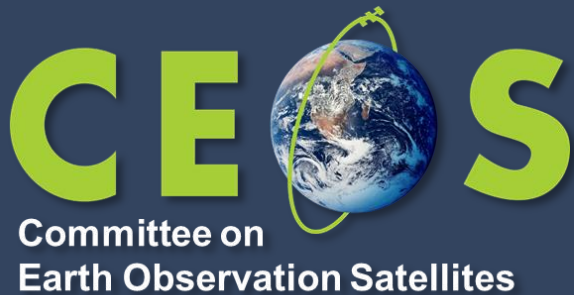


WGISS-61/WGDD-25

*Early Warning For All
(EW4ALL)*



Arijit Roy, ISRO

Agenda Item 1.10

WGISS-61 and WGDisaster-25

16-20 March, 2026

Dehradun, India

Four pillars of EW4ALL

- Pillar 1. Disaster risk knowledge - led by the United Nations Office for Disaster Risk Reduction (UNDRR)
- Pillar 2. Detection, observation, monitoring, analysis, and forecasting - led by the World Meteorological Organization (WMO)
- Pillar 3. Warning dissemination and communication - led by the International Telecommunication Union (ITU)
- Pillar 4. Preparedness and response capabilities - led by the International Federation of Red Cross and Red Crescent Societies (IFRC)

- ❖ EW4All coordination between WG Secretariat, CEOS CEO, CEOS SEO, GEO DRR, UNOOSA, etc + SDGs.
- ❖ In SIT-39 meeting April 2024 in Tokyo, WMO requested CEOS to support the EW4ALL initiative.
- ❖ In SIT Technical Workshop September 2024 in Sydney, CEOS discussed and decided WGDisaster to consider how CEOS will support the initiative.
- ❖ Subsequently, WGDisaster organized a subgroup to coordinate the topic.
- ❖ Workshop Mid 2025 to interact with the Pillars of EW4ALL especially with Pillar 1 and 2 which is more in sync with CEOS WG-Disaster.
- ❖ Proposal for carrying out EW4ALL within CEOS-WGD in selected areas.

IN WGD-24 IT HAS BEEN DECIDED TO CONTINUE THE EW4ALL SUBGROUP AS AN INTERNAL ACTIVITY OF CEOS WGD AND EXPLORE HOW THE PILLARS CAN BE ONBOARDED

Satellite Remote Sensing for development of Early Warning Systems



❖ Hazard Detection & Monitoring

- ✓ Cyclones, floods, droughts, wildfires, landslides, avalanche, volcanoes tracked in near-real time, Glacial Lakes.

❖ Risk & Vulnerability Mapping

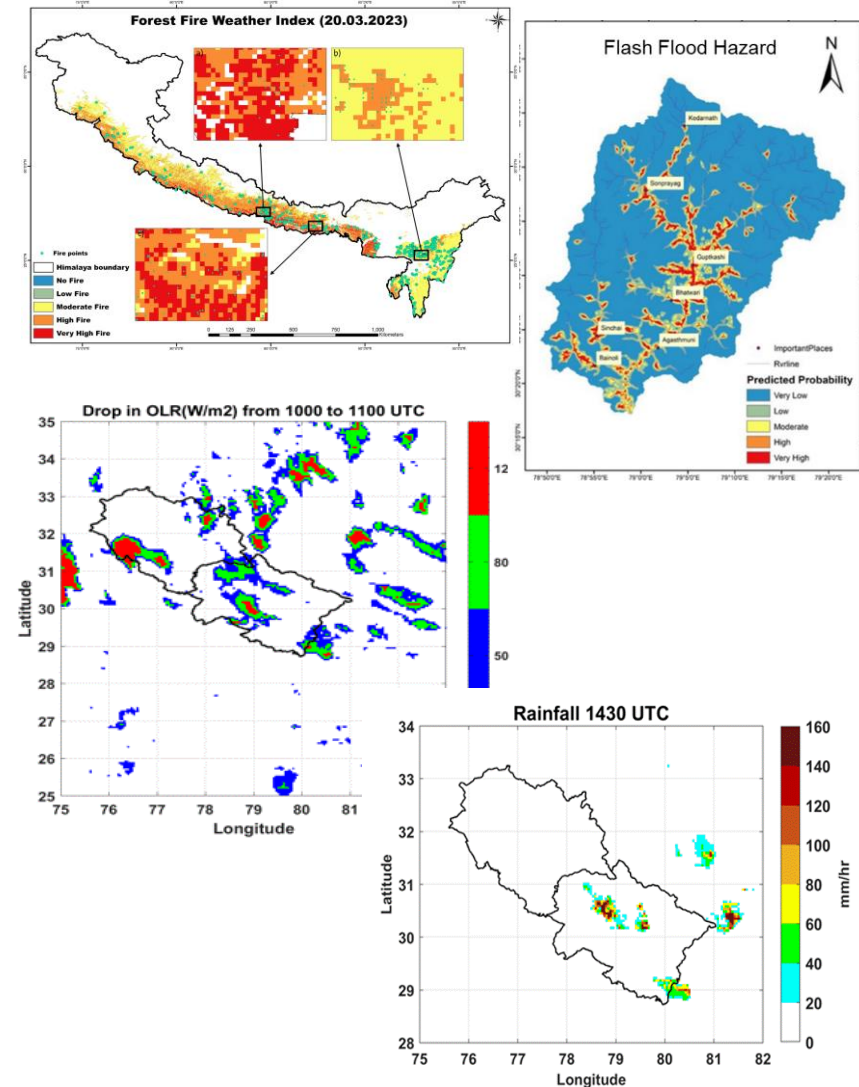
- ✓ Identifies flood plains with return period, slope deformation, deforestation, glacier retreat zones, wildfire regimes, heat waves and extreme rainfall events, Avalanche hazard zonation.

