

Flood Risk Mapping Project Using Satellite Data

Flash talk@ room :Freesia



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6 NOV / 14:30 SAST | 12:30 GMT/ UTC



AGENDA

- 1** 4th Asia-Pacific Water Summit and Kumamoto Initiative for Water

- 2** Flood Risk Map Projects under Kumamoto Initiative

- 3** Required Earth Observation Data



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4th Asia-Pacific Water Summit and Kumamoto Initiative for Water

4th Asia-Pacific Water Summit

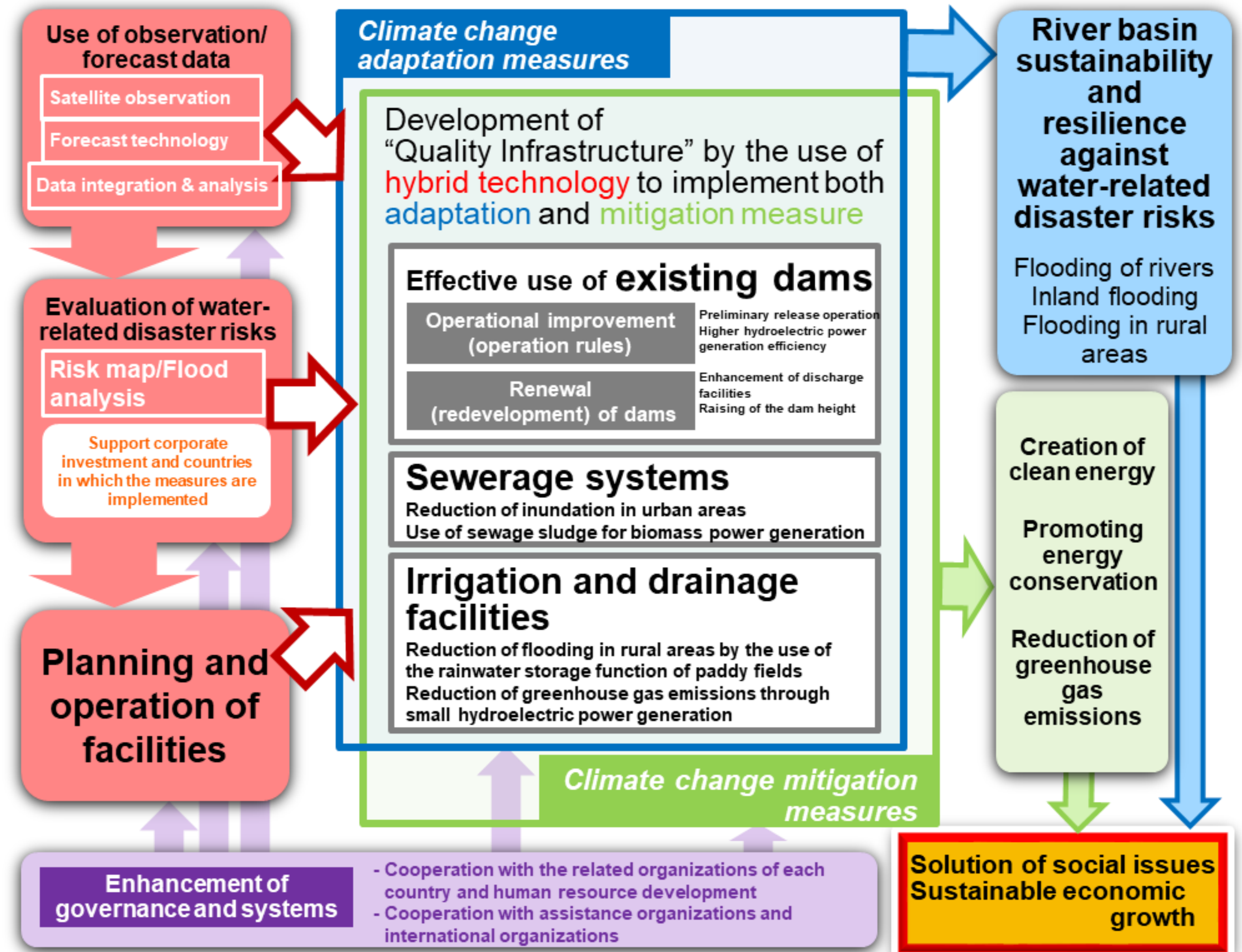


4th Asia-Pacific Water Summit: Outcomes

- 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.

