP/WMO/Typhoon Committee
17th Integrated Workshop (IWS)**

**“Tropical Cyclone Planning, Forecasting and
Response Services for Early Warning and Early Action”**

International Affairs Office, River Planning Division,
Water and Disaster Management Bureau
Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan

MLIT is responsible for policy making, planning, coordination among stakeholders, infrastructure development, risk evaluation & sharing, emergency disaster response, recovery and reconstruction for Water Risks(*).

(*Flood, Drought, Land Slide, Tsunami etc.)

Disaster Prevention and Preparedness



Infrastructure Development



Sharing Risk Information Disaster Risk Education

Disaster Emergency Response



Flood Water Discharge by Pump



Damage Investigation by Specialist

Disaster Recovery and Reconstruction

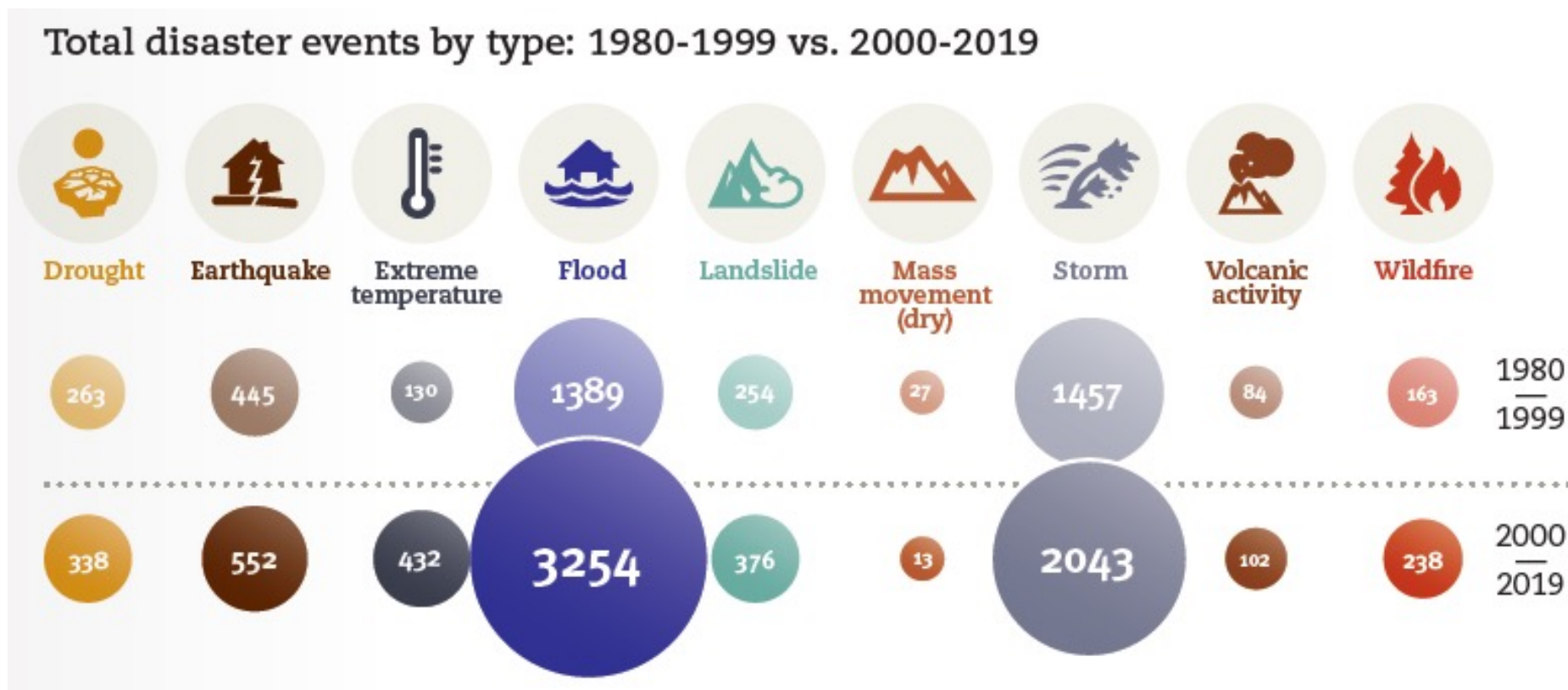


Emergency Repair of Damaged Embankment



Technical Support for Recovery

Priority of the Water-related Disaster Risk Reduction tends to be lower than the other sectors in many countries.





