

6-10 NOVEMBER #TheEarthTalks  
CAPE TOWN, SOUTH AFRICA

---

# GEO WEEK & MINISTERIAL SUMMIT 2023

---

## Training Workshop

---



# Training Workshop

## Earth Observations (EO) Solutions for the Early Warnings for All (EW4All) Initiative



Masaki Yasukawa



Katsunori Tamakawa



Adrian Strauch



Jens Danzeglocke



Shanna McClain



Sousan Torabiparizi



Ariesta Ningrum



Giriraj Amarnath



Rui Kotani



Ernest Acheampong

7 NOV / 16h00-17h00 GMT/ UTC



# AGENDA

- 1** Introduction to the EW4All Initiative, the role of emerging technologies, and the goal of the workshop (10 min)

---
- 2** Demonstrations of EO solutions (Total of 100 min)

---
- 3** Conclusion: Way forward

---

# Introduction

---

**Early Warnings for All**

**Role of emerging technologies**

**Goal of Workshop**

---



**Rui  
Kotani**



**Ariesta  
Ningrum**

# GEO GROUP ON EARTH OBSERVATIONS

a supporting implementing partner

of

# Early Warnings for All

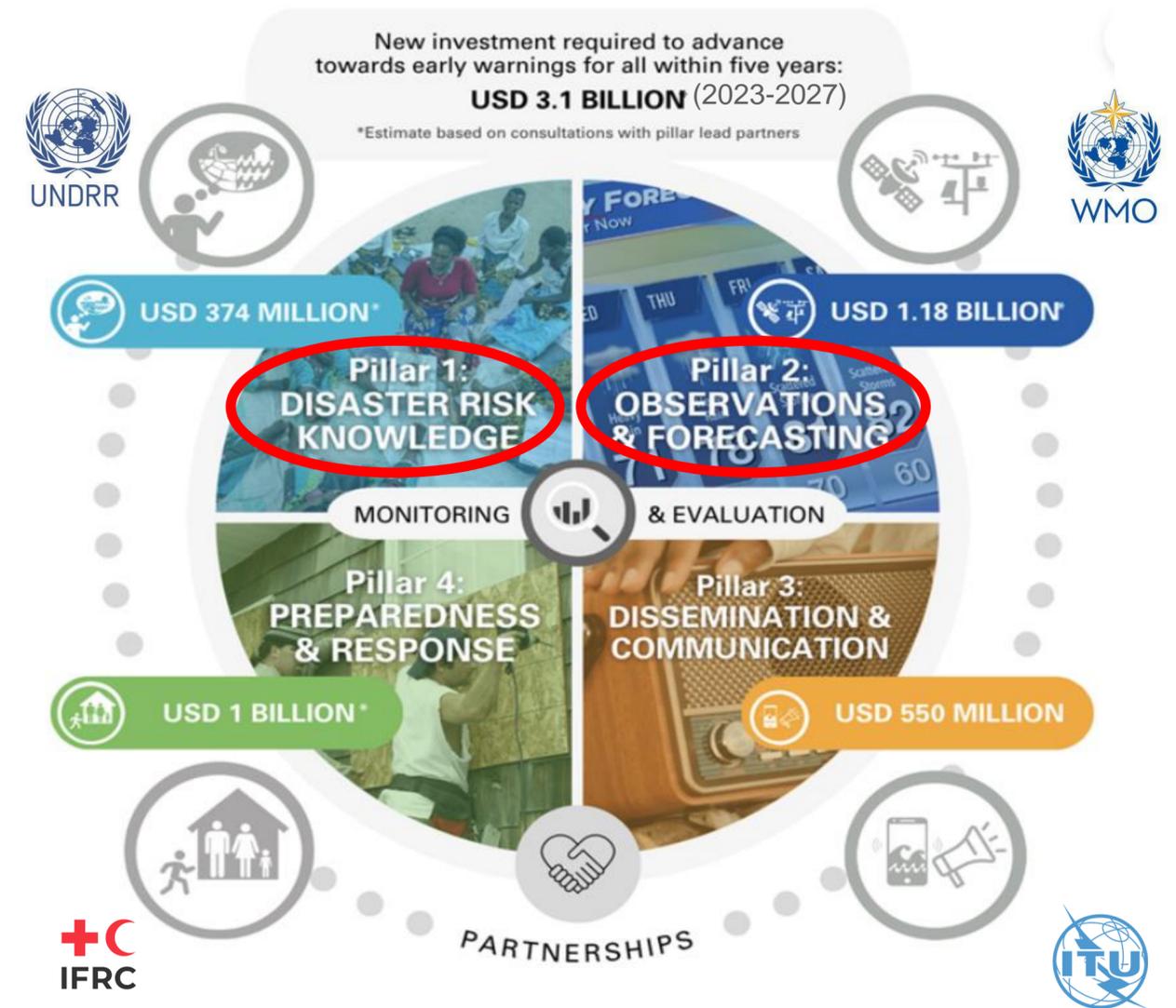


Figure 1: Budget overview for the four Pillars of the Early Warnings for All Initiative

# Pillar 1: 7 Risk Knowledge Outcome Themes

 Production of Risk Knowledge **1**

 Open Access to Risk Knowledge **2**

 Use of RK for EWS **3**

 Monitoring of effectiveness of EWS **4**

 Strengthened collaboration for RK **5**

 Inclusivity and Indigenous & local knowledge **6**

 Innovation for Risk Knowledge **7**

co-led by:

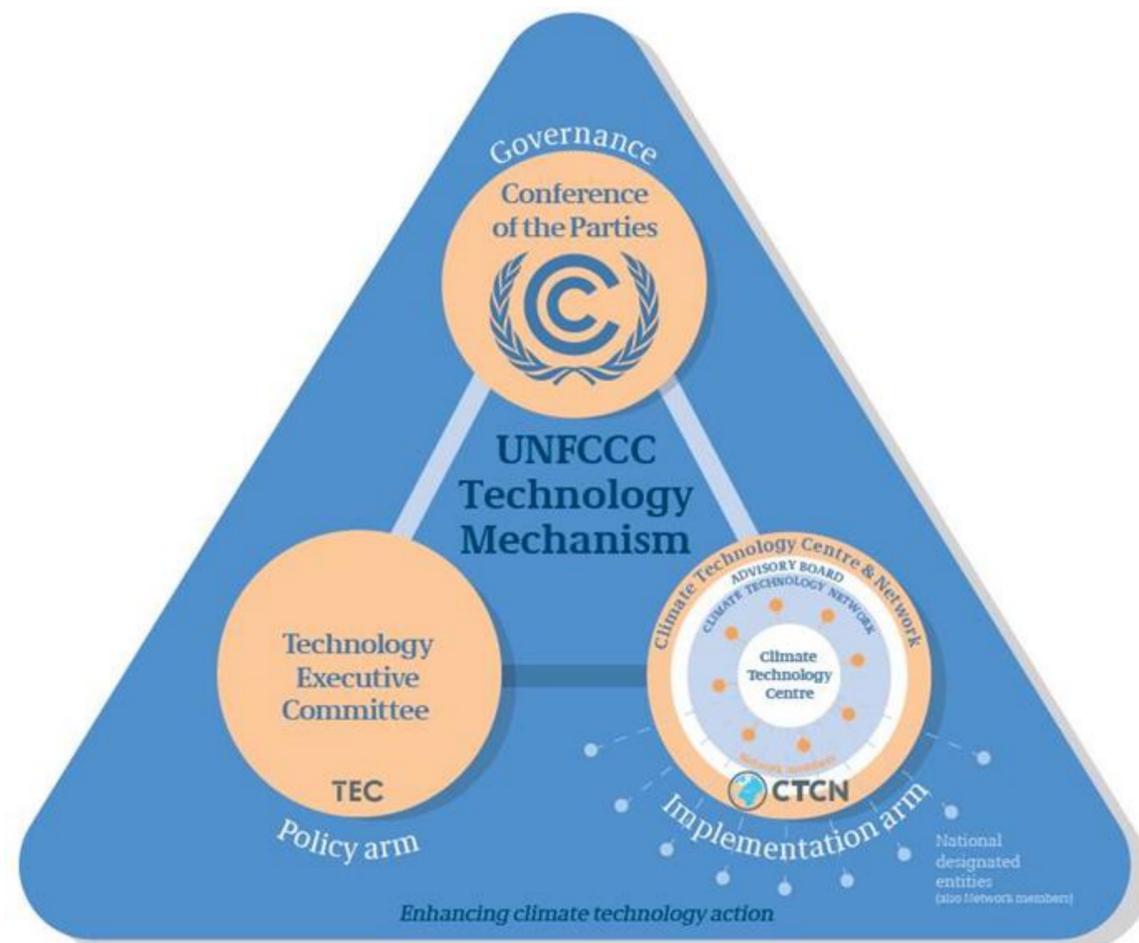


joined by:



# UNFCCC Technology Executive Committee

- Policy arm of the UNFCCC Technology Mechanism
- Recommends and address technology policy issues
- Facilitate development of tech planning tools



Find out more about the TEC: <https://unfccc.int/ttclear/tec>



- Policy recommendations
- Climate tech publications, TEC Briefs
- Technology events, thematic dialogues, workshops
- Collaboration with the Financial Mechanism (GEF, GCF), UN agencies, observers, Non-Party stakeholders



# TEC- knowledge product

## Focus

---

Technology and innovation for improving disaster risk knowledge to ramp-up action and support for protecting the most vulnerable in the implementation era of the Paris Agreement.

## Elements

---

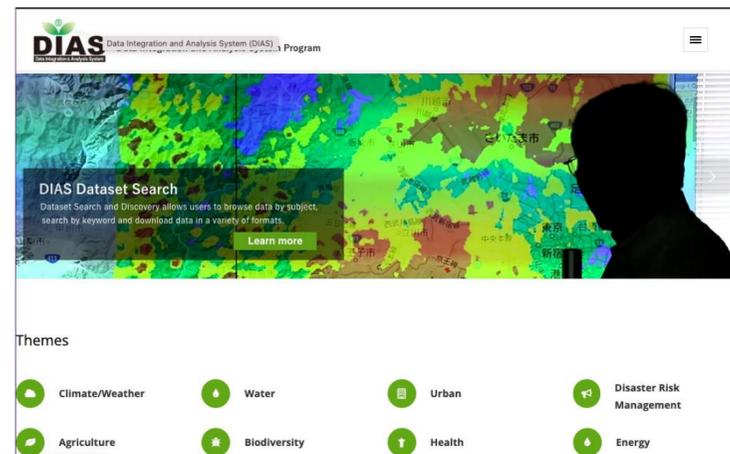
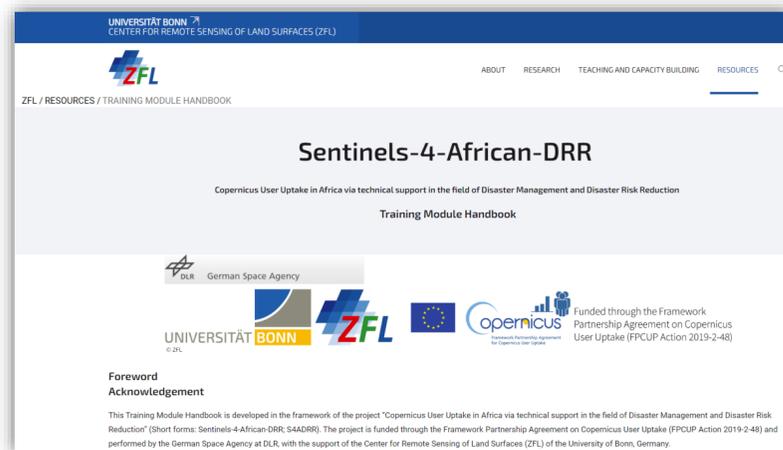
1. Summary of technology/innovation gaps and challenges in risk information that hinders access to support for implementing MHEWS
2. Solutions, good practices and success stories
3. Key findings and policy recommendations

## Ways to contribute

---

1. Expert review and feedback
  2. Good practices and country experiences
  3. EO tools and applications
- + more

# Participants can learn how to access and produce disaster risk knowledge via 4 EO solutions:





# Demonstrations of EEO solutions

# Demonstration 1

---

## Sentinels-4-African-DRR tutorials

---



**Jens  
Danzeglocke**



**Adrian  
Strauch**

# GEO WEEK & MINISTERIAL SUMMIT 2023

Training Workshop of Earth Observations (EO)  
Solutions for the Early Warnings for All  
(EW4All) Initiative

The  
Sentinels-4-African-  
DRR Project

How to use Copernicus  
Data and Services to  
strengthen Early Warning,  
Disaster Management and  
Disaster Risk Reduction in  
Africa

#TheEarthTalks



science & innovation

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



GEO WEEK  
2023 MINISTERIAL  
SUMMIT

GEO GROUP ON  
EARTH OBSERVATIONS

# #TheEarthTalks

Video demonstration

## The Sentinels-4-African-DRR Project

- DLR & ZFL
- From 2021-2023
- Funded through the **EU Framework Partnership Agreement for Copernicus User Uptake (FPCUP)**
- Development of training materials
- Organization of training events