Kumamoto Initiative for Water

- Promoting the development of “Quality Infrastructure”
- **Contribution to fill gaps of observation data**
- Contribution to governance (systems, human resources and capacity)
- Utilization and expansion of the Joint Crediting Mechanism (JCM)

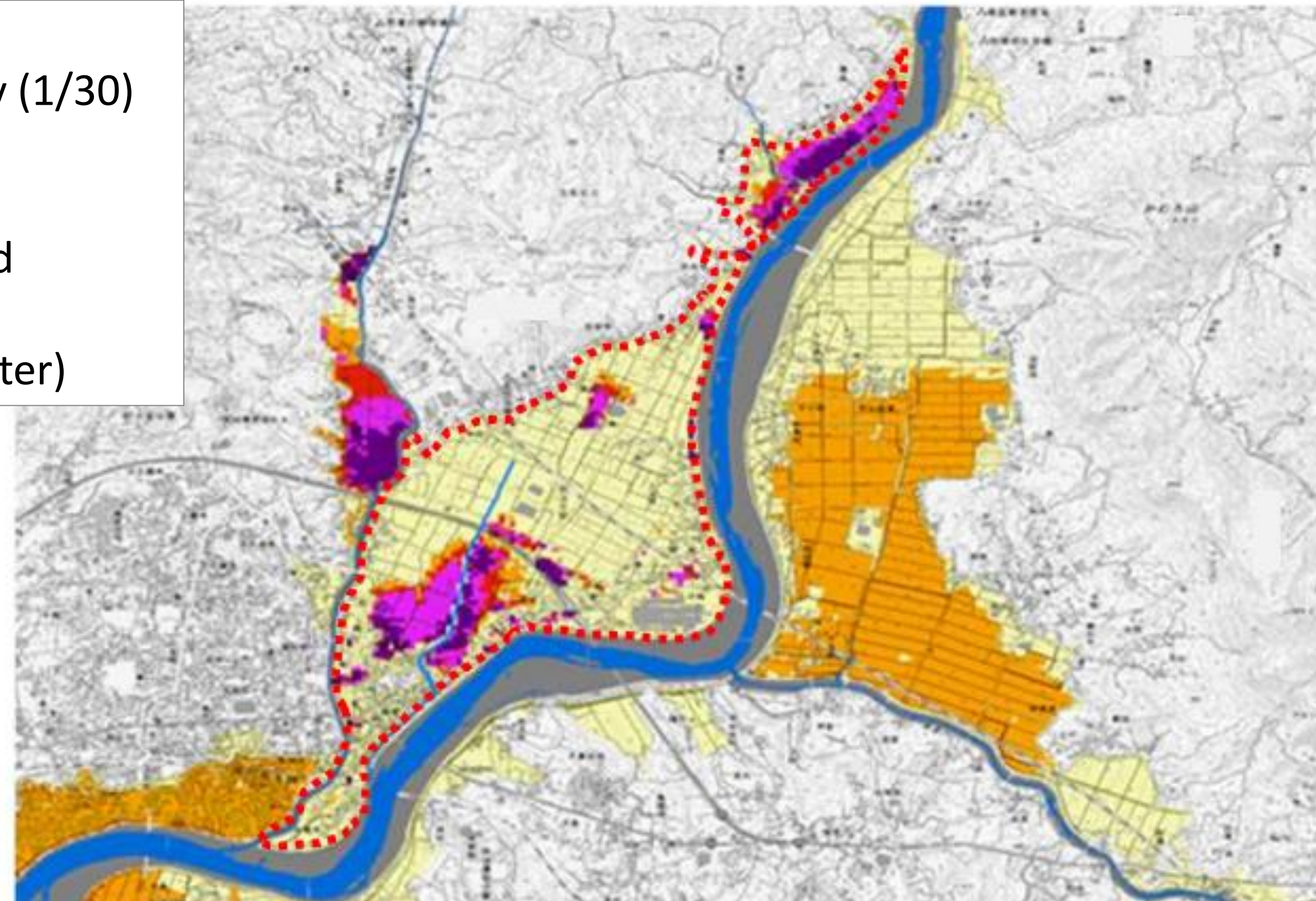
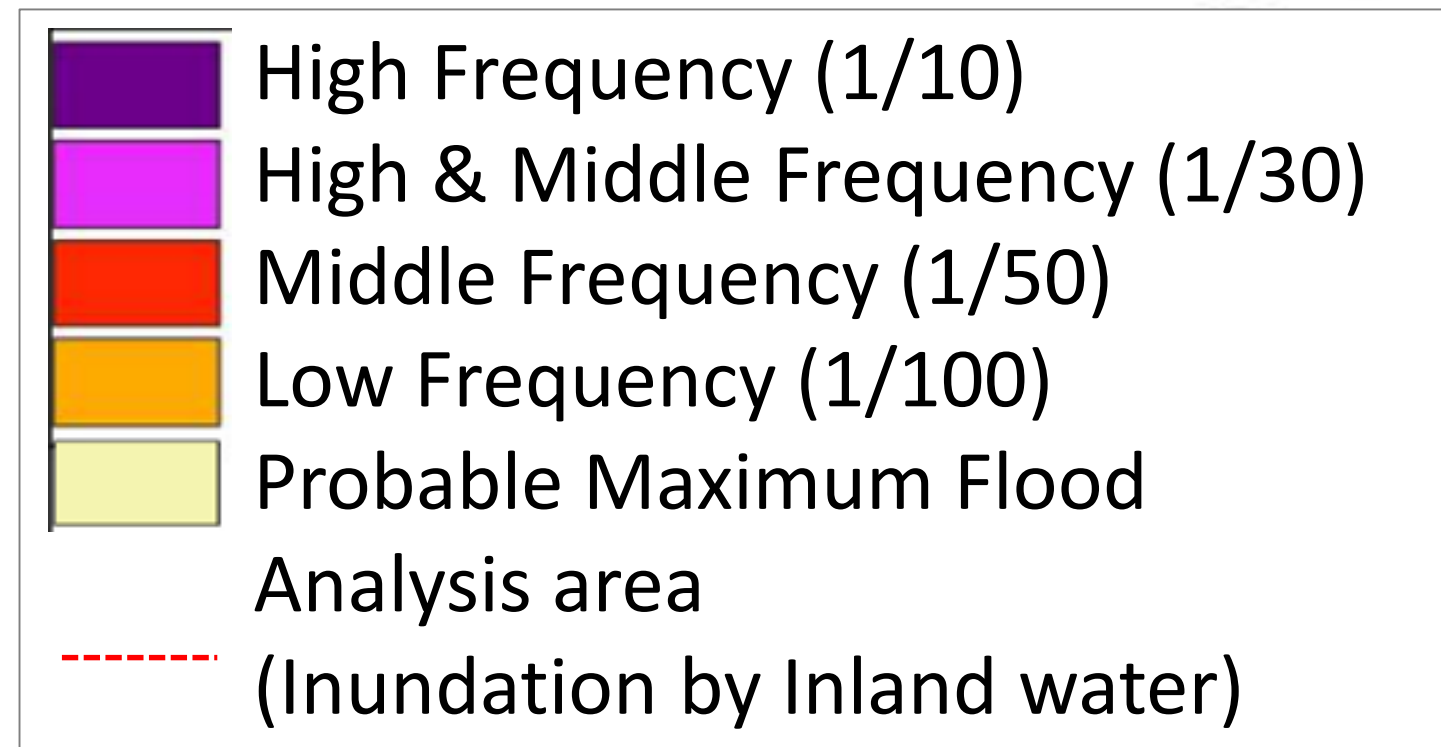