Result of the Water Summit

- ◆ Approximately 5,500 participants*1 including online with the Heads and Ministers of State and Government from 30 countries in the Asia-Pacific region discussed various water-related issues in this Water Summit.
- ◆ His Majesty the Emperor of Japan gave his Remarks and Commemorative Speech at the Opening Ceremony, after that Mr. Kishida, Prime Minister of Japan, announced “Kumamoto Initiative for Water”, and “Kumamoto declaration” expressed the determination by the Heads of State and Government was adapted at the Heads of State and Government Meeting.
- ◆ Nine Thematic Sessions, four Integrated Sessions and two Special Sessions were held to discuss concrete actions to the inquiry by the Heads of State and Government of “Kumamoto declaration”, and “Chair’s Summary” summarizing the answers from the Sessions to the inquiry was announced at the Closing Ceremony.

Water sector plays a vital role in recovering from the pandemic.

Recovery from the pandemic requires **transformation into quality-oriented societies** that are resilient, sustainable and inclusive.

To realize a quality-oriented society, we develop **quality infrastructure for the water sector** by accelerating efforts of improving **governance**, promoting **investment** and providing **science and technology innovations**.

Japan contribute to the solution of water-related social issues faced by the Asia-Pacific region by developing **“Quality Infrastructure”**

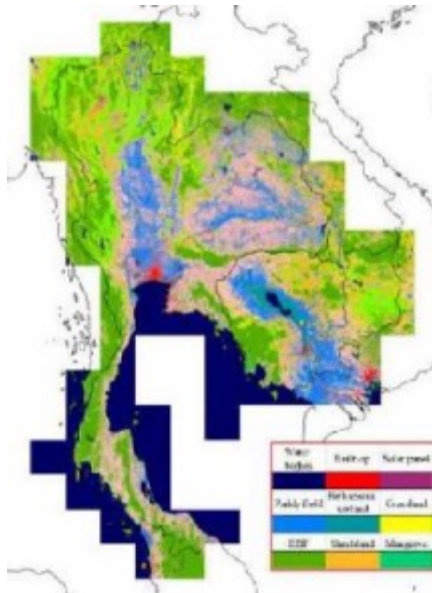
1. Promoting **both** climate change **adaptation** and **mitigation** measures

- Develop and provide **hybrid technology** to develop dams, sewerage systems and agricultural facilities to reduce water-related disaster risks for **climate change adaptation** and also to reduce greenhouse gas emissions for **climate change mitigation**.
- Provide **satellite data** to fill gaps of ground observation data.
- Sophisticate the **evaluation of water-related disaster risks** by the use of AI/IoT-based forecast and analysis technologies.
- Support human resource development.

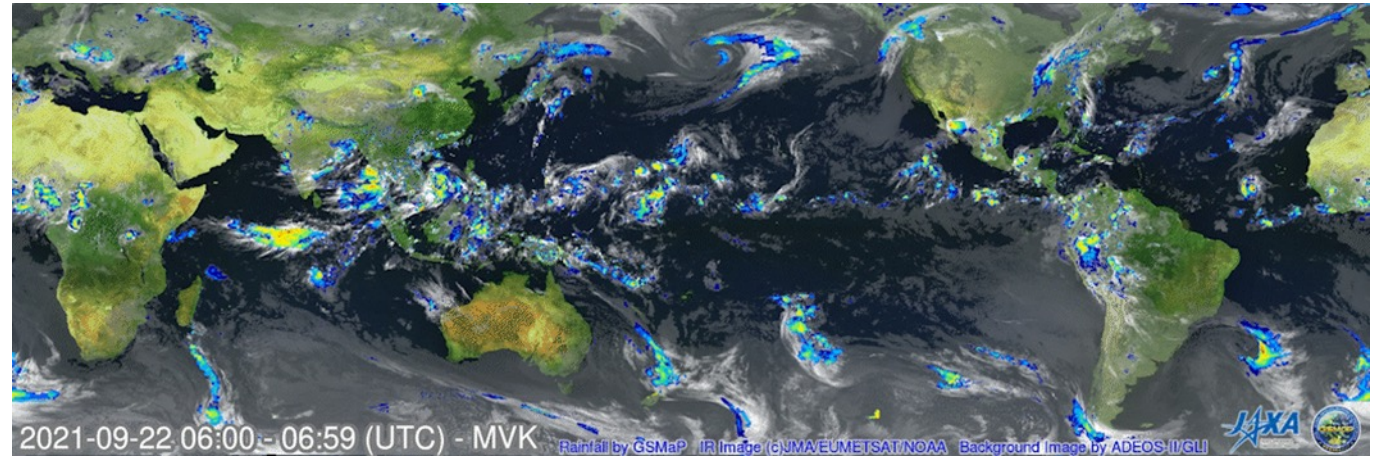
Provide Satellite Data & Creating Climate Change Projection data

Japanese agencies* provide various types of satellite data and create climate change projection data to fill gaps of ground observation data.