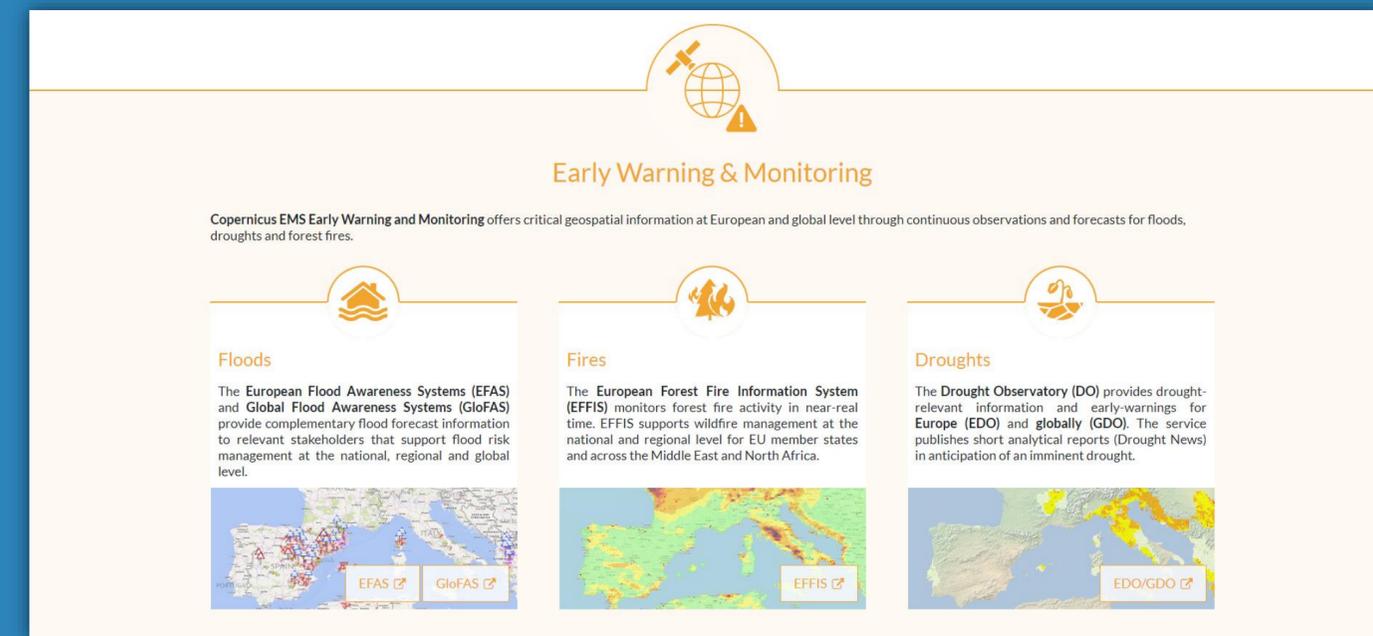


# Copernicus for Early Warning, Disaster Management and Disaster Risk Reduction in Africa?

- Global satellite datasets (free & open)
- Global Copernicus Services available for African countries
- Global Components of the Copernicus Emergency Management Service (EMS)



**Emergency  
Management Service**



**Early Warning & Monitoring**

Copernicus EMS Early Warning and Monitoring offers critical geospatial information at European and global level through continuous observations and forecasts for floods, droughts and forest fires.

**Floods**

The European Flood Awareness Systems (EFAS) and Global Flood Awareness Systems (GloFAS) provide complementary flood forecast information to relevant stakeholders that support flood risk management at the national, regional and global level.



EFAS [↗](#) GloFAS [↗](#)

**Fires**

The European Forest Fire Information System (EFFIS) monitors forest fire activity in near-real time. EFFIS supports wildfire management at the national and regional level for EU member states and across the Middle East and North Africa.



EFFIS [↗](#)

**Droughts**

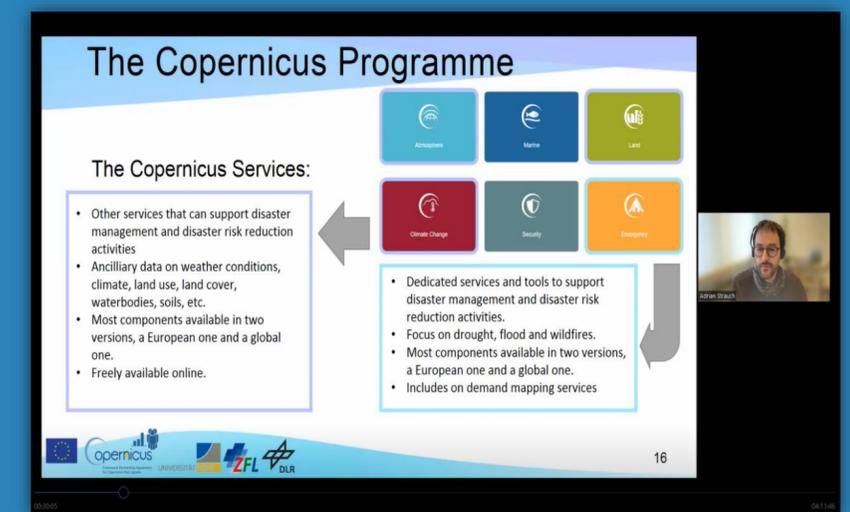
The Drought Observatory (DO) provides drought-relevant information and early-warnings for Europe (EDO) and globally (GDO). The service publishes short analytical reports (Drought News) in anticipation of an imminent drought.



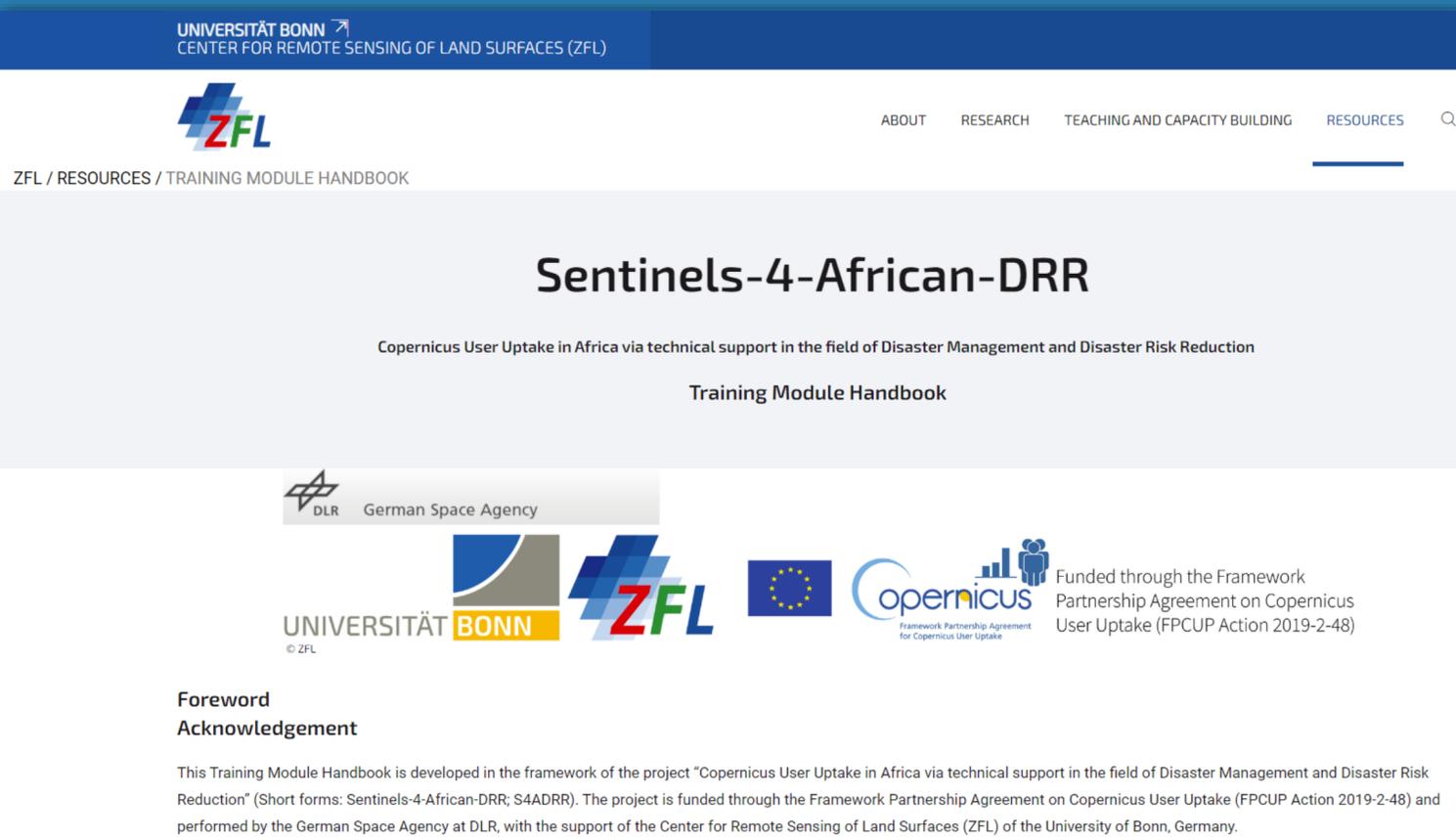
EDO/GDO [↗](#)

## Project approach, activities & outputs

- Close collaboration with existing networks (e.g. UN-SPIDER)
- Interaction with African disaster management community
- Assessment of user requirements (surveys)
- Research & development of training materials
- Virtual and in-person training events
- Published Training Module Handbook



# S4ADRR Training Module Handbook



- Freely available online handbook
- Different modules
  - General
  - Flood
  - Drought
  - Fire

Find our materials here:



<https://www.zfl.uni-bonn.de/resources-1/s4adrr>

# Training Module Handbook, website overview



UNIVERSITÄT BONN  
CENTER FOR REMOTE SENSING OF LAND SURFACES (ZFL)

ZFL / RESOURCES / TRAINING MODULE HANDBOOK

## Sentinels-4-African-DRR

Copernicus User Uptake in Africa via technical support in the field of Disaster Management and Disaster Risk Reduction

Training Module Handbook

DLR German Space Agency

UNIVERSITÄT BONN ZFL

Funded through the Framework Partnership Agreement on Copernicus User Uptake (FPCUP Action 2019-2-48)

Foreword  
Acknowledgement

This Training Module Handbook is developed in the framework of the project "Copernicus User Uptake in Africa via technical support in the field of Disaster Management and Disaster Risk Reduction" (Short forms: Sentinels-4-African-DRR; S4ADRR). The project is funded through the Framework Partnership Agreement on Copernicus User Uptake (FPCUP Action 2019-2-48) performed by the German Space Agency at DLR, with the support of the Center for Remote Sensing of Land Surfaces (ZFL) of the University of Bonn, Germany.

### General Module

#### Using Remote Sensing, Earth Observation and GIS in the Context of Natural Disasters

In this module, the basics of using remote sensing and earth observation for natural disasters will be explained. This module is intended for users who are new to the field of remote sensing and earth observation.

**Thematic introduction to remote sensing and Copernicus in the context of natural disasters**

An introduction that covers the basics of remote sensing for natural disasters as well as the Copernicus portfolio. [Click here to access this document](#)

**Video: Downloading Sentinel data from the Copernicus Browser**

A short video guide on the basics of how to acquire a Sentinel scene from the Copernicus Browser. [Click here to access this document](#)

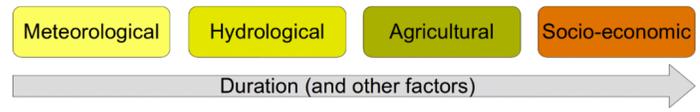
**Impact Assessment of Natural Hazards**

This guide aims to explain how to assess natural hazards using GIS. [Click here to access this document](#)

### Drought Module

#### Using Remote Sensing, Earth Observation and GIS in the Context of Droughts

Droughts are slow-onset disasters that can have severe impacts in many different ways. In general, drought can be categorized into four types: Meteorological, hydrological, agricultural as well as socio-economic drought. The types are distinguished by the duration of the drought as well as its institutional and social impacts (see Figure 2). A prolonged meteorological drought can eventually lead to hydrological drought as well as agricultural drought, which in turn can cause socio-economic disruption depending on a country's resilience and vulnerability. Actively monitoring drought conditions can improve preparedness and reduce potential impacts [4].



© Figure 2: Types of Drought

Although remote sensing and earth observation (EO) data cannot detect drought itself, proxies of drought, such as vegetation health, can be used to monitor agricultural drought conditions. In this guide, we will present Copernicus's Global Drought Observatory (GDO) which provides ready-made analysis data on current droughts with global coverage. We will also discuss datasets that can be used for further, drought-related analyses. We will focus on the Copernicus Global Drought Observatory, which offers on-demand, state-of-the-art drought data online and free of charge.

**Thematic introduction to droughts**

An extensive introduction to droughts as a natural hazard within the context of earth observation. [Click here to access this document](#)

### Flood Module

#### Using Remote Sensing, Earth Observation and GIS in the Context of Floods

Flooding is a natural and regular reality in most rivers where a pulse of overflowing water caused by natural phenomena such as heavy rainfall, peak seasonal rains, or snow melt overwhelms the river channel causing an overflow. Extreme flooding affects water management, conservation efforts, and hydro morphological alterations of the ecosystem services and human life. The mitigation of the effects of floods requires regular information on the location, extent, time, and depth of the floods [1].

The causative factors of flooding pose a challenge in the infrastructure development dynamics and the impact of for use in this case due to the unique properties associated with water.

Earth observation (EO) data from space is very useful in this area. The recent technological advances in Earth observation provides primary data of the flood area that can be used for flood monitoring and assessment.

Several satellites, carrying different types of sensors on board, namely **Optical** and **Radar**. Optical sensors measure the reflected radiation in the visible and near-infrared spectrum. Radar sensors emit a microwave signal and measure the backscattered signal.

Radar sensors have a particular advantage over optical sensors: they can observe any time of the day. Moreover, radar sensors are sensitive to soil moisture, and forest biomass mapping. In the case of flooding, radar sensors are particularly useful for monitoring the water level and the extent of the flooded area. However, the following step-by-step guides and tutorials.

**Thematic introduction to floods**

An extensive introduction to floods as a natural hazard within the context of earth observation. [Click here to access this document](#)

**Using GloFAS for flood monitoring: Website overview**

### Fire Module

#### Using Remote Sensing, Earth Observation and GIS in the Context of Wildfires

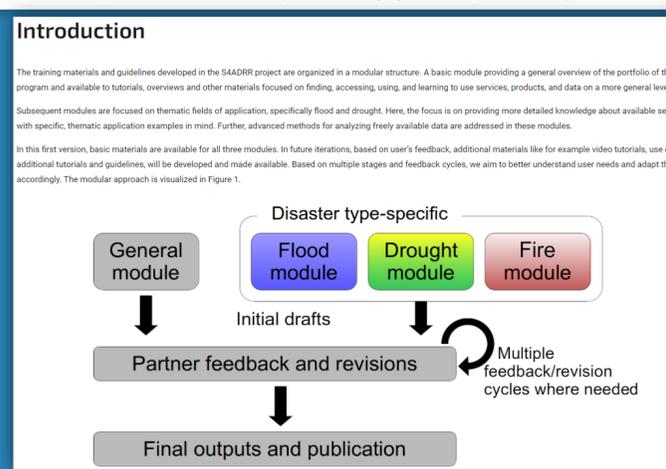
Fires (or wildfires) are considered one of the most destructive natural disasters that can cause adverse impacts to nature and society, as well as economy and built environments [5]. Generally, fires are ignited by natural or human activities. Natural activities include lightning and volcanic eruptions. This module aims to give you an introduction to the observation of fire disasters from space.