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Flood Risk Map Projects under Kumamoto Initiative

Flood Risk Map



Flood Risk Map

- A map showing the extent and frequency of the flood in more easy-to-understand manner.
- Expected utilization of the flood risk map
 - Visualization of the damage reduction by the improvement of DRR infrastructures such as dams or levees.
 - Wise land use considering flood risk
 - Contribution to ESG considerations
 - Reflection to BCP
 - Evacuation planning

Recipe for Flood Risk Mapping (1/2)

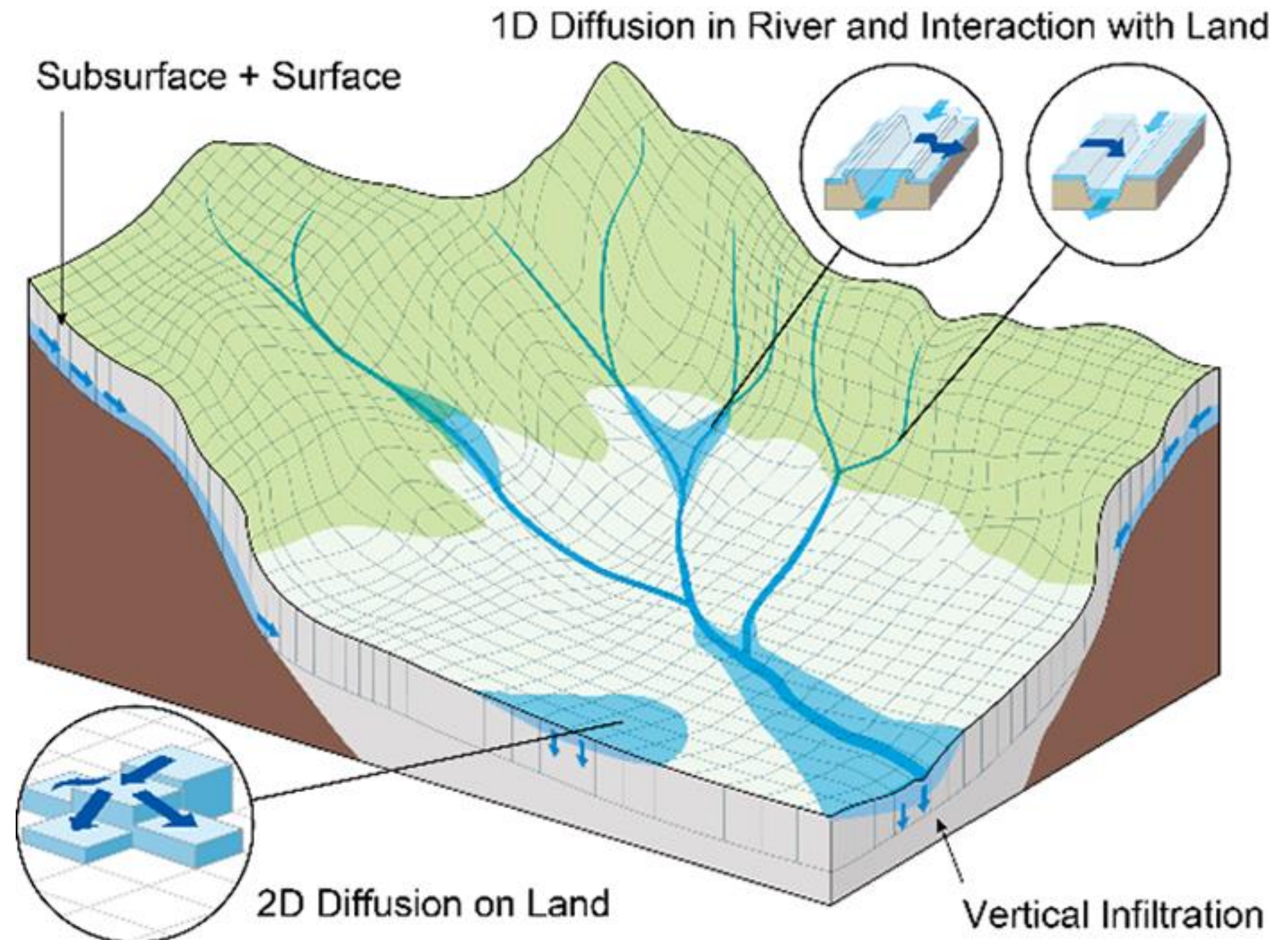
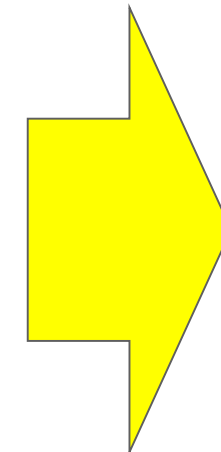
Elevation data

Land use data

Precipitation data

Other data

Combining satellite and ground observation data



Recipe for Flood Risk Mapping (2/2)

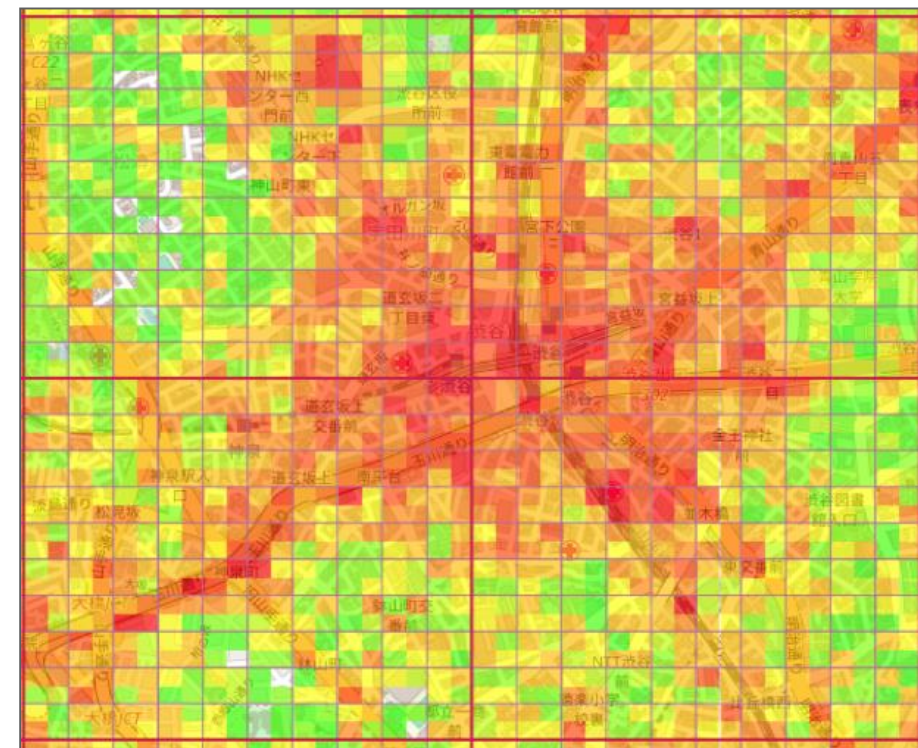
Ground observation data

- Each country use its original data format
- High accuracy
- Mostly point data
- Use may be restricted

