



4th Asia-Pacific Water Summit
Kumamoto Japan 2022



International Centre for Water
Hazard and Risk Management
under the auspices of UNESCO

Satellite Technology Contributing to Integrated Water and Disaster Management

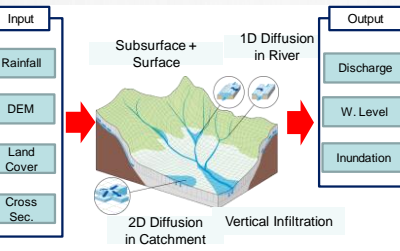
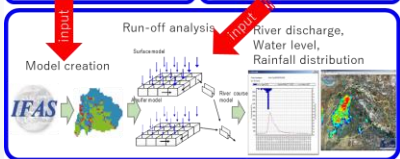
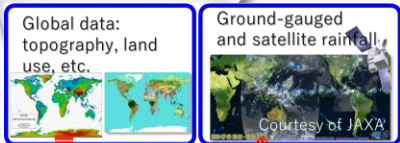
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TSUKUBA, JAPAN

Three Pillars of ICHARM Activities

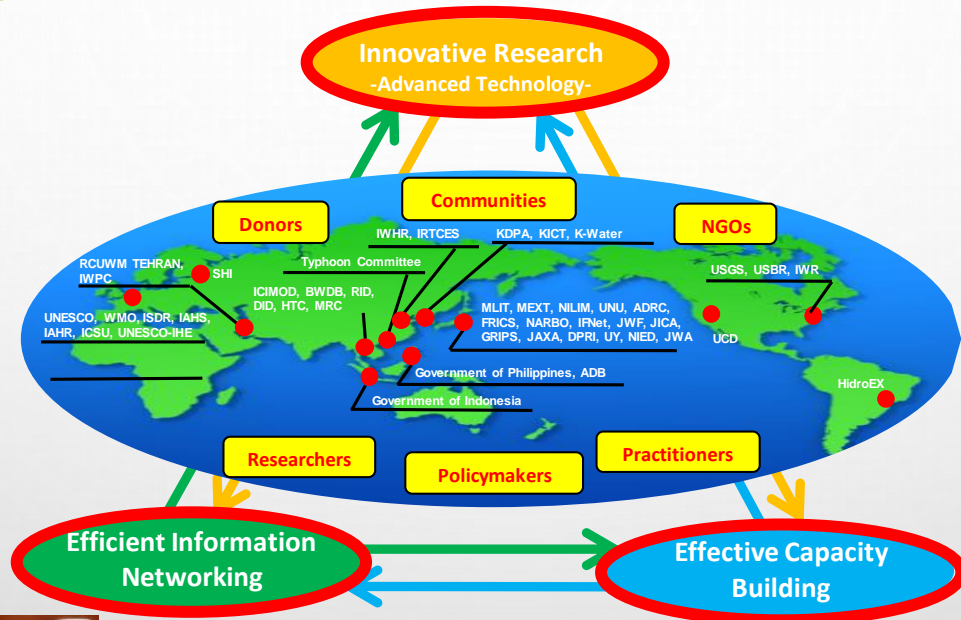
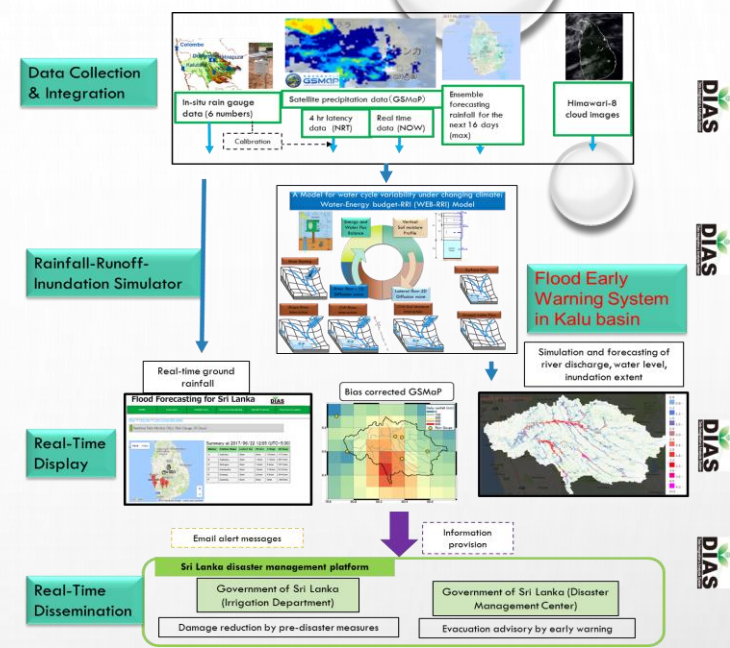


The ICHARM functions on 3 pillars to serve as a knowledge hub for best national/local practices and to facilitate for policymaking

Integrated Flood Analysis System (IFAS)

Hydro-meteorological models & System for early warning & hazard mapping utilizing satellite data

Rainfall Runoff Inundation (RRI) model



on-line Integrated Flood Analysis System for early warning & hazard mapping

- UNESCO-IHP
- **International Flood Initiative (IFI)**
- UN agencies (WMO, UNDRR....)
- Typhoon Committee
- Governments, NGOs, Academia etc.



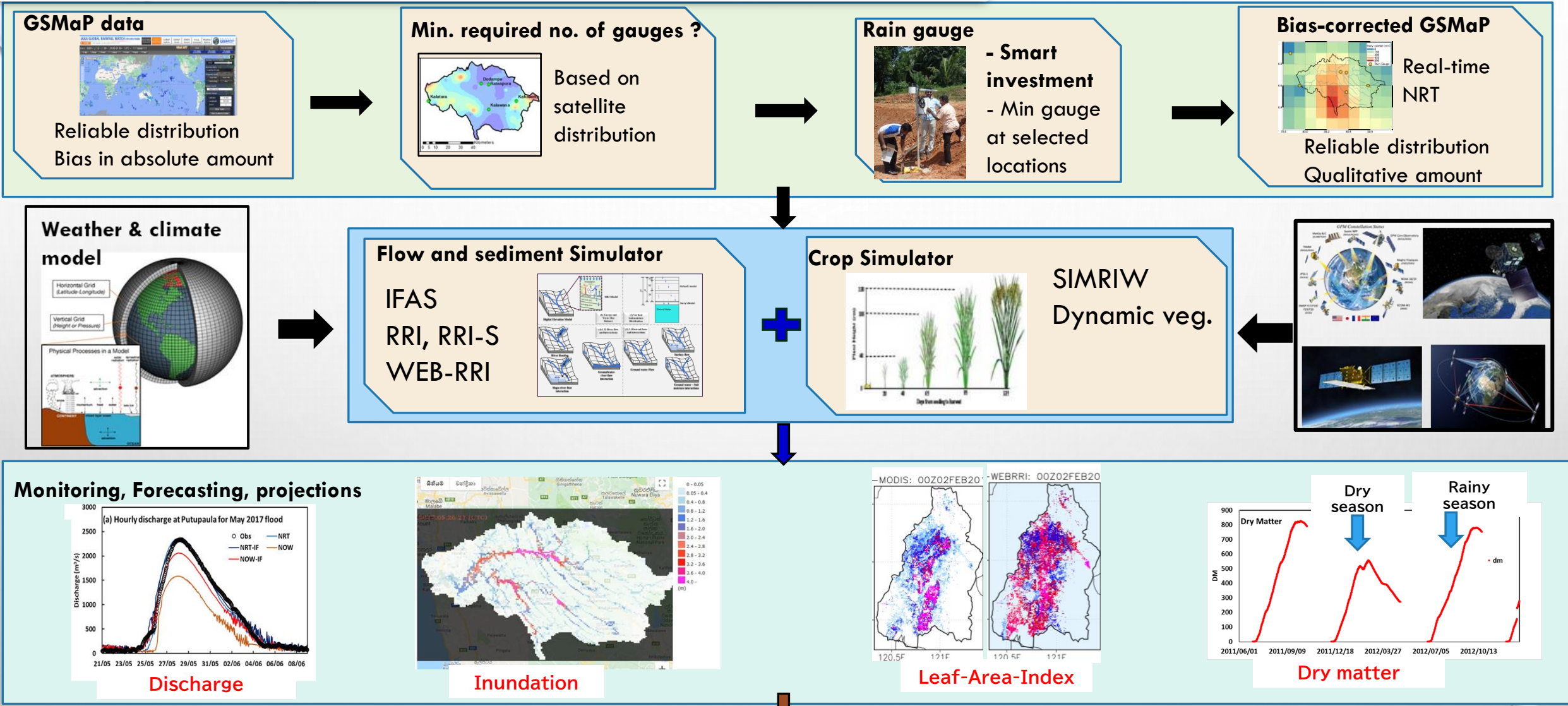
Use of satellite Technology plays a crucial role in our activities

- Short-term training
- Master Course
- Ph.D. Course
- Local training & workshop



DIAS

A System for Integrated Water Resources and Disaster Management



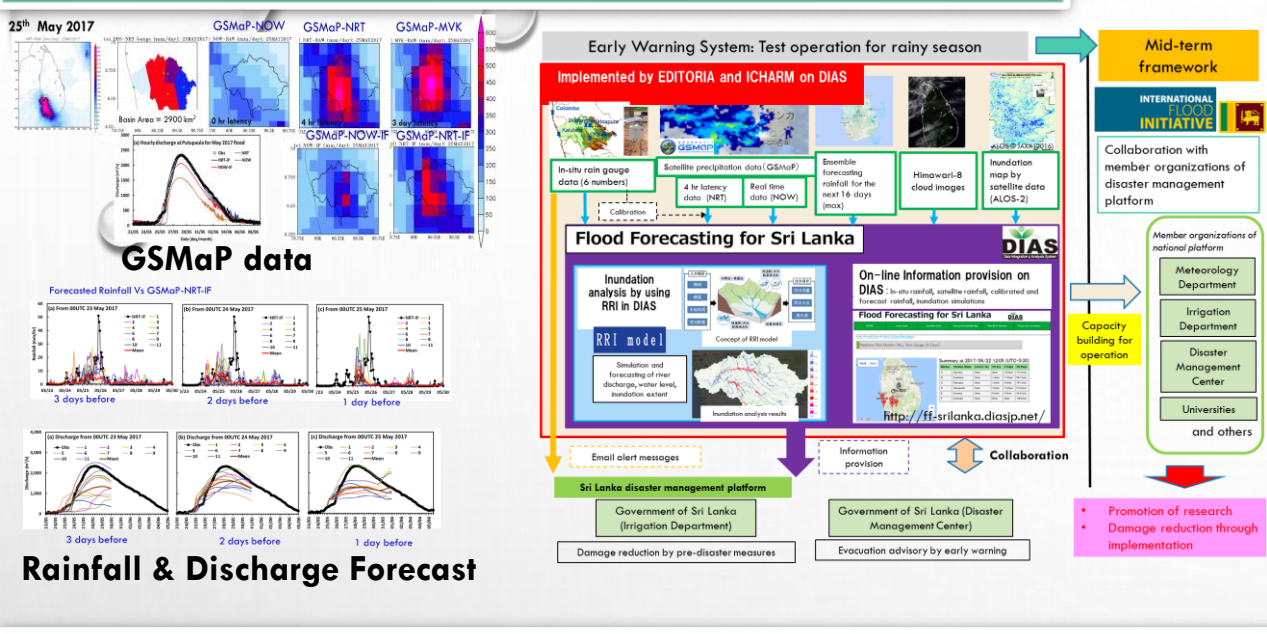
- Sendai Framework
- Paris agreement
- SDGs

Socio-economic Benefits

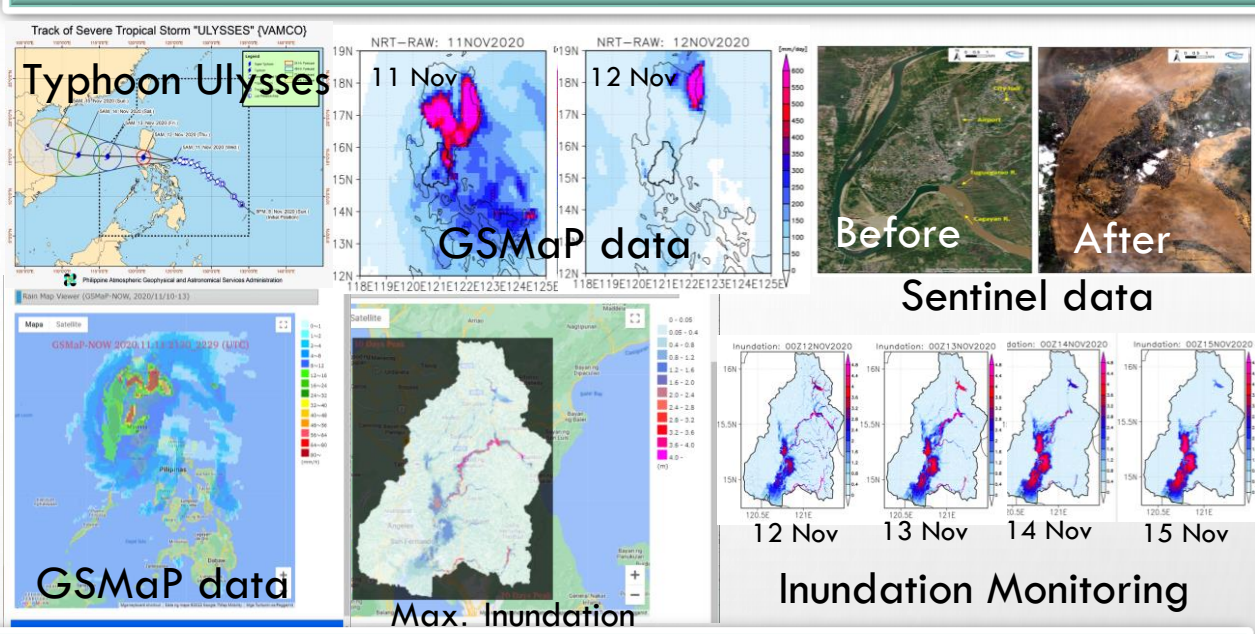
Hazard maps, Disaster Early warning, Assessment of Risk and Damages

Review of irrigation practices, adaptability measures, and impacts on economy

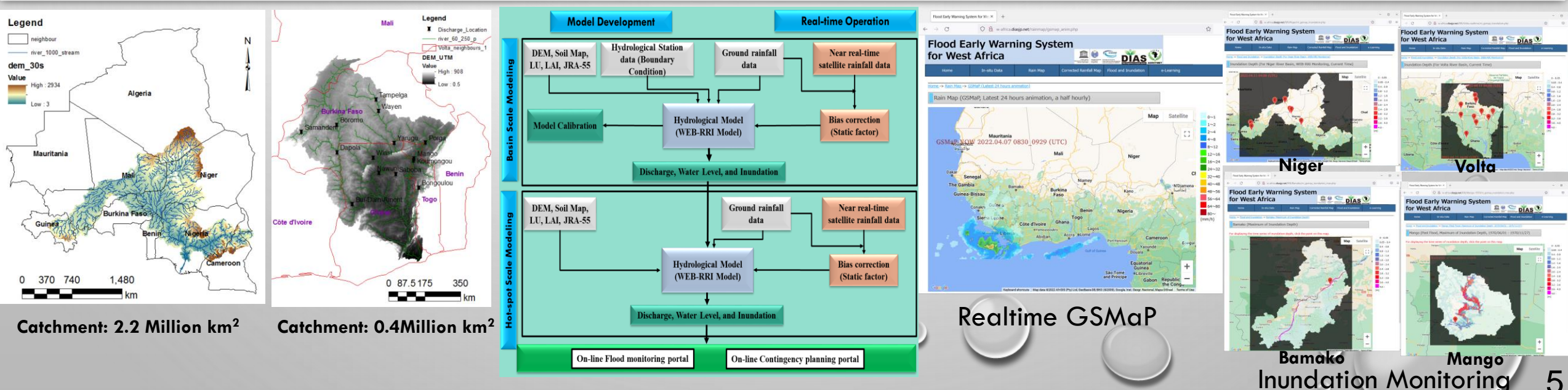
Flood Hazard Forecasting System in Sri Lanka



Flood Hazard Monitoring System in Philippines



Flood Hazard Monitoring System in Niger and Volta River Basin in West-Africa



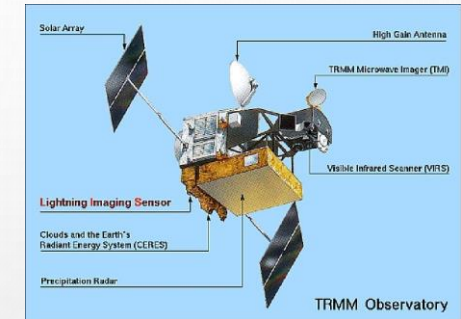
Thank you for your kind attention !!!

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Discussion

- Reliable and timely precipitation information is crucial for DRR activities and risk informed development
- Satellite precipitation estimation is very valuable and have the advantage of high spatial resolution and global coverage, but these estimates have bias in quantity → indirect measurements
- Remarkable progress was made in improving the quality and quantity of satellite estimates

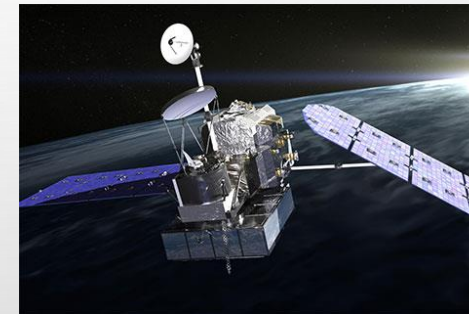
❖ TRMM (1997) – 1st dedicated satellite



TRMM

❖ GPM core satellite (2014) and constellation – Carries advanced sensors

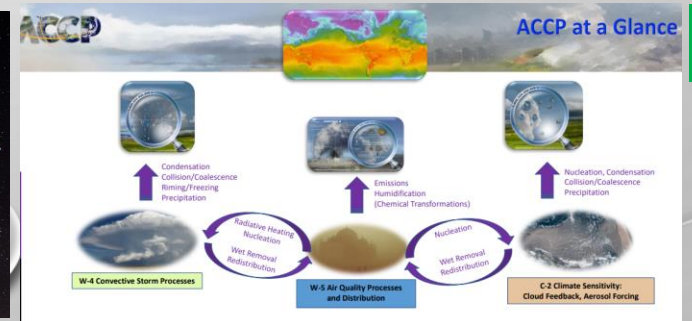
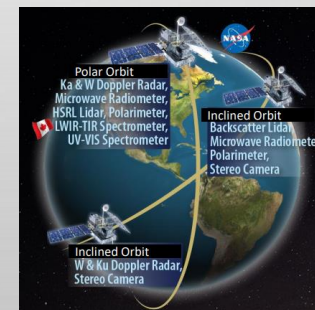
❖ -Provide next-generation global rain as well as snow observations



GPM

❖ ACCP Mission - Aerosol and Cloud, Convection and Precipitation – **Very important and timely**

❖ Understanding the process of clouds and rainfall is very important for accurate rainfall estimates, forecast and flow and crop related estimation.



ACCP

❖ ACCP mission will advance the precipitation estimates by understanding the linkage among Aerosol, Cloud, Convection, and Precipitation.