**Thematic introduction to wildfires**

An extensive introduction to fire as a natural hazard within the context of earth observation. [Click here to access this document](#)

**Introduction to the GWIS**

A tutorial on Copernicus's Global Wildfire Information Service (GWIS). [Click here to access this document](#)



## Find our materials here:



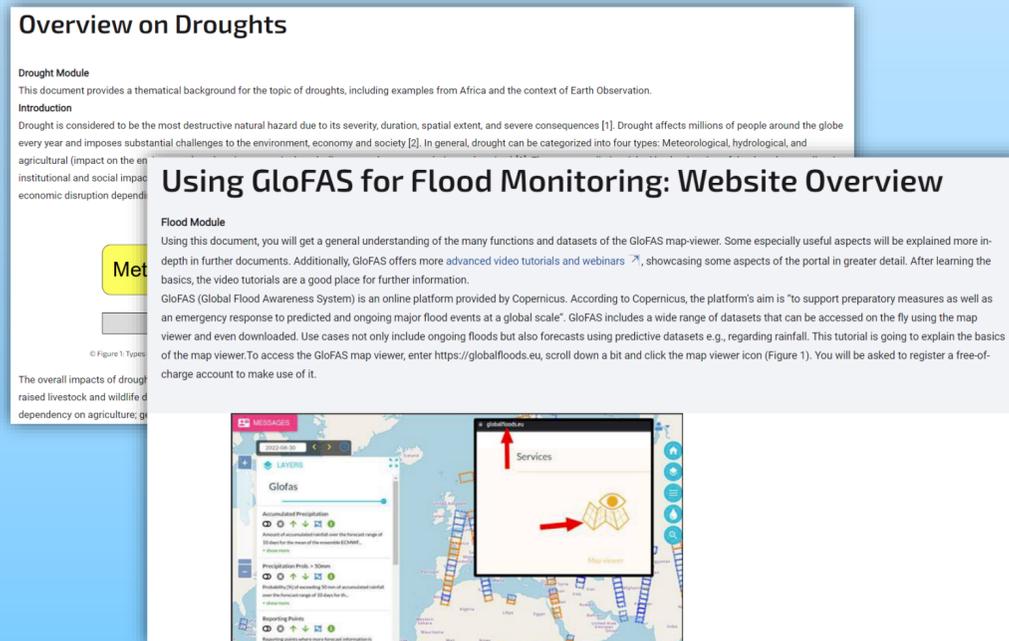
UNIVERSITÄT BONN ZFL DLR

Funded through the Framework Partnership Agreement on Copernicus User Uptake (FPCUP Action 2019-2-48)

# Training Module Handbook, content types

## Text Documents

- Introductions
- Guides & Tutorials
- Case-studies

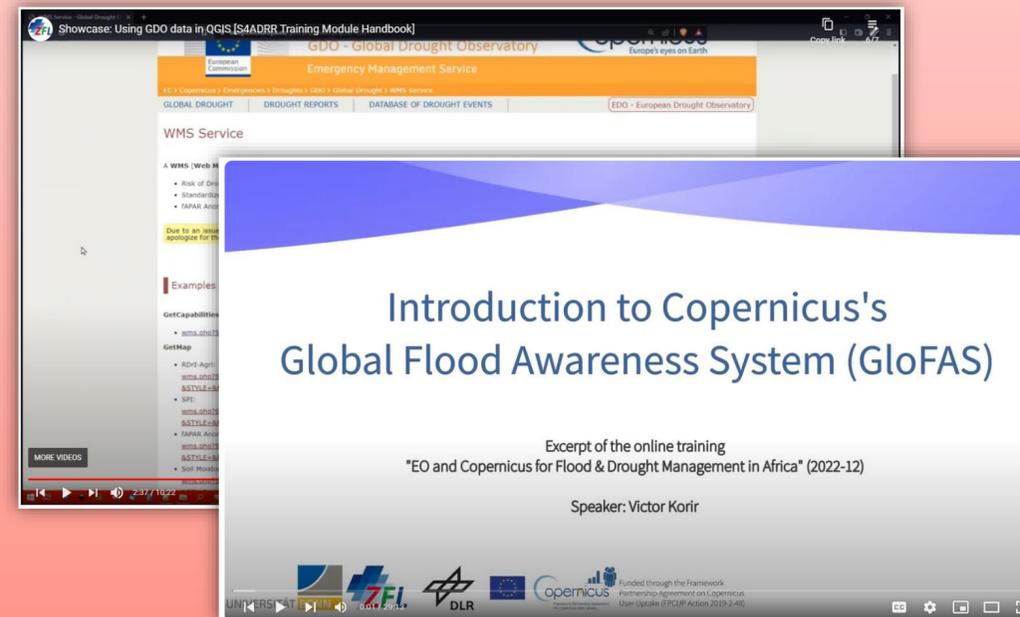


**Overview on Droughts**  
Drought Module  
This document provides a thematic background for the topic of droughts, including examples from Africa and the context of Earth Observation.  
Introduction  
Drought is considered to be the most destructive natural hazard due to its severity, duration, spatial extent, and severe consequences [1]. Drought affects millions of people around the globe every year and imposes substantial challenges to the environment, economy and society [2]. In general, drought can be categorized into four types: Meteorological, hydrological, and agricultural (impact on the environment, institutional and social impacts, economic disruption dependencies).

**Using GloFAS for Flood Monitoring: Website Overview**  
Flood Module  
Using this document, you will get a general understanding of the many functions and datasets of the GloFAS map-viewer. Some especially useful aspects will be explained more in-depth in further documents. Additionally, GloFAS offers more advanced video tutorials and webinars, showcasing some aspects of the portal in greater detail. After learning the basics, the video tutorials are a good place for further information.  
GloFAS (Global Flood Awareness System) is an online platform provided by Copernicus. According to Copernicus, the platform's aim is "to support preparatory measures as well as an emergency response to predicted and ongoing major flood events at a global scale". GloFAS includes a wide range of datasets that can be accessed on the fly using the map viewer and even downloaded. Use cases not only include ongoing floods but also forecasts using predictive datasets e.g., regarding rainfall. This tutorial is going to explain the basics of the map viewer. To access the GloFAS map viewer, enter <https://globalfloods.eu>, scroll down a bit and click the map viewer icon (Figure 1). You will be asked to register a free-of-charge account to make use of it.

## Videos

- Introductions
- Guides & Tutorials
- Case-Studies



Introduction to Copernicus's  
Global Flood Awareness System (GloFAS)

Excerpt of the online training  
"EO and Copernicus for Flood & Drought Management in Africa" (2022-12)  
Speaker: Victor Korir

Find our materials here:



Funded through the Framework Partnership Agreement on Copernicus User Uptake (FPCUP Action 2019-2-48)

<https://www.zfl.uni-bonn.de/resources-1/s4addr>



#TheEarthTalks GEO WEEK & Ministerial Summit 2023

---

# Interactive Q&A

**Thank you for your attention!**

**Contact Information:**

**DLR:**

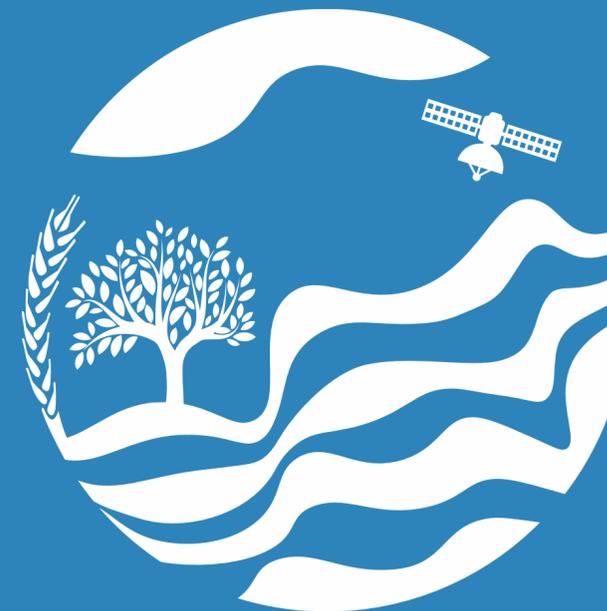
[jens.danzeglocke@dlr.de](mailto:jens.danzeglocke@dlr.de)

**ZFL:**

[adrian.strauch@uni-bonn.de](mailto:adrian.strauch@uni-bonn.de)

[jonas.schreier@uni-bonn.de](mailto:jonas.schreier@uni-bonn.de)

#TheEarthTalks



**GEO  
WEEK  
2023  
MINISTERIAL  
SUMMIT**

**6-10 NOVEMBER**  
CAPE TOWN, SOUTH AFRICA

---

## Demonstration 2

---



**Online Synthesis System  
for Sustainability and  
Resilience (OSS-SR)**

---



**Masaki  
Yasukawa**



**Katsunori  
Tamakawa**



**GEO  
WEEK  
2023  
MINISTERIAL  
SUMMIT**

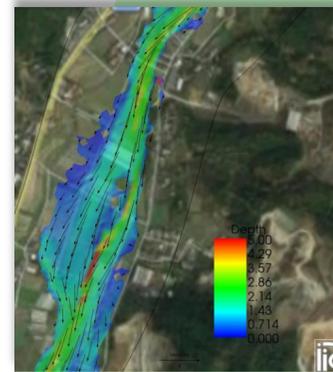


#TheEarthTalks GEO WEEK & Ministerial Summit 2023

# 1. Data Integration and Analysis System (DIAS)

since 2006.

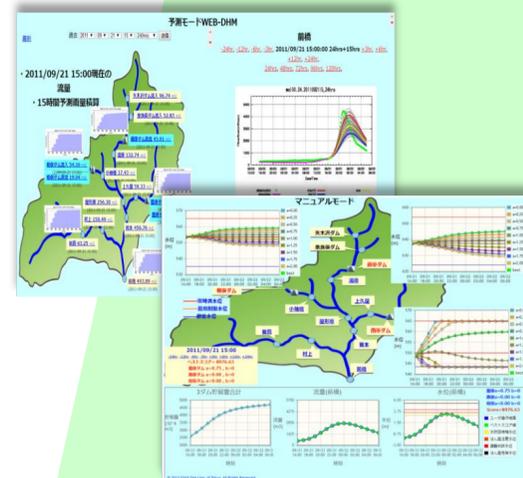
8 institutions:



**Flood Forecasting In Basin**  
Flood Depth Prediction System for Northern Kyushu



**Biodiversity Monitoring**  
Citizen Participatory Data Collection Applications



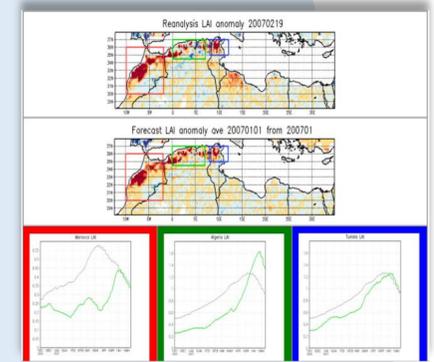
**Dam Control on Flood**  
Real-time dam control simulation for Tone River



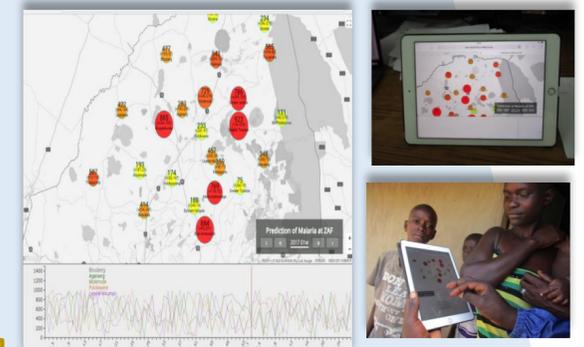
**Urban Flood Prediction**  
Real-time flood prediction and warning system in Tokyo



**Flood Warning**  
Real-time Flood Prediction and Early Warning System (Sri Lanka, **Western Africa**, Philippines, Myanmar)