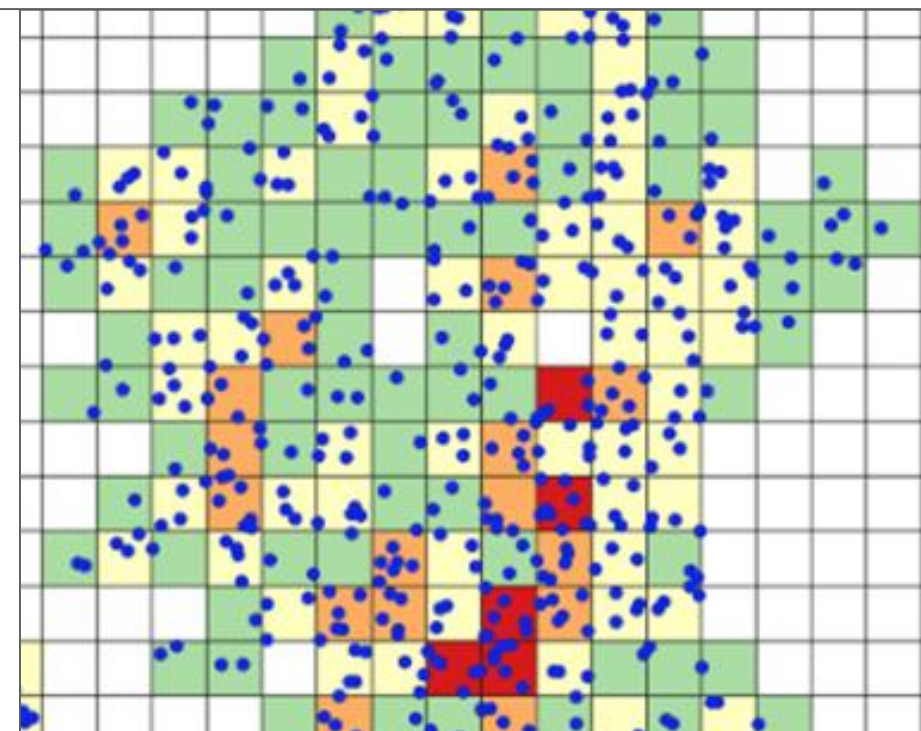
Satellite observation data

- Universal data format
- Accuracy is not always high
- Mostly mesh data
- No restriction for use

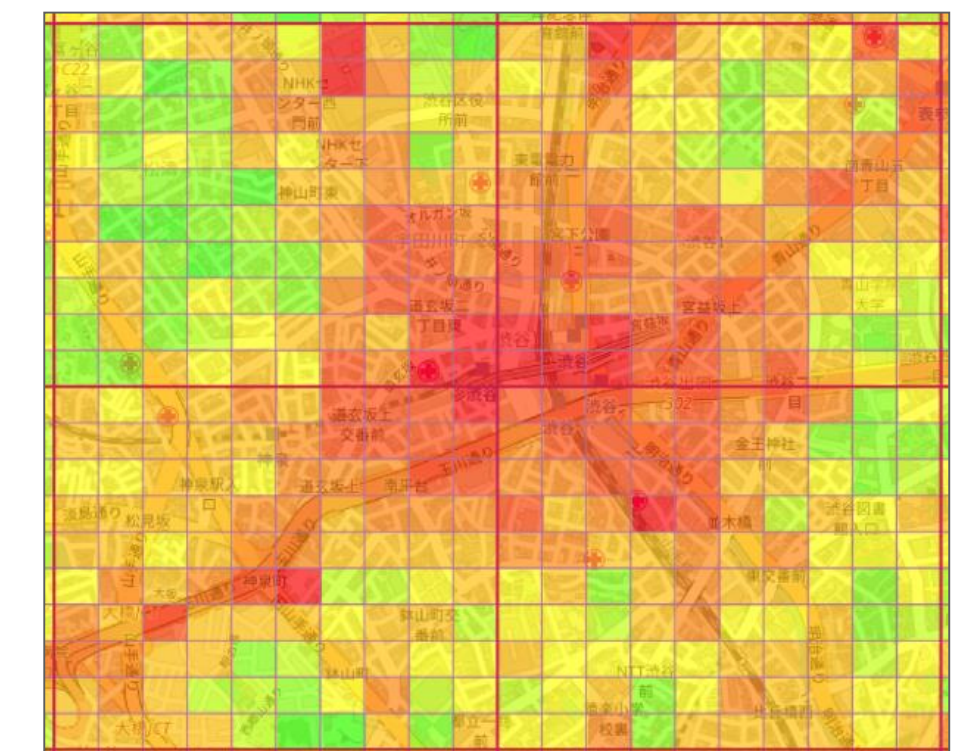
Convert point data into accurate mesh data



Integrate satellite observation data and ground observation data, and create accurate mesh data



Create mesh data from satellite observation data



International Cooperation on Flood Risk Mapping

Goal

Purpose

- ✓ Visualize flood risk changes between current and future condition.

