

UNITED NATIONS | COSTA RICA | PSIPW

CONFERENCE ON SPACE TECHNOLOGY FOR WATER MANAGEMENT

HOSTED BY THE INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE

7-10 MAY, SAN JOSÉ, COSTA RICA



MINISTERIO DE RELACIONES EXTERIORES

GOBIERNO DE COSTA RICA



Prince Sultan Bin Abdulaziz International Prize for Water



T1S4 - Space technologies monitoring flood risk and impact, and relevant climate change adaptations in agriculture

8th May 2024 - 11:00 - 12:30

Moderators: Mandira SHRESTHA and Harriette OKAL



Space technology for flood management:
 Rodney MARTÍNEZ , World Meteorological
 Organisation

 Leveraging multi-satellite remote sensing data and machine learning for flood risk assessment in Nam Ngum river basin, Lao PDR: Sackdavong MANGKHASEUM, Kyushu Institute of Technology, Japan

Satellite-based framework for
 comprehensive assessment of crop loss in flood affected regions: Sindh flood 2022: Sawaid ABBAS,
 University of the Punjab, Pakistan



- Identifying annually flood-prone areas
 to aid communities in developing improved
 agricultural practices: Ana Mirian VILLALOBOS
 VELÁSQUEZ
- 4. Flood Modelling of Cagayan De Oro
 Watersheds: Fe OCIONES, Ecosystems Research
 and Development Bureau, The Philippines
- 6. Analysis of drought flood abrupt
 alternation events and their agricultural impacts
 in Kenya: Betty MAKENA, University of Nebraska
 Linkoln, Red Cross Kenya

Session Speakers and Moderators



Conclusions



1. Floods is the most severe hazards affecting millions globally - floods is the **deadliest hazard** in the world



2. **Compounding events** are becoming a major challenge – floods, droughts, landslides, glacier melting



3. Many applications and tools are available - Flash flood guidance system



4. Opportunity to use **AI and ML** to improve EWS using impact-based monitoring



5. **EO** fills in the existing **data gaps** for precipitation, flood modelling and inundation mapping e.g., use of GPM, Sentinel data etc.

Conclusions... cont'd



6. **Out scaling and upscaling of methodology**, lessons learnt is important – for example crop damage estimation during floods



7. Geospatial Information Technology/GIS can be used to understand risk and vulnerabilities and sensitivity analysis to support decision making example additional based buffering of land-use and vulnerability to flooding



8. EWS is a prerequisite to prepare communities for minimizing losses and adaptive capacity



9. Space technology provides support for the estimation of impacts, damages and losses, especially in crop areas, due to the occurrence of extreme events.



10. Long lasting **capacity building** is essential – training and education in satellite meteorology

Gaps



Use: There are many data, information, and tools available, however, their use and applications is a challenge – How to ensure their effective and efficient application?



Capacity building on access, interpretation and use of the various datasets and tools is limited at all levels from regional, national and local



Uptake: There are some examples of some good practices but gaps in its uptake

Recommendations

Loss and damage estimation : An integrated analysis with dimatic and economic datasets cilizing space-based applications are recommended for stimations of loss and damage.	Application of AI tools: AI applied in chatbots to improve the communication with users in the agricultural sector and for risk management e.g. Chato in El Salvador	Development of flood susceptibility models for disaster risk reduction	Development of EWS: for all four pillars – risk knowledge, monitoring and warning, Communication and dissemination and response capability
Access to satellite data: Platforms for easy access to various satellite data and information	Geospatial information Technology: a tool for vulnerability and risk assessment for decision making and influencing policy in DRR and many other sectors	Institutional capacity building: to ensure access, interpretation and use of satellite data and information	Raising awareness and co- development of products for ownership and use
	Community of practice:	Cooperation and collaboration between and amongst	

for learning and sharing

institutions, countries and globally



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Thank you