* Ministry of Education, Culture, Sports, Science and Technology (MEXT) and Japan Aerospace Exploration Agency (JAXA)

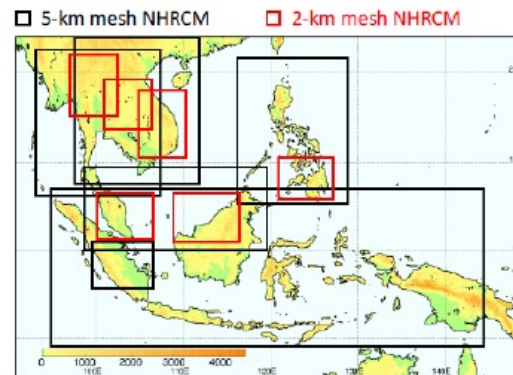


Land use classification by satellite observation

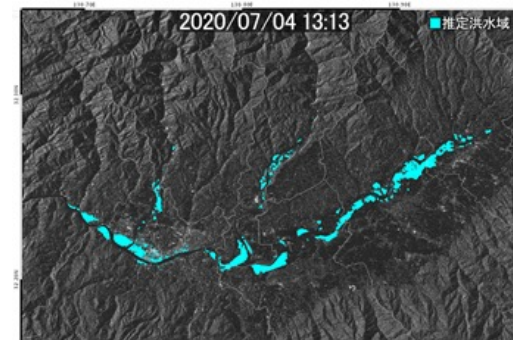


Global Satellite Mapping of Precipitation

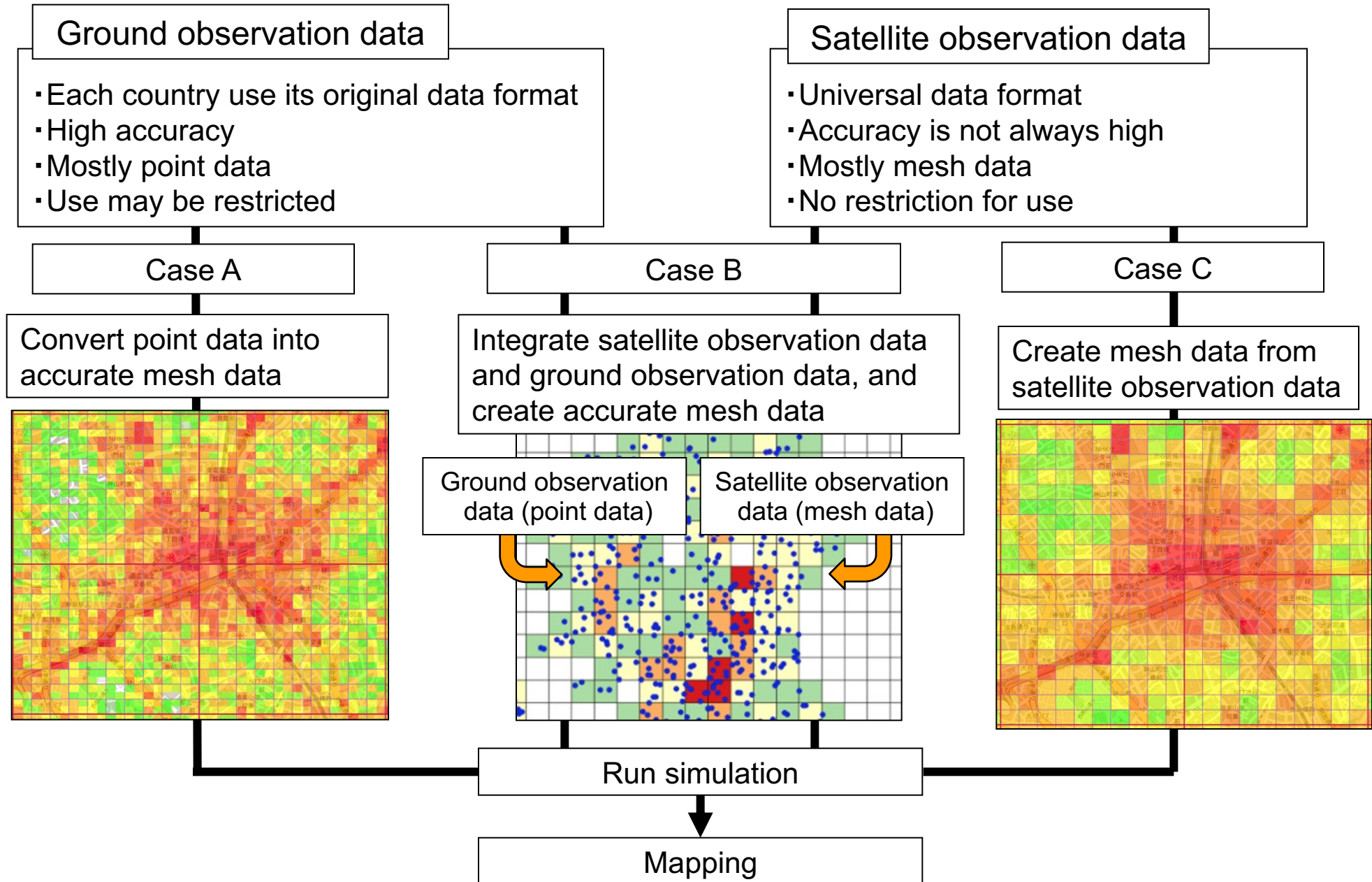
*real-time precipitation data provided by Japan Aerospace Exploration Agency