Effect

- ✓ Determination of appropriateness of investment in flood countermeasures
- ✓ Urban development with low flood risk
- ✓ ESG investment and BCP considering flood risk

Schedule

2023-2025

- Study on acquiring method of satellite and on-ground observation data on target countries
- Study on of inundation analysis and risk assessment method using satellite data together with on-ground observation data on target countries
- Inundation analysis and additional countermeasures (such as hazard map, etc.) based of the risk assessment for target countries
- Preparation of manual and guideline about b and c.
- Seminar for the explanation of manual, and the procedure of b to d.



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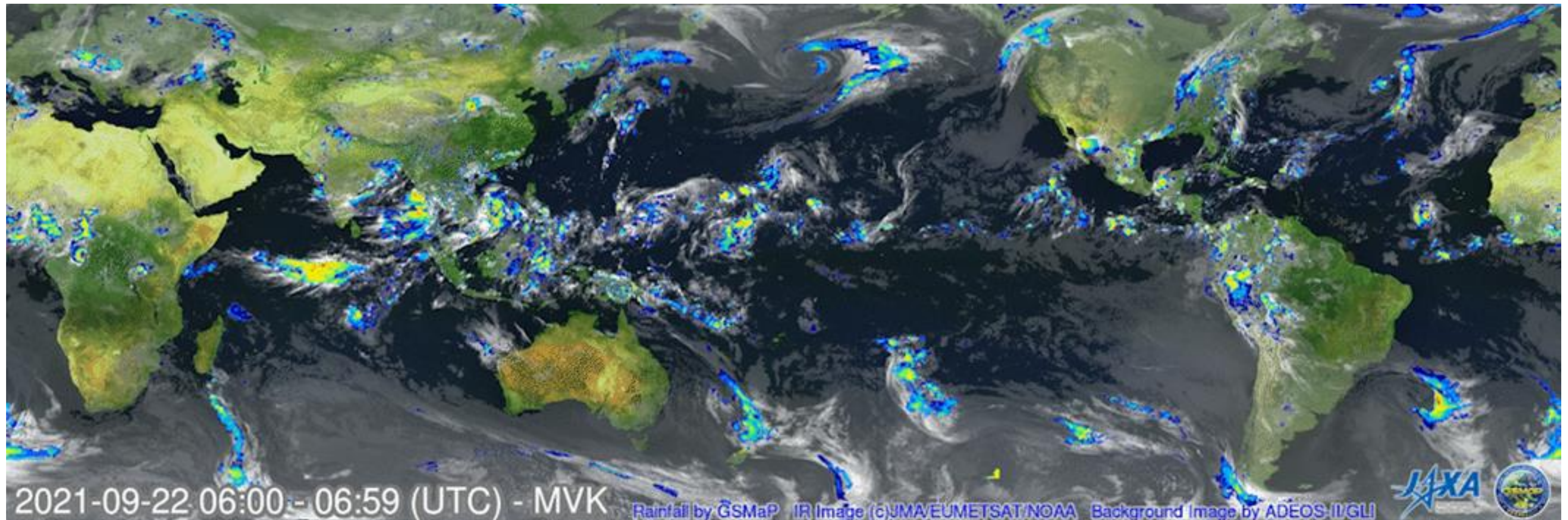
Required Earth Observation Data