**Drought Warning**  
Real-Time Drought Prediction and Warning System (North Africa, Brazil)



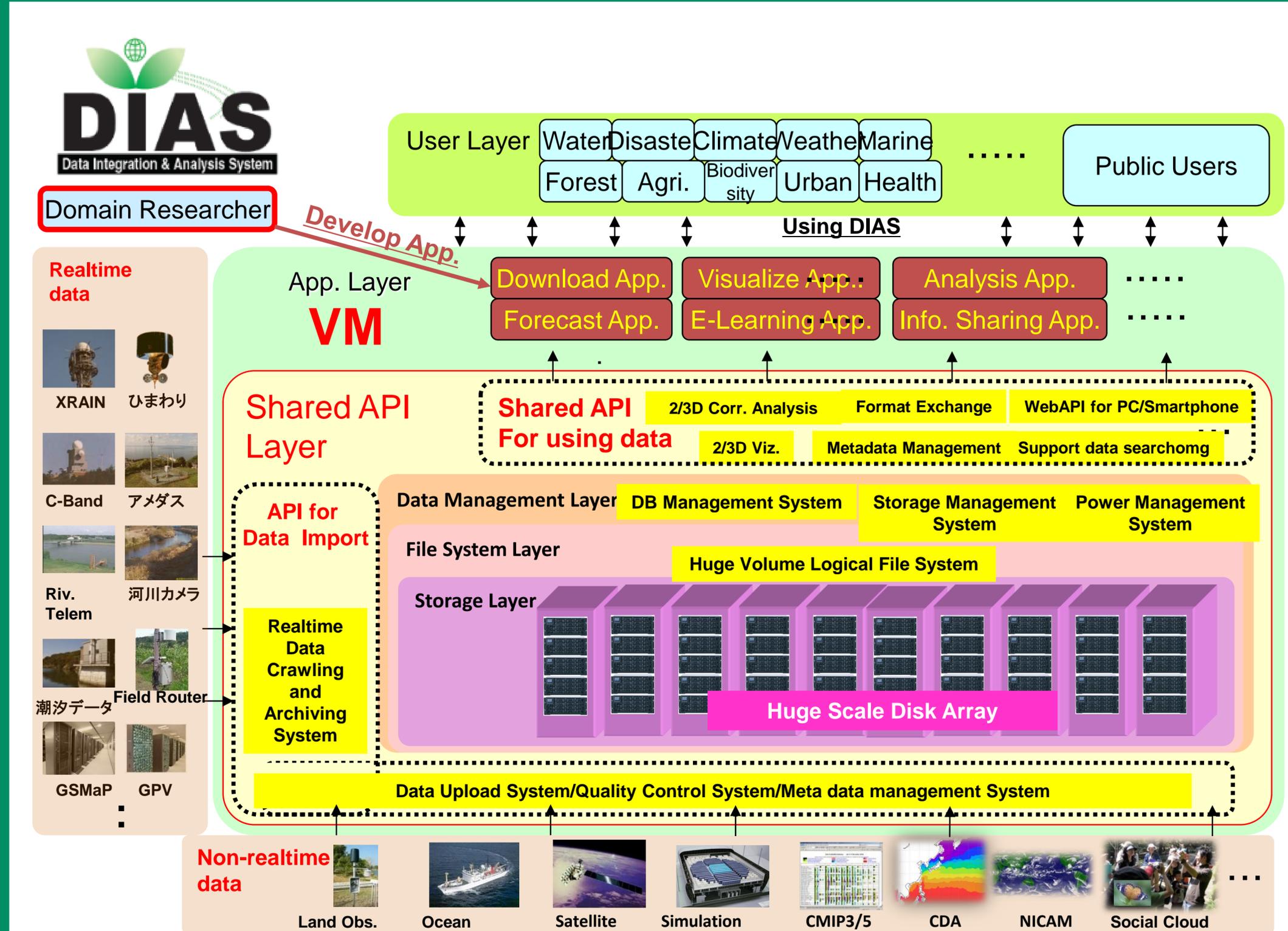
**Infectious Disease Warning using AI**  
**Malaria** Outbreak Forecasting and Early Warning System in **South Africa**

Domestic

International

# DIAS Applications

# Conceptual Diagram of the DIAS system





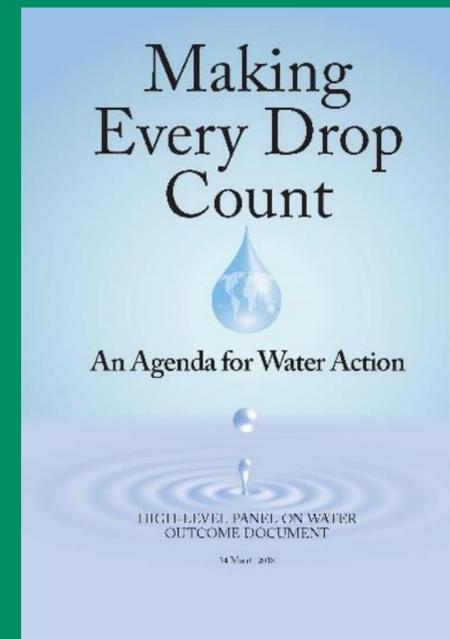
responds to international mandate:



building a nation-wide "Platforms on Water Resilience and Disasters" in countries



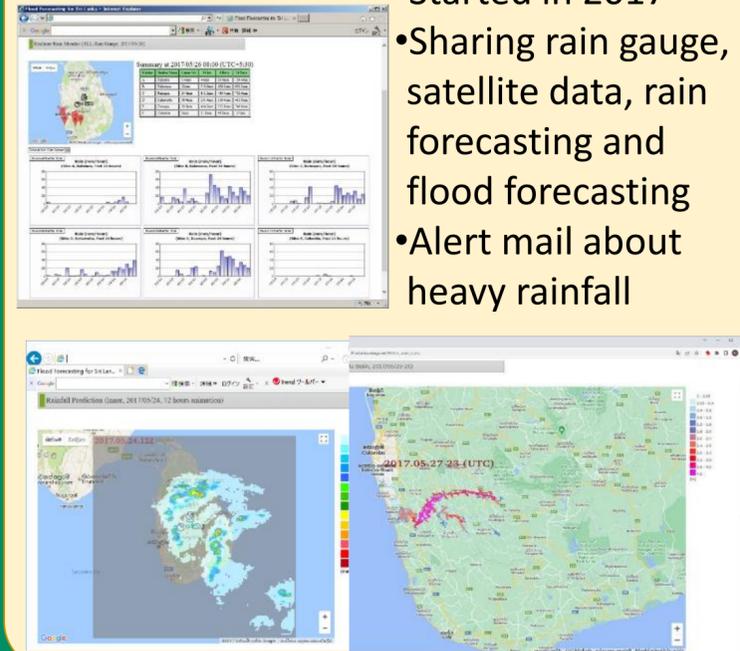
WaDiRe-Africa in 11 countries including



# Applications for Flood Early Warning

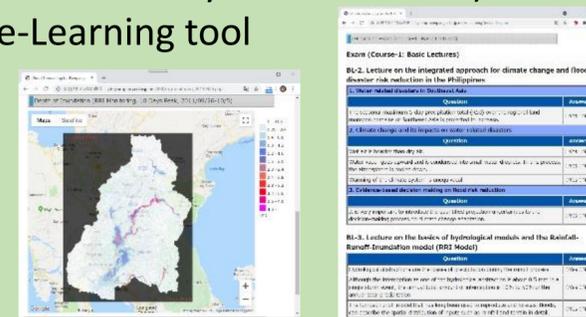
## Sri Lanka (Kalu Basin, Mahaweli Basin)

- Started in 2017
- Sharing rain gauge, satellite data, rain forecasting and flood forecasting
- Alert mail about heavy rainfall



## Philippines (Pampanga River, Pasig-Marikina River and Laguna Lake Basin)

- Started in 2019
- Sharing rain gauge, satellite data and calculated flood monitoring
- OSS-SR (Online Synthesis System for Sustainability and Resilience) including e-Learning tool



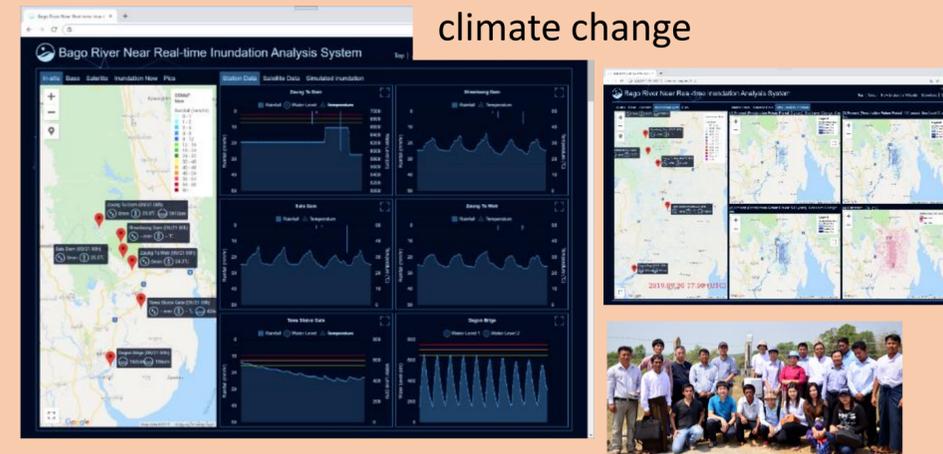
## Philippines (Davao River Basin)

- Started in 2021
- Sharing satellite data, calculated flood monitoring, and future flooding due to climate change
- OSS-SR (Online Synthesis System for Sustainability and Resilience) including e-Learning tool



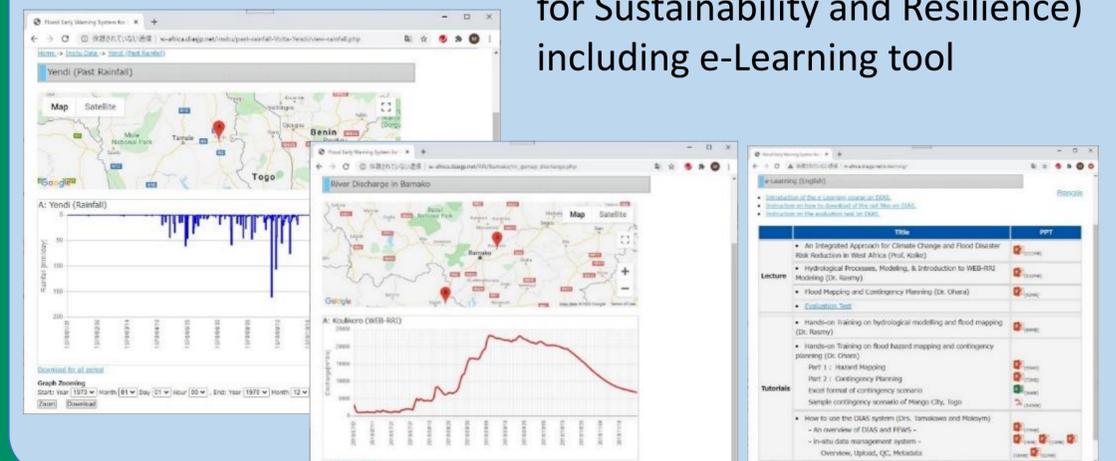
## Myanmar (Bago River Basin)

- Started in 2019
- Sharing weather station data, calculated flood monitoring, and future flooding due to climate change



## West Africa (Niger River Basin, Volta River Basin)

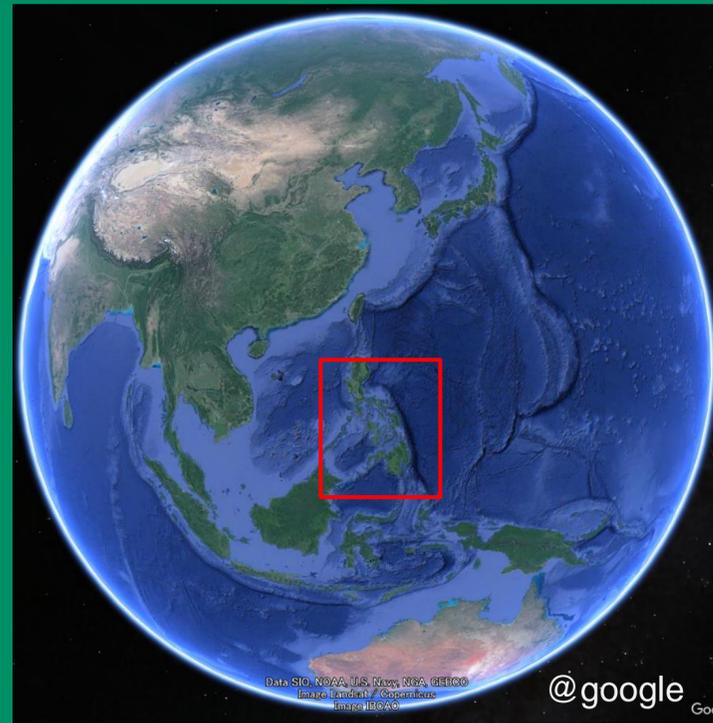
- Started in 2020
- Sharing satellite data and calculated flood monitoring
- OSS-SR (Online Synthesis System for Sustainability and Resilience) including e-Learning tool



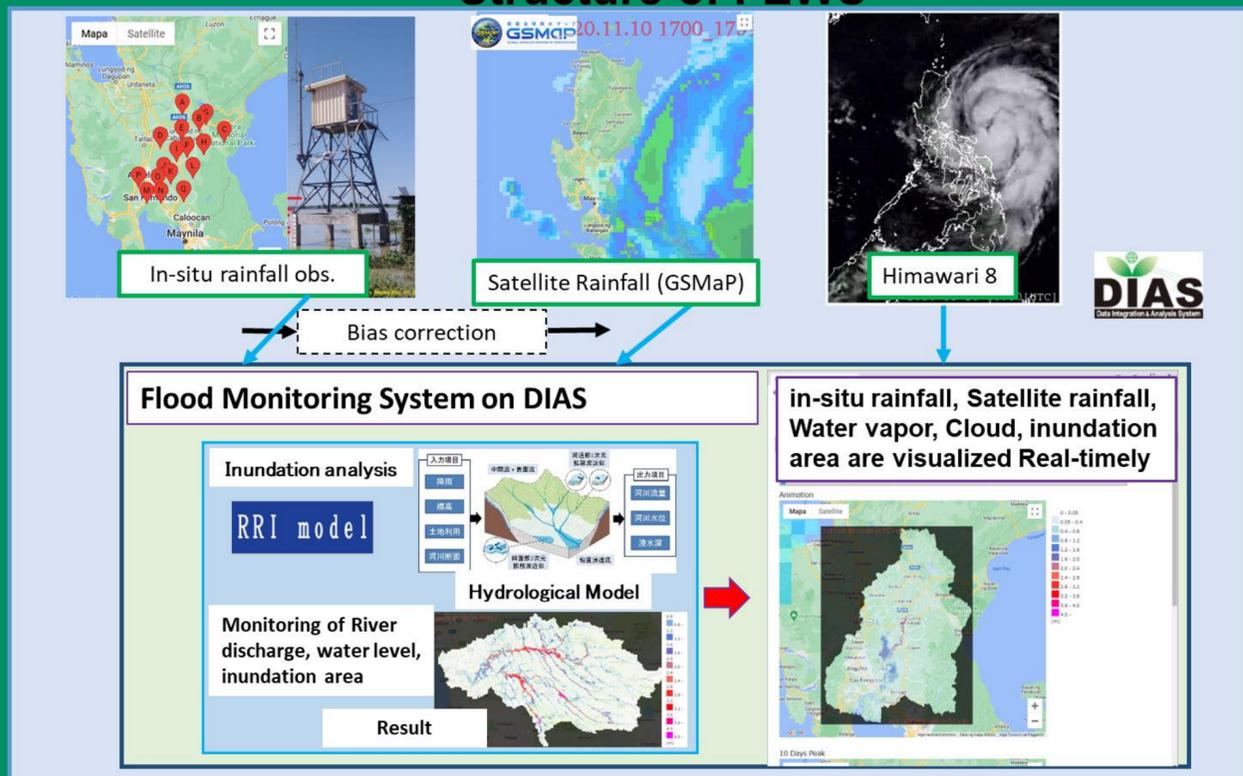
# Case study in the Philippines

- ◆ Background: The Republic of the Philippines is ranked as a high-risk country in the Global Climate Risk Index 2021.
- ◆ Science and Technology Research Partnership for Sustainable Development (SATREPS) : started
- ◆ Project Title | **HyDEPP**

The Project for Development of a Hybrid Water-Related Disaster Risk Assessment Technology for Sustainable Local Economic Development Policy under Climate Change in the Philippines



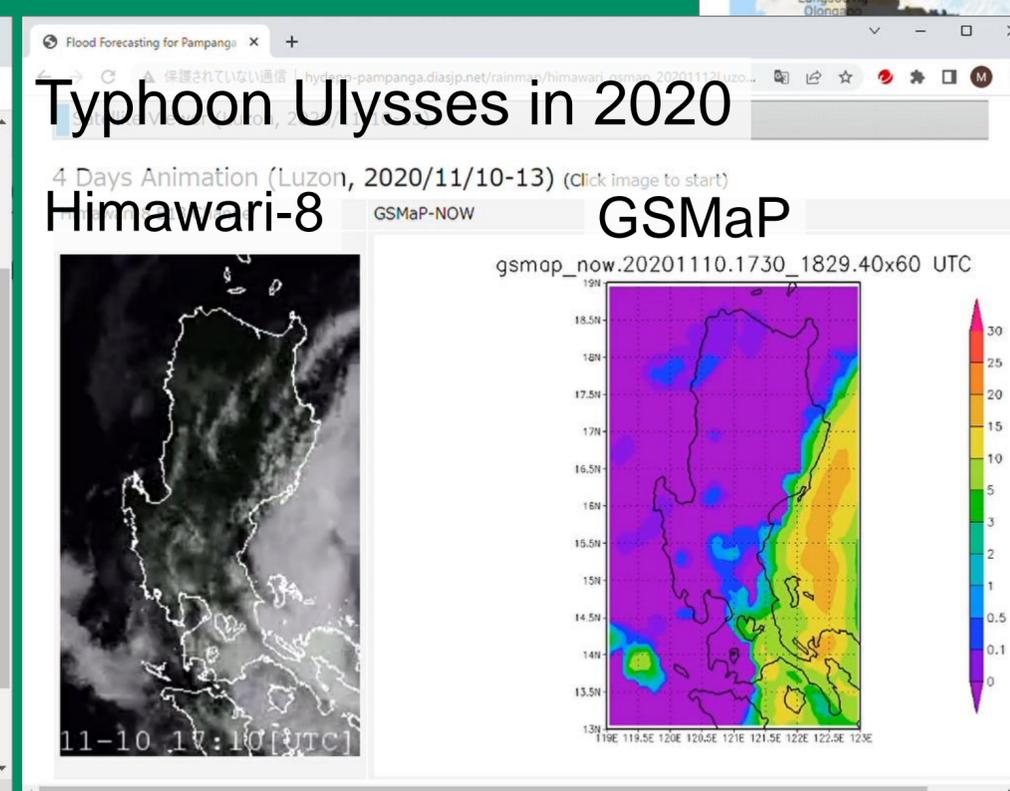
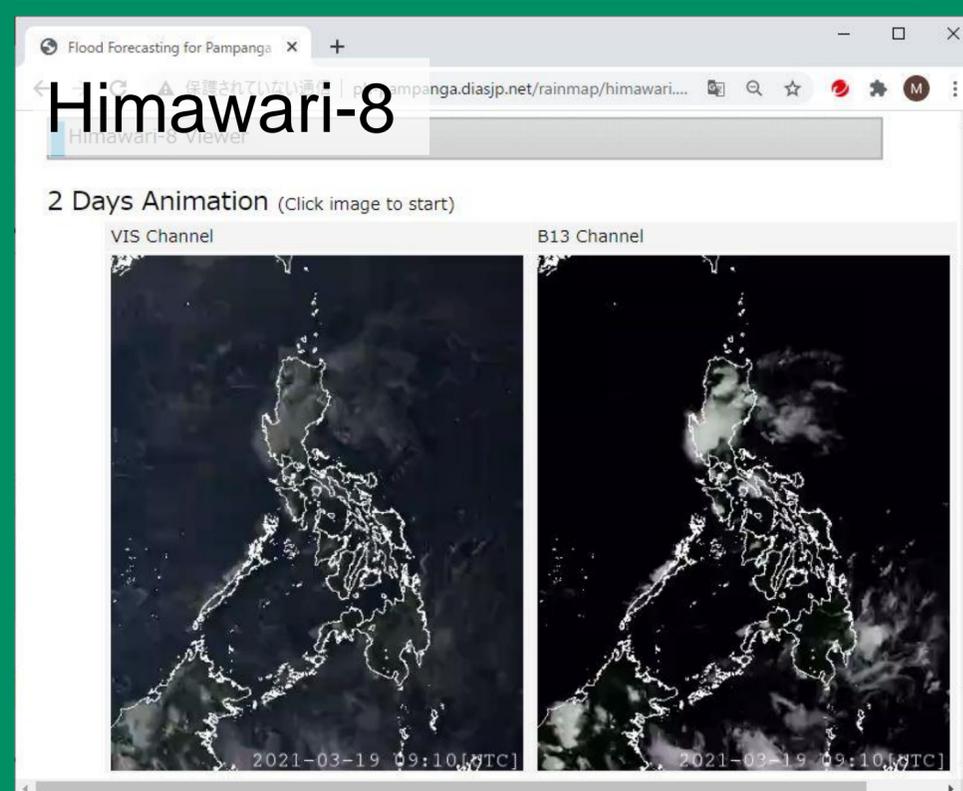
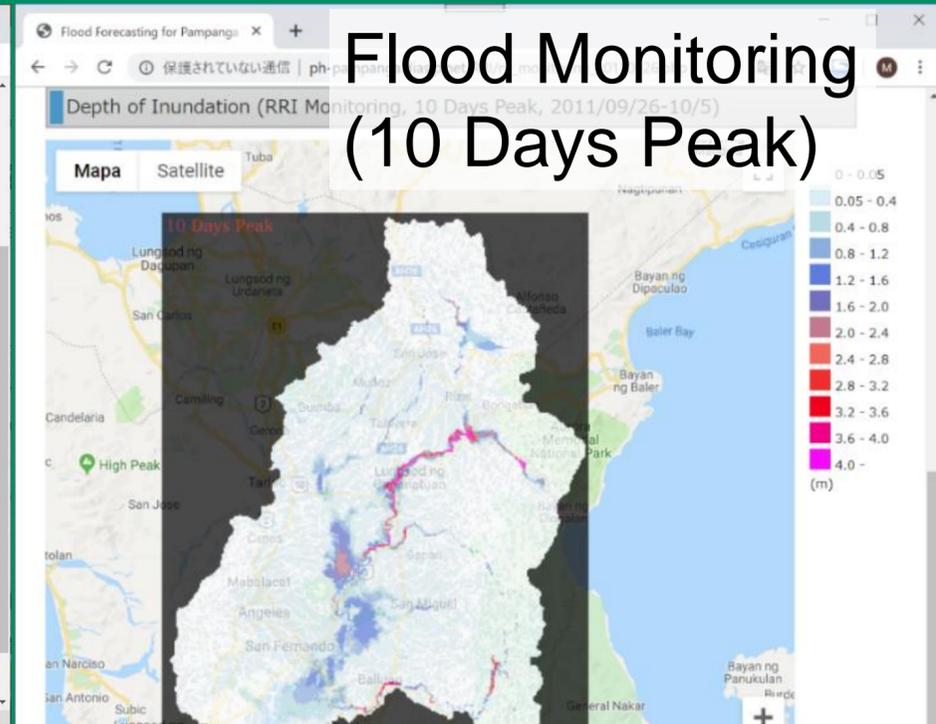
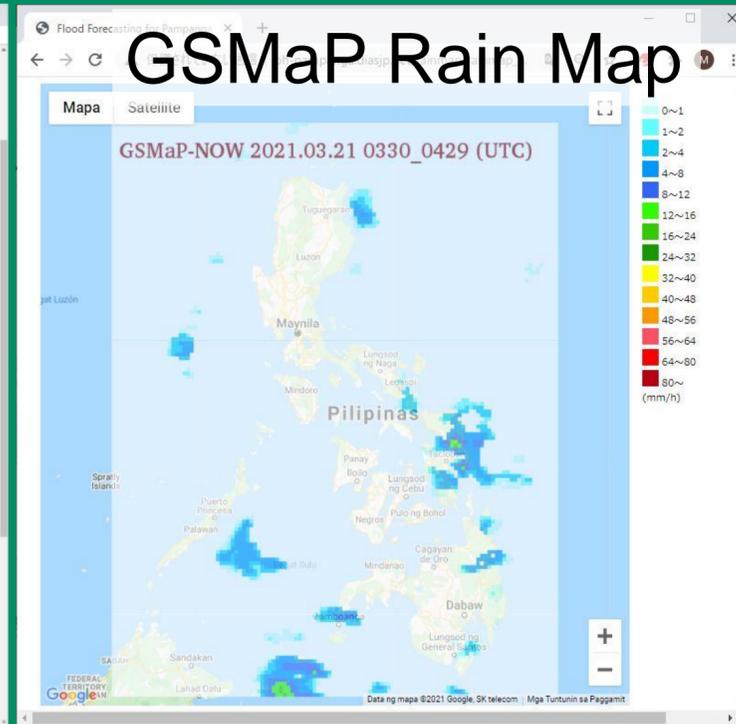
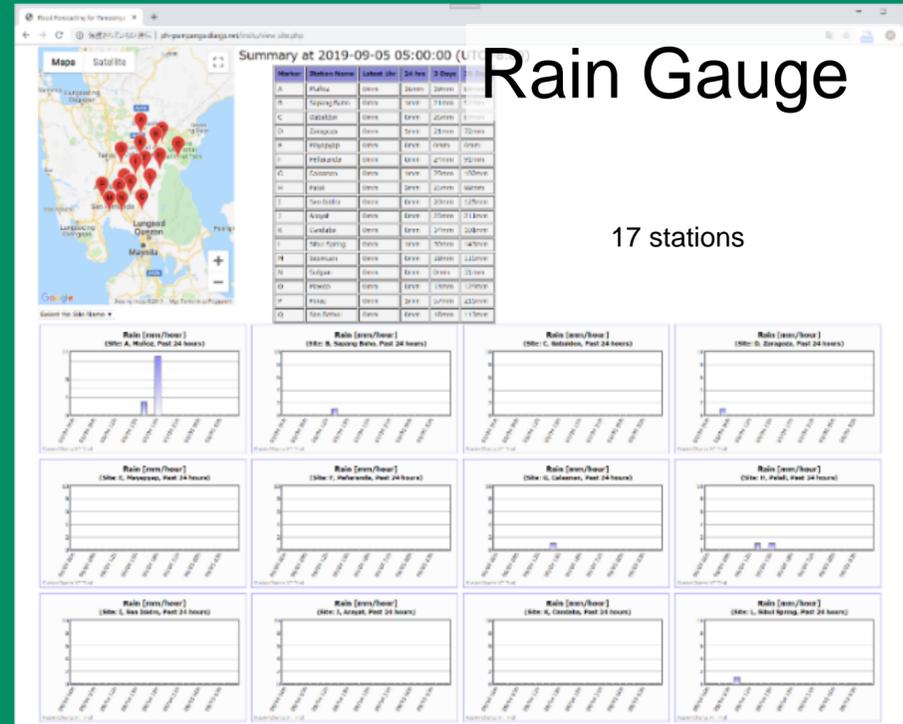
## Structure of FEWS



# OSS-SR (Online Synthesis System for Sustainability and Resilience) in Philippines

#TheEarthTalks GEO WEEK & Ministerial Summit 2023

- OSS-SR aims to develop capabilities of the members related to the project by providing learning opportunities regarding water-related disaster risk assessment technology by using the environment of the Data Integration and Analysis System (DIAS). For the HyDEPP-SATREPS, preliminary concept of OSS-SR structure consists of four components: Outline, Flood early warning, Risk assessment including the analysis of past flood events, e-Learning.



# Online Synthesis System for HyDEPP-SATREPS

[HOME](#)[Insitu Data](#)[Satellite Data](#)[Flood Monitoring](#)[Past Flood](#)[e-Learning](#)[Home](#)

## Introduction of Online Synthesis System for Sustainability and Resilience for HyDEPP-SATREPS

### Outline of HyDEPP-SATREPS Project

The International Centre for Water Hazard and Risk Management (ICHARM) of the Public Works Research Institute (PWRI) in Japan and the University of the Philippines Los Baños (UPLB) in the Philippines are leading "The Project for Development of a Hybrid Water-Related Disaster Risk Assessment Technology for Sustainable Local Economic Development Policy under Climate Change in the Republic of the Philippines (HyDEPP)" under the Science and Technology Research Partnership for Sustainable Development (SATREPS). The project is funded by the Japan International Cooperation Agency (JICA) and the Japan Science and Technology Agency (JST). The University of the Philippines Diliman and Mindanao in the Philippines and the University of Tokyo, Tohoku University, Kyoto University, the University of Shiga Prefecture and Nagoya University in Japan are co-research organizations.

SATREPS is a Japanese government program that promotes international joint research. The program is a collaboration between JST, which provides competitive research funds to research organizations in Japan, and JICA, which provides development assistance (ODA) in the counterpart country. The aims of SATREPS are strengthening international cooperation, acquiring new knowledge and technology that lead to the resolution of global issues and the advance of science and technology, and enhancing capacity development.

Metro Manila and its surrounding area in the Republic of the Philippines were severely damaged due to Typhoon Ulysses in November 2020. It is feared that frequent water-related disasters by future climate change will hinder the sustainable development of local municipalities and exacerbate overconcentration in Metro Manila. This project aims to create hybrid water-related disaster risk assessment models by combining climate-change, hydrological, agricultural, and economic models and conduct objective assessments of the effectiveness of investing in disaster prevention measures in the Pampanga River basin and the Pasig-Marikina River and Laguna Lake basins in the environs of Metro Manila. Policy recommendations for sustainable economic development in urban and rural areas under climate change will be formulated through a transdisciplinary approach using the hybrid water-related disaster risk

# E-learning in 2021 and 2022



Number of Participants Who participated in 2021 and 2022

2021	UPLB	UP Diliman	UP Mindanao	Japan	Total
Participants	65	10	5	3	83
Course 1	44	9	4	2	59
Course 2	35	8	4	2	49
Course 3	40	9	4	2	55

2022	UPLB	UP Diliman	DOST (+PHIVOLCS, PAGASA)	DPWH	LLDA	MMDA	Total
Participants	38	1	16	9	11	18	93
Course 1	19	0	11	8	11	14	63
Course 2	7	0	8	6	8	12	41
Course 3	15	0	10	7	9	12	53



Local Government Unit (LGU) & Governmental office	36
JICA	6
HyDEPP (Japan)	14
HyDEPP (Philippines)	12
<b>Total</b>	<b>68</b>

## Workshop for FEWS

### Explanation of Flood Monitoring System and Hands on Training



1. Overview of DIAS
2. On-line Demonstration FEWS
3. Hands on Training
4. Discussion, Q and A

June 20, 2023 in San Fernando, Pampanga



#TheEarthTalks GEO WEEK & Ministerial Summit 2023

---

# Interactive Q&A

**Thank you for your attention!**

**Contact Information:**

**Univ. of Tokyo:**

[yasukawa@iis.u-tokyo.ac.jp](mailto:yasukawa@iis.u-tokyo.ac.jp)

**ICHARM:**

[tamakawa@icharm.org](mailto:tamakawa@icharm.org)

#TheEarthTalks



**GEO  
WEEK  
2023  
MINISTERIAL  
SUMMIT**

**6-10 NOVEMBER**  
CAPE TOWN, SOUTH AFRICA

---

# Demonstration 3

---

**The Early Warning, Early  
Action, Early Finance  
(AWARE) Platform**

---



**Giriraj  
Amarnath**

#TheEarthTalks GEO WEEK & Ministerial Summit 2023



**GEO  
WEEK  
2023**  
MINISTERIAL  
SUMMIT

# CGIAR AWARE Platform

Early Warning . Early Action . Early Finance

Saving lives and  
building disaster

resilience

Dr. Giriraj Amarnath, Ph.D.

Principal Researcher – Disaster Risk Management and Climate Resilience

7 November  
2023



science & innovation

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



INITIATIVE ON  
Climate Resilience



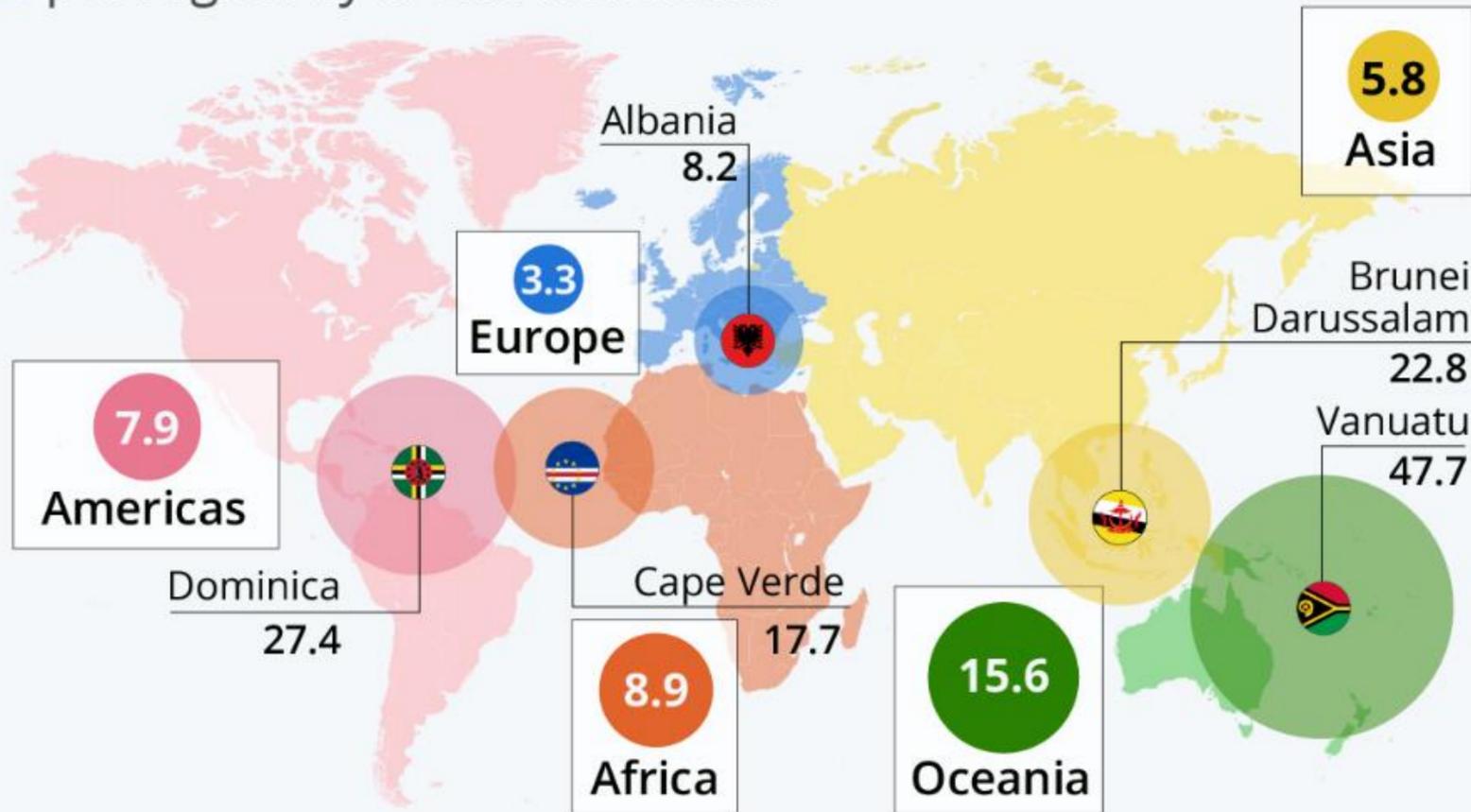
INITIATIVE ON  
West and Central African  
Food Systems Transformation

**IWMI**  
International Water  
Management Institute

**GEO** GROUP ON  
EARTH OBSERVATIONS

# The Places Most Prone to Disaster

Countries most at risk when facing natural disasters per region by World Risk Index\*

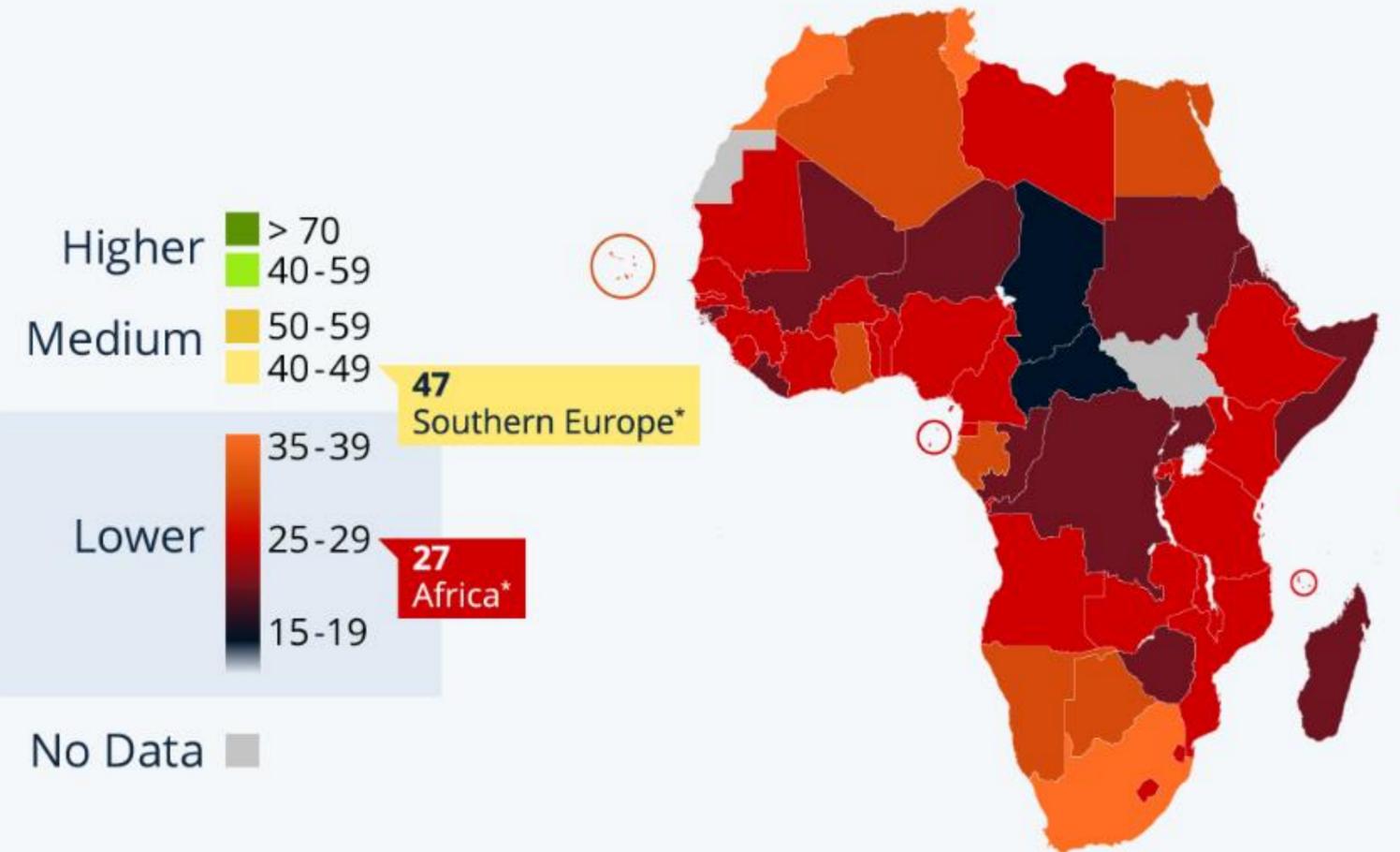


\* World Risk Index calculated via exposure, susceptibility, coping and adaptation, 0 = lowest, 100 = highest

Source: World Risk Index 2021

# Africa Is on the Frontline of Climate Change

Index scores for climate resilience of African countries in 2022



Based on assessment of 180 countries for readiness, vulnerability and GDP.

\* Averages based on 10 countries in Southern Europe, 53 in Africa.

Sources: Henley & Partners, Statista calculations

## Africa is among the regions most at risk from climate change.



INITIATIVE ON  
West and Central African  
Food Systems Transformation

## What are the current gaps and challenges in early warning to early action?

---

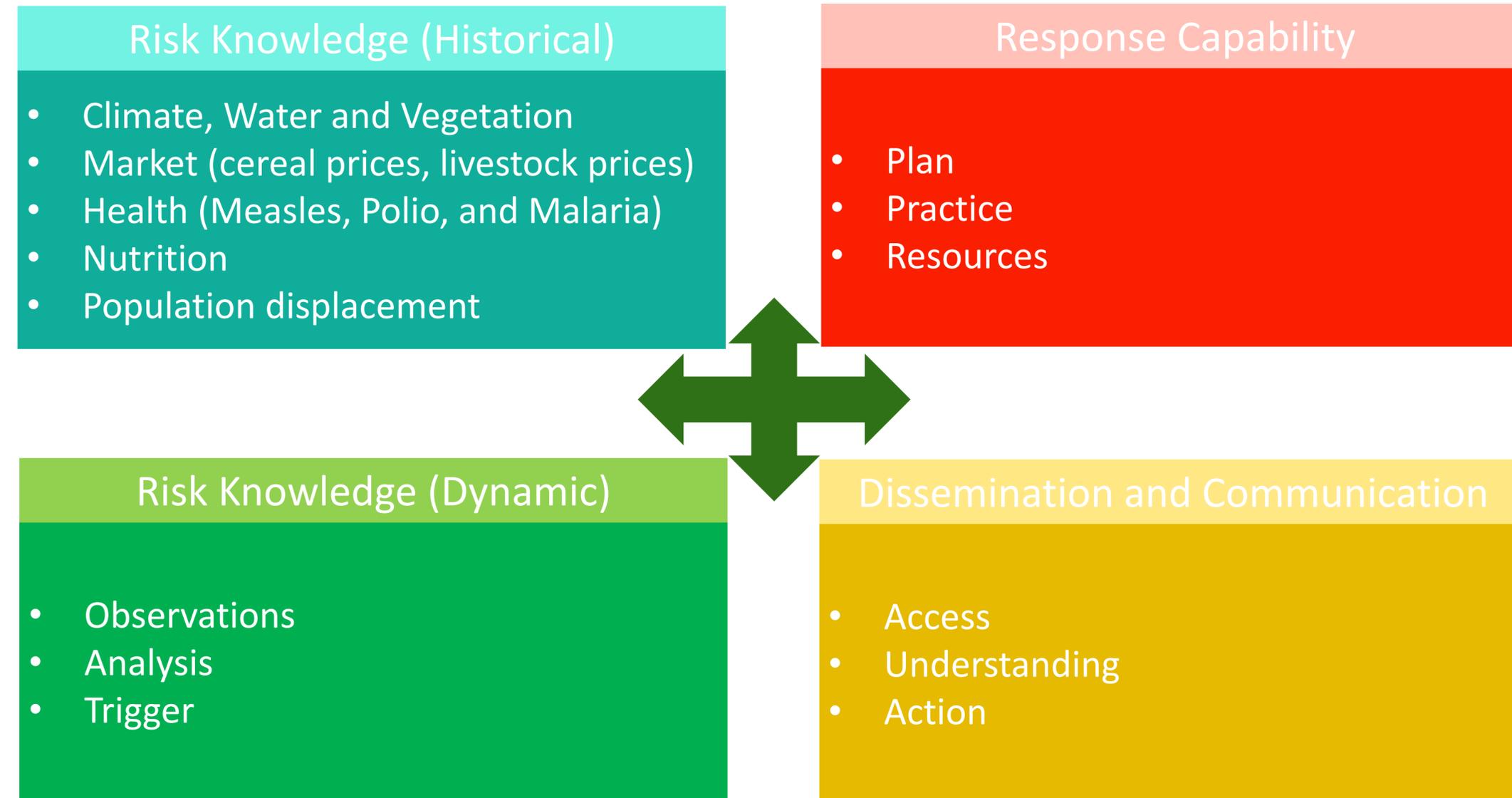
- Data and Information Gaps: Insufficient or inaccurate data can compromise the reliability of early warnings
  - Limited Coverage and Access: Uneven coverage and communication barriers
  - Risk Perception and Public Awareness: Complacency can lead to a lack of preparedness and slow response to early warnings
    - Resource Constraints: Funding and infrastructure
    - Governance and Coordination: Fragment systems and political factors
- Cultural and Language Considerations: Lack of info on multiple languages and culturally relevant can be a challenge
  - Technological Challenges: reliance on technology for EWS and access to smartphone, internet
- Response Capacity: Lack of coordination response plans and resources results in delays or inefficiencies during response efforts.

# AWARE Platform

*Increasing food and nutrition security among vulnerable households*

## Effective Governance and Institutional Arrangement

Involvement of Local Community,  
CBOs, NGOs, Public and Private



A Resilience Development Approach

# AWARE Platform

The **AWARE Platform** helps countries overcome the challenges outlined above and respond to extreme climate events in advance to protect people before disasters strike based on early warning to early action and finance.



## Early Warning

This tool allows the users to monitor past and current climate and vegetation conditions, floods and drought severity to anticipate future conditions and early actions.



## Early Action

This tool summarizes the actions to be measured for different stages of disasters using the Early Warning module to mitigate climate through proactive management measures.



## Early Finance

Provides overview and reporting of early finance opportunities based on the actions taken by institutes.



## Sectorial Climate Risks

Provides overview and reporting of climate risk indicators health related issues and price fluctuation of major crops to anticipate future condition based on the data collected.



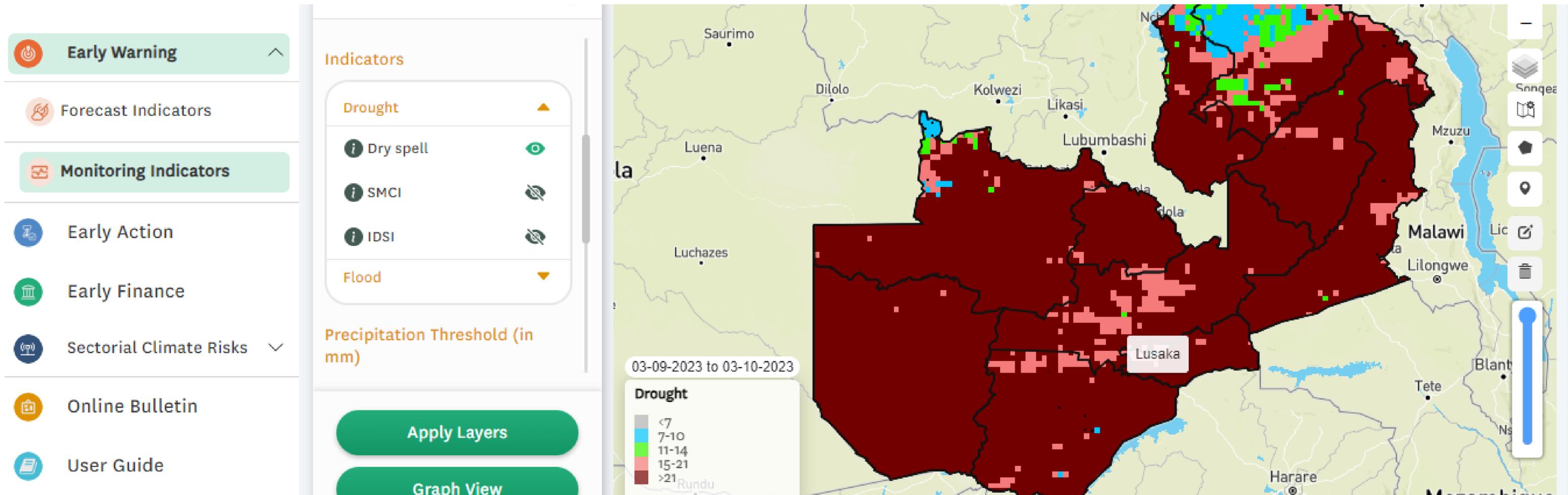
## Online Bulletin

This tool helps to disseminate drought related information to guide various users for timely early action and decision-making process.



## User Guide

The user guide provides the opportunity for users to step-wise procedure on the various knowledge products of AWARE for quick access and information sharing.



INITIATIVE ON  
Climate Resilience

# alert dashboard - flood



INITIATIVE ON  
Climate Resilience

The aware alert dashboard offers to monitor and display alerts or notifications related to...

## Alerts

IRI

Normal

Current Value: 0

Active Threshold: 70

Readiness Threshold: 50

Preparedness Threshold: 40

Severity: **Normal**

Open Weather

Normal

Current Value: 0

Active Threshold: 100

Readiness Threshold: 75

Preparedness Threshold: 50

Severity: **Normal**

GeoGlows

Normal

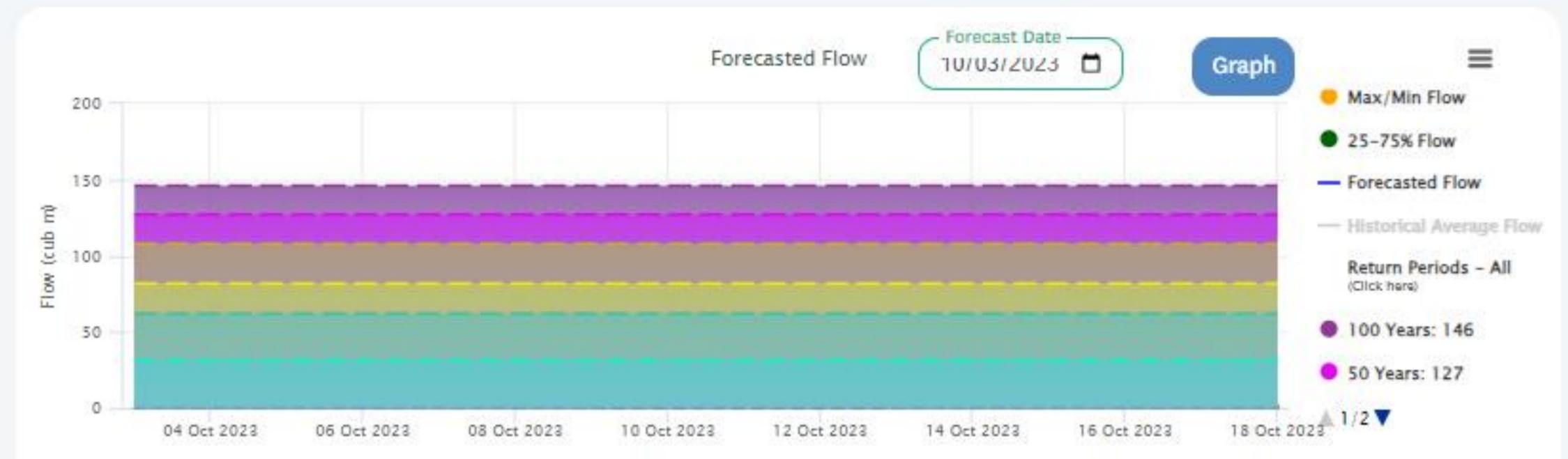
Current Value: 0

Active Threshold: 82.68 (10Y-return period)

Readiness Threshold: 62.37 (5Y-return period)

Preparedness Threshold: 31.7 (2Y-return period)

Severity: **Normal**





**Early Warnings for All**



Early Action Simulation Drill with multi-stakeholders in Sri Lanka



**Early Warnings for All**



Early Action Simulation Drill with multi-stakeholders in Sri Lanka



INITIATIVE ON  
Climate Resilience

Thank You

For any queries contact:

Giriraj Amarnath, [a.giriraj@cgiar.org](mailto:a.giriraj@cgiar.org)





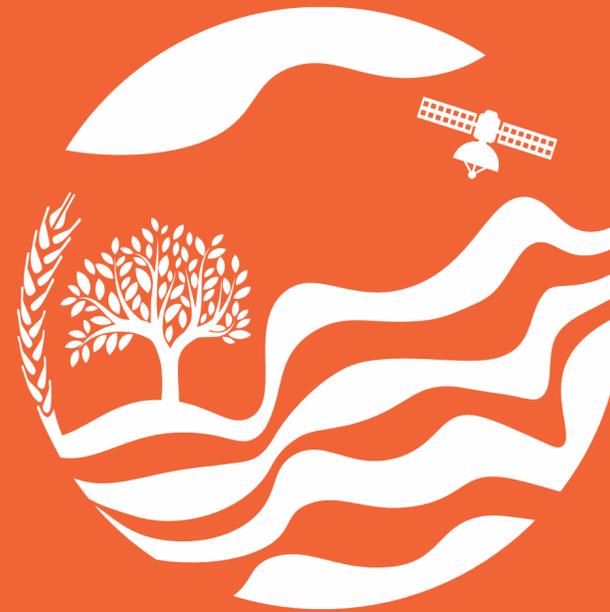
Thank you for your attention!

Contact Information:

IWMI:

[A.Giriraj@cgiar.org](mailto:A.Giriraj@cgiar.org)

#TheEarthTalks



**GEO  
WEEK  
2023  
MINISTERIAL  
SUMMIT**

**6-10 NOVEMBER**  
CAPE TOWN, SOUTH AFRICA

---

# Demonstration 4

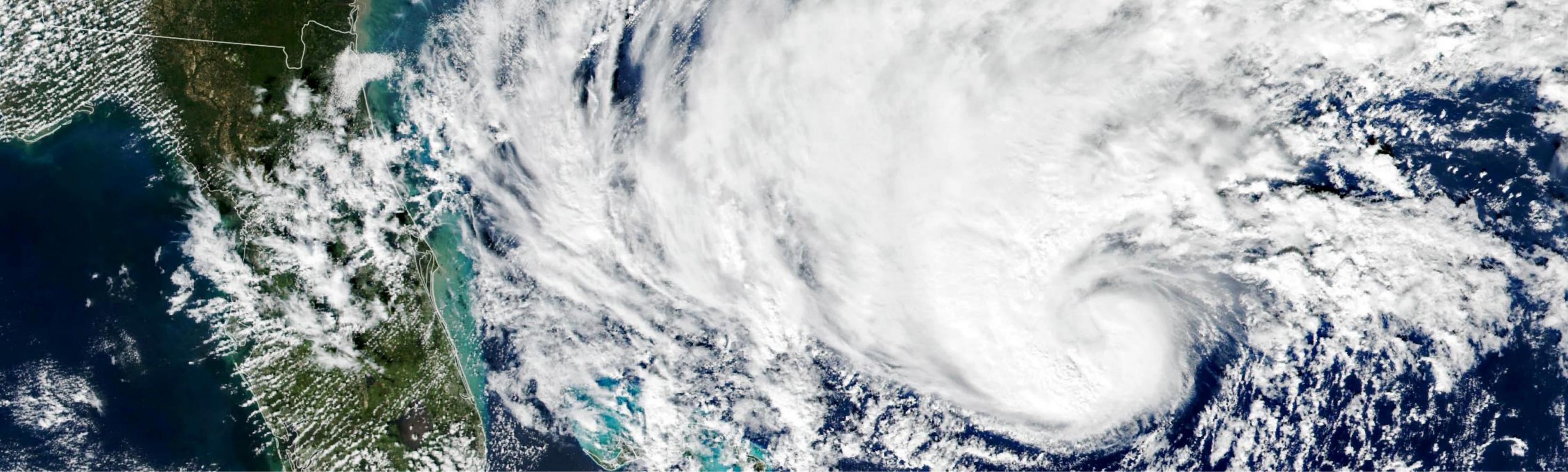
---

## NASA Disasters Mapping Portal

---



**Shanna  
McClain**



## **NASA DISASTERS PROGRAM:**

**Dr. Shanna McClain, PhD**

*Program Manager, NASA Earth*

## **ENABLING DISASTER SCIENCE FOR THE WORLD**

*Action Disasters Program*

7 November 2023 – Cape Town, South  
Africa



[disasters.nasa.gov](https://disasters.nasa.gov)

# ADVANCING SCIENCE TO BUILD RESILIENCE



Disaster  
Applications

We advance the field of disaster science by building partner-centered decision-support tools to help communities better prepare for, mitigate, and recover from disasters.



Disaster Response  
Coordination System

We work directly with public and private sector partners and emergency managers to support disaster response efforts with Earth observing data and expertise.



Disasters  
Open Access Portal

We foster open science by providing access to and use of our disaster products, and by building community engagement and capacity in the use of Earth science information for disaster management.



# DISASTER APPLICATIONS



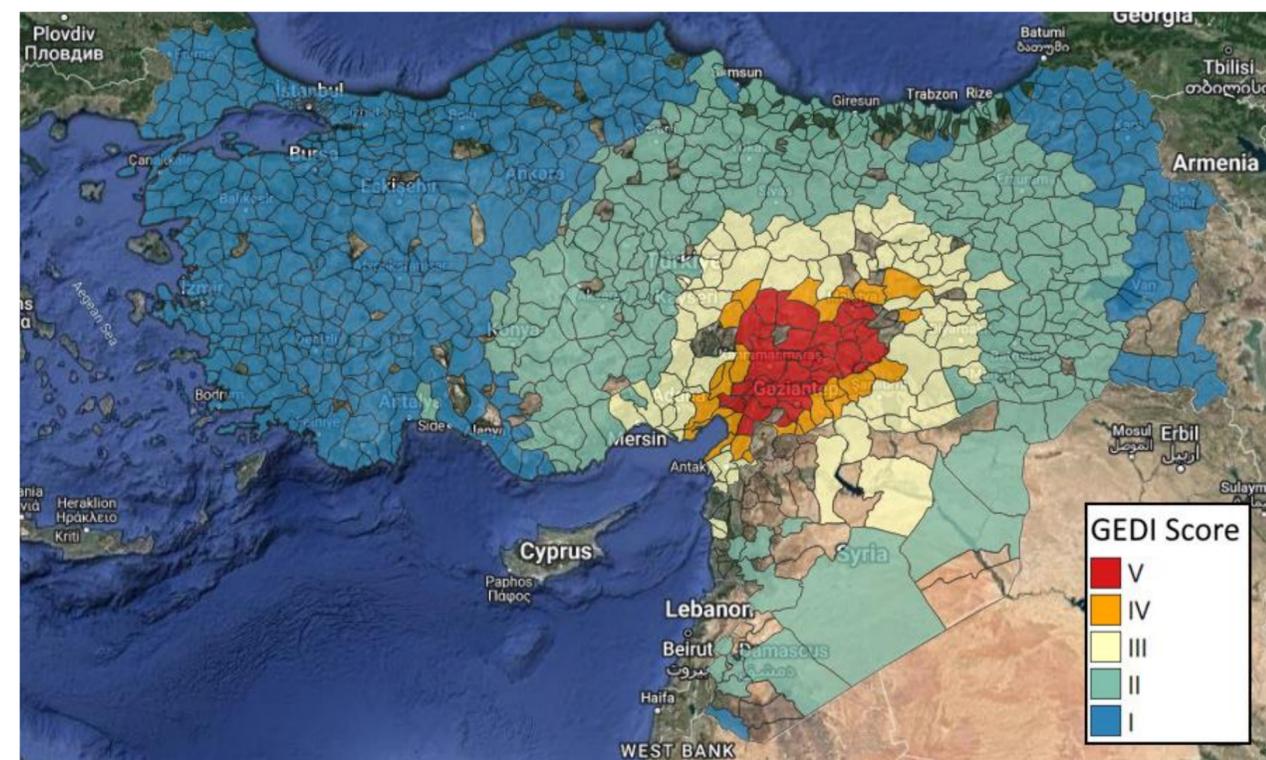
EARTH SCIENCE  
APPLIED SCIENCES  
DISASTERS

# APPLICATIONS – QUANTIFYING ECONOMIC IMPACTS

## “Open Critical Infrastructure Exposure for Disaster Forecasting, Mitigation, and Response”

- Quantifying the **economic impacts of disasters** aids planning by governments, NGOs, and private companies.
- **GEDI – the Global Economic Disruption Index** - assesses economic impacts and helps identify cascading disasters.

- Combines Earth observations, remote sensing, traditional loss estimation, and economic modeling for long-term visualization and **understanding of potential economic disruption**.
- Adapted for use in areas such as Regional Resilience Assessment, parametric-triggered insurance products, and corporate Environmental, Social, and Governance (ESG) reporting.





# For Researchers

Overview FAQ Solicitations SMD Bridge Program ROSES Blog NAC Science Committee NASA Postdoc Program More

## Funding Opportunities and Announcements

[Jump down to Announcements](#)

### Funding Opportunities

#### ROSES-2023

- The 2023 version of Research Opportunities in Space and Earth Science (ROSES-2023) was posted at <https://solicitation.nasa.gov/ROSES2023> on February 14, 2023.
- Table 2 with all program elements organized by due date was posted at <https://solicitation.nasa.gov/ROSES2023/table2>
- Table 3 with all program elements organized by subject matter was posted at <https://solicitation.nasa.gov/ROSES2023/table3>
- The FAQ on what's new in ROSES-2023 was posted at <https://science.nasa.gov/researchers/sars/tags/#>
- We have a few ways for proposers to keep up to date with changes to ROSES after release. You are encouraged to:
  - Subscribe to the SMD NSPDFS mailing lists by logging in at <https://nspres.nasa.gov> and checking the appropriate boxes under Account Management and Email Subscriptions.
  - Bookmark the ROSES-2023 blog for clarifications, corrections and amendments at <https://science.nasa.gov/researchers/sars/grant-solicitations/roses-2023/> and
  - Subscribe to the relevant ROSES-2023 due date Google calendars. Instructions will be posted at <https://science.nasa.gov/researchers/sars/library-and-useful-links>

#### For Researchers

- › Advisory Committees
- › Announcement of Opportunity
- › Community Town Hall Meetings
- › Dual-Anonymous Peer Review
- › Grant Status
- › How To Guide
- › Library and Useful Links
- › NASA Workforce Study
- › New PI Resources
- › No Due Date Programs
- › OSMP FAQ ROSES-2023
- › Old ROSES-2023 OSMP FAQ
- › Program Officers List
- › ROSES Blog
- › ROSES Budget Reduction
- › ROSES FAQ



## DISASTER RESPONSE COORDINATION SYSTEM



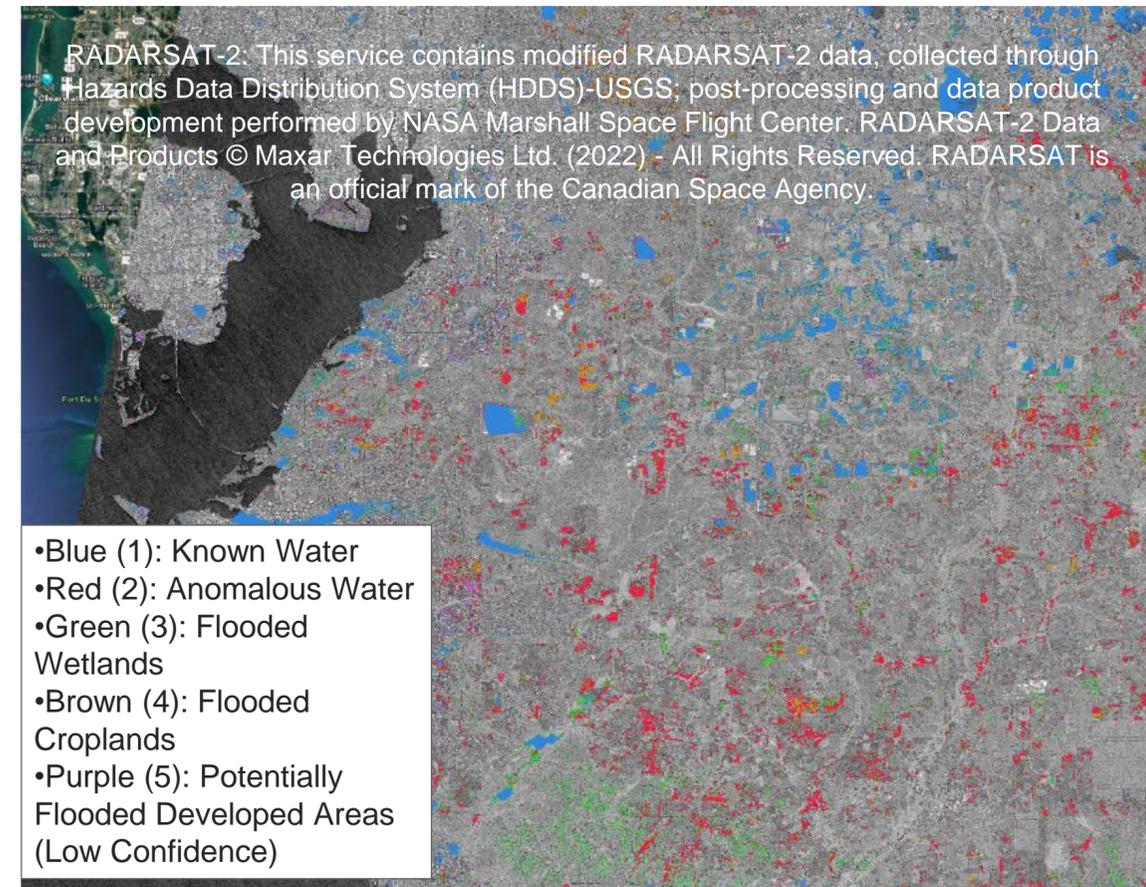
EARTH SCIENCE  
APPLIED SCIENCES  
DISASTERS

# RESPONSE – HURRICANE IAN 2022

- Third most costly weather disaster in Florida history, with **12 foot storm surge** and heavy rainfall causing **widespread flooding**.
- NASA **supported FEMA response** by filling gaps in satellite imagery and developing flood extent maps.
- Used a novel **flood mapping** technique combining RADARSAT

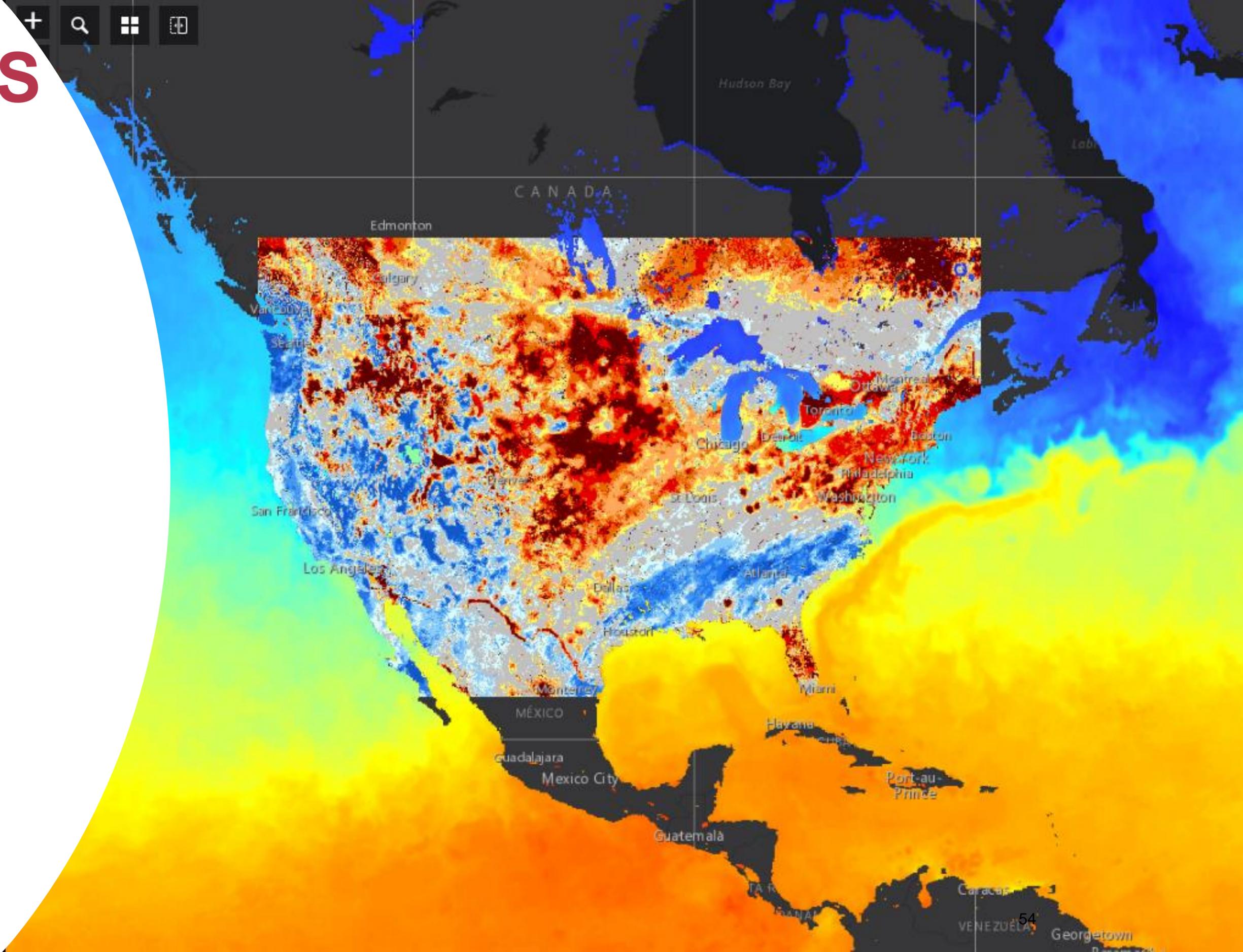
data, USDA crop masks, and other datasets to distinguish between water bodies, marshes, and flood areas.

- NGOs, such as **World Central Kitchen** and **Team Rubicon**, used NASA's products to target relief efforts and determine accessibility of affected areas.





# DISASTERS MAPPING PORTAL



EARTH SCIENCE  
APPLIED SCIENCES  
DISASTERS



Layne, Garrett W. (GSFC-LP020)



**Dr. Shanna N. McClain, PhD**  
*shanna.n.mcclain@nasa.gov*



[disasters.nasa.gov](https://disasters.nasa.gov)



**EARTH SCIENCE  
APPLIED SCIENCES  
DISASTERS**

# #TheEarthTalks

Video demonstration



# Interactive Q&A