Creating Climate Change Projection data



Flooded area map by satellite observation



We can't improve the quality infrastructure if we don't know where the risks are.
We can't find the risks if we don't have the flood simulation.
We can't do the flood simulation if we don't have technical skills and necessary data.

Capacity Building



Satellite Observation Data



Data Integration
& Analysis System

Training
Program

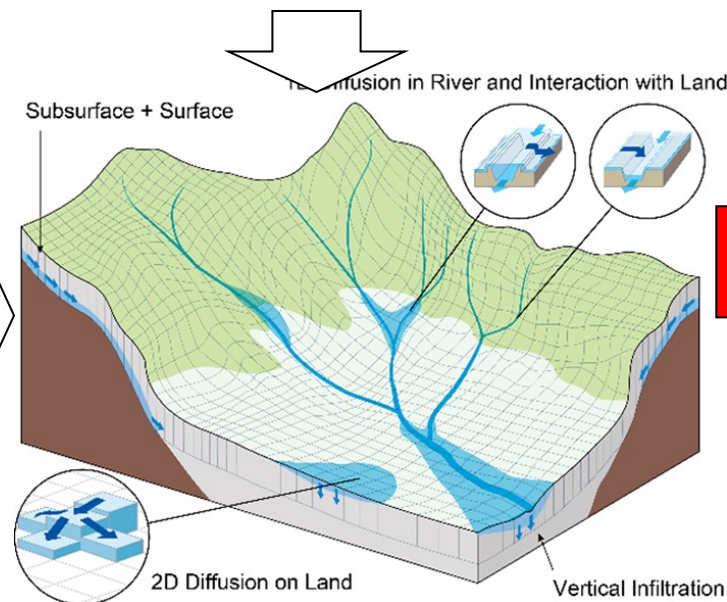
Necessary Data

Surface Elevation Data

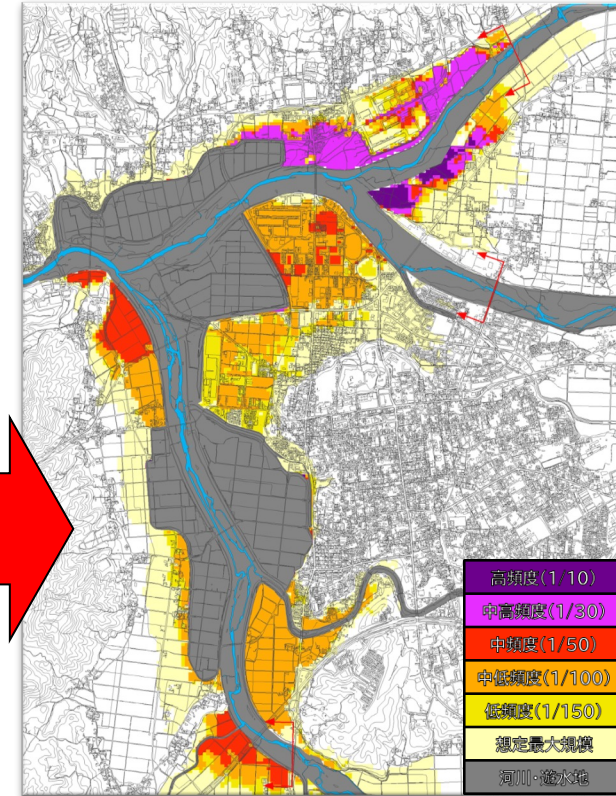
Land Use Data

Precipitation Data
*Real Time
*Climate Change Projection

These data can be obtained
by satellite observation



Flood Simulation
(Rainfall-Runoff-Inundation Model)



Flood Risk Map
& Flood Hazard Map