Precipitation

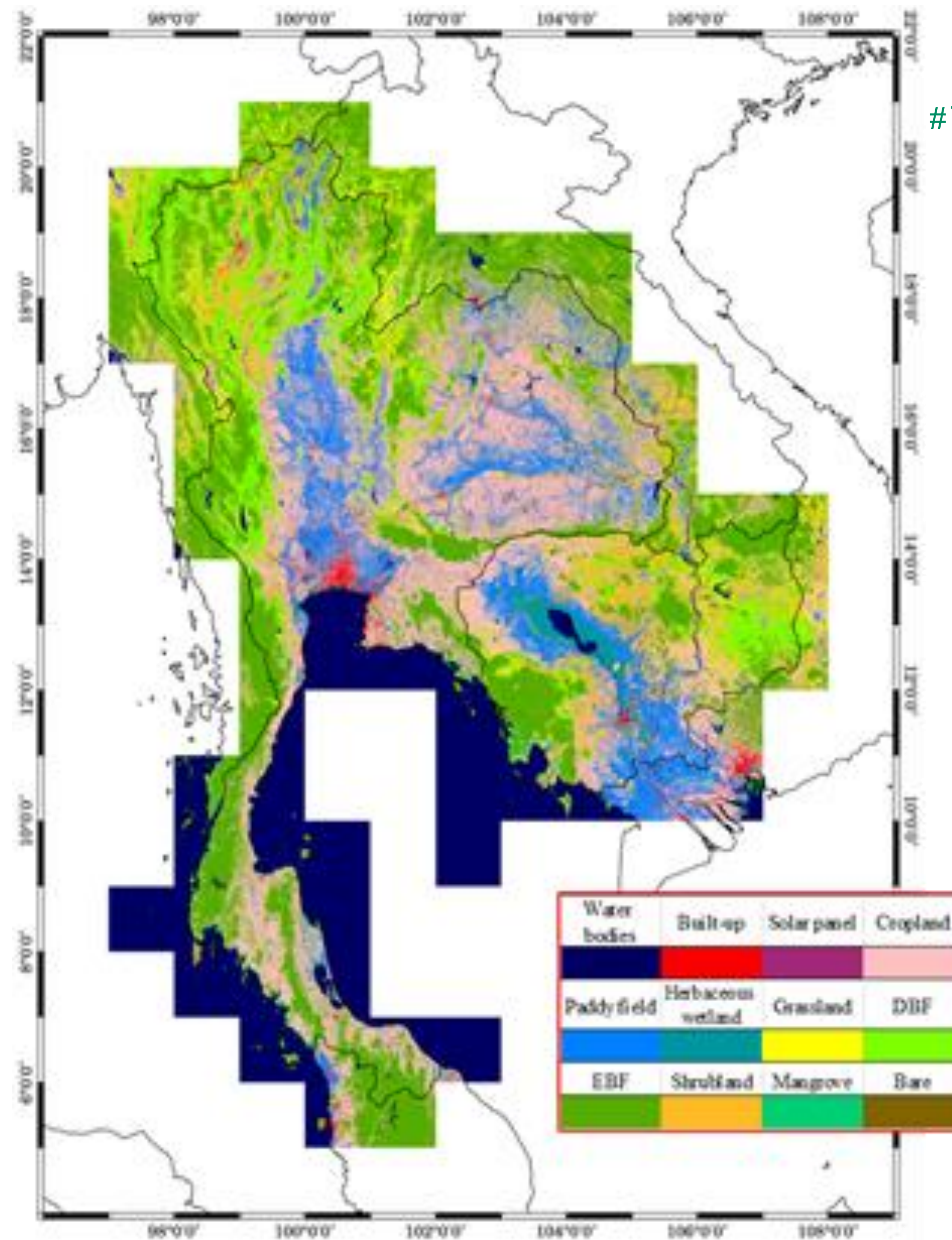


- Global Satellite Mapping of Precipitation (GSMaP)

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



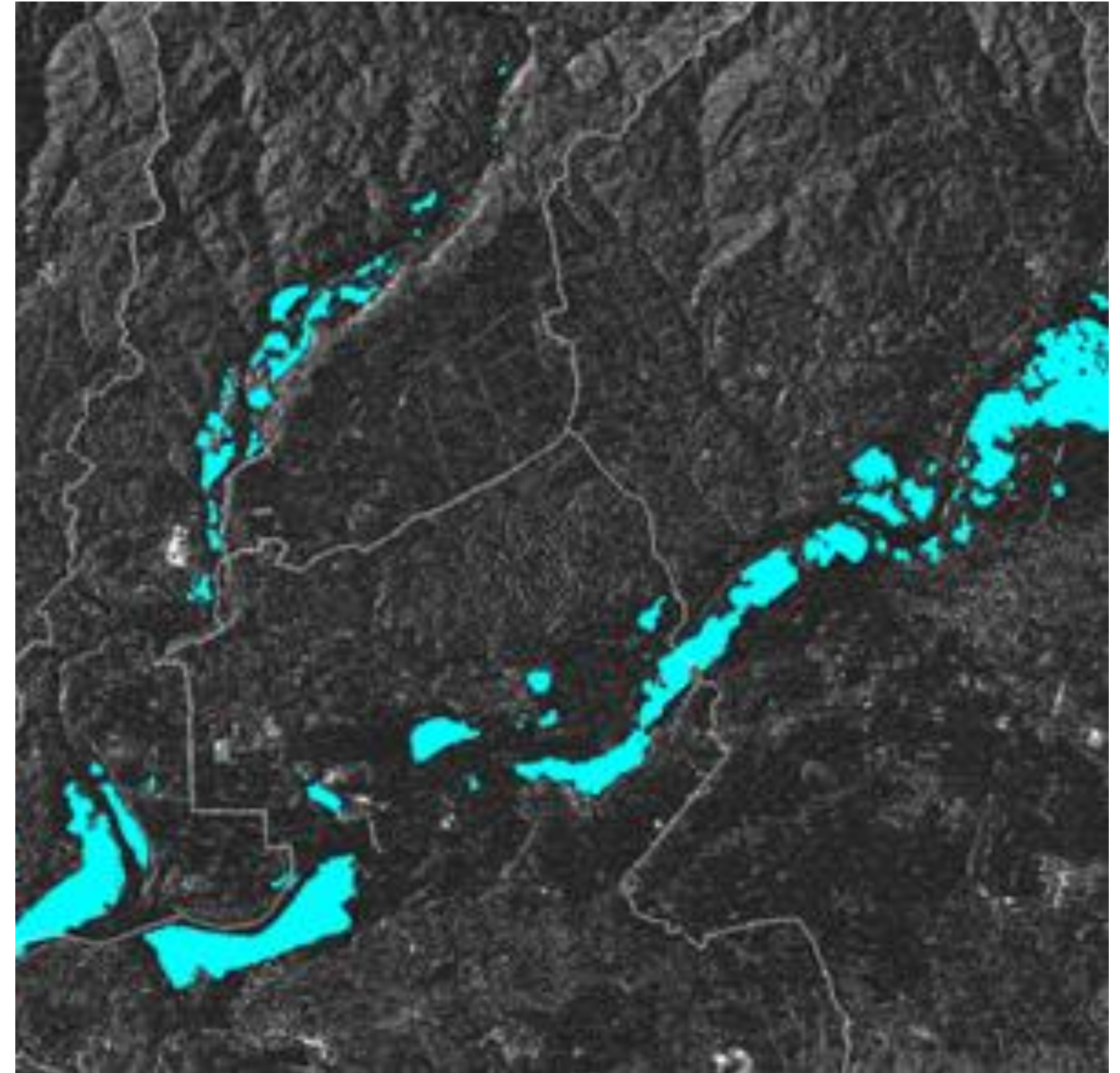
Land use



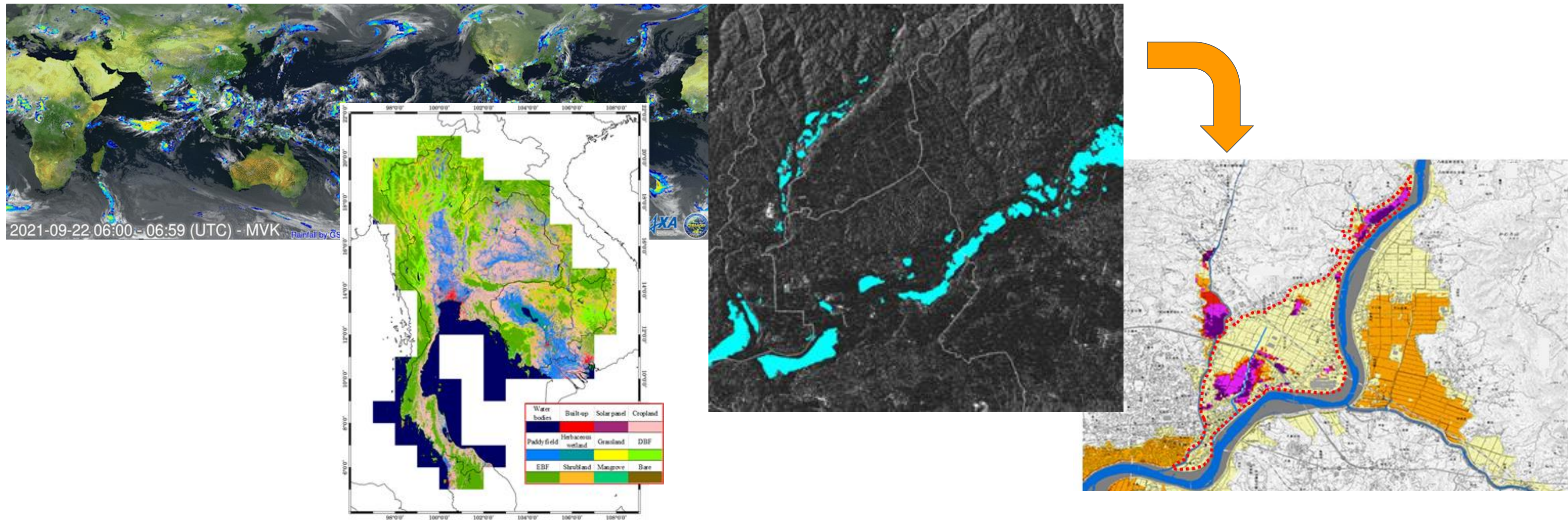
- Classify multiple satellite data to create high-resolution land-use maps

Flood Observation

- Emergency satellite observations during floods



Earth observation to flood risk maps



Summary

Japan's commitment

Under Kumamoto Initiative for Water, Japan has committed to enhance accumulation and evaluation of data for Quality Infrastructure.

Flood risk mapping

Japan start bilateral cooperation on flood risk mapping under Kumamoto Initiative for Water.

Required data

Accurate Earth observation data is required with proper evaluation for the formulation of flood risk maps.

Japan will continue cooperating in flood risk mapping using earth observation data, collaborating with space agencies and the academic sector.

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**Thank you
for your
attention!!**