❖ Forecasting & Prediction

- ✓ Inputs for weather, climate, cyclones/typhoons,
- ✓ hydrological modelling for GLOFS and flood inundation.
- ✓ Geological hazard modeling (*landslide, earthquake precursor, etc.*),
- ✓ fire weather, heat wave forecast, etc.
- ✓ Vegetation indices & soil moisture for drought prediction.

❖ Real-time Decision Support

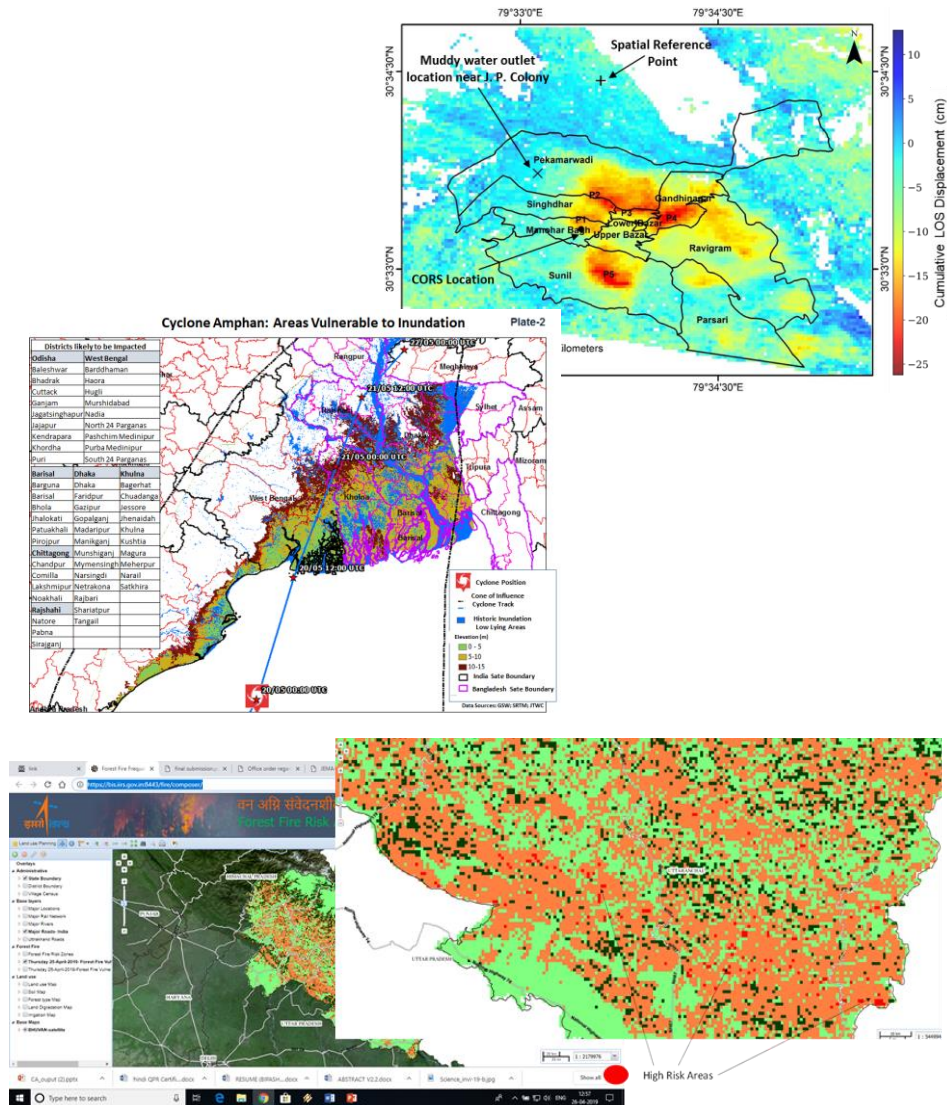
- ❖ Thermal/infrared for fire & volcanic eruption monitoring.
- ❖ SAR/InSAR for land deformation & landslide precursors.



- ❖ Advance InSAR techniques for landslide risk and slope deformation– PS-InSAR/SBAS techniques and free SAR data (Sentinel 1 and NISAR)
- ❖ Cyclone prediction and forecasting: Cyclogenesis, Predicting path and landfall – Using Geo-Stationary satellites (GEOS, INSAT.....) and Models
- ❖ Extreme Rainfall Events: Macro Physical studies and cloud-resolving modeling.
- ❖ Satellite based fire weather Indices for fire risk and wild fire regimes for mitigation policies.



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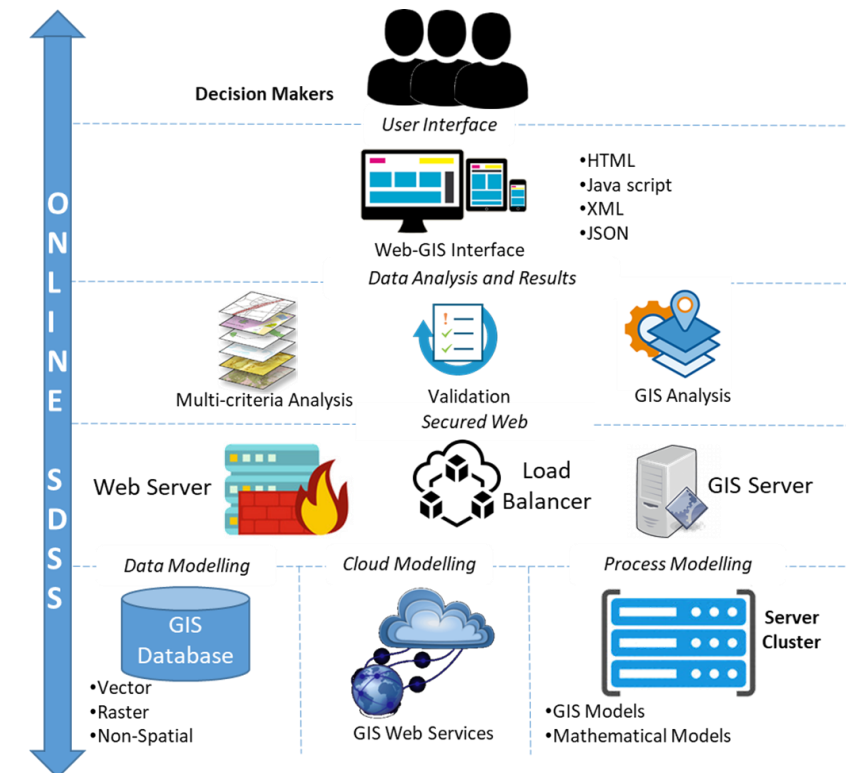


Decision Ready Data in EW4ALL



Reference: WGISS - 60

- ❖ Actionable data Linked to specific decision Goal
 - Clear associated actions for each of the scenario
 - Accurate and Reliable
 - Relevant for a specific Time
- ❖ DRD and Decision Support System
 - Generating Clear Insights from satellite data
 - Improved Interoperability
 - Make Information accessible to Non-Experts
 - Bridge Scientific Data Providers and Decision Makers



Courtesy: Harish Karnatak, IIRS

- ❖ Subgroup Membership
- ❖ Identification of domains and Leads – ***Expression of Interest***
- ❖ Source of funds – **Internal Resources / Existing projects???**
- ❖ Formation of groups and Coordination
- ❖ Explore possibility of UNDRR & WMO to be a part of subgroup
- ❖ ARD – DRD – Actionable Data – **Joint proposal with WGISS**
- ❖ Dissemination through web-portals and Development of DSS
- ❖ Training, Capacity building and Handholding



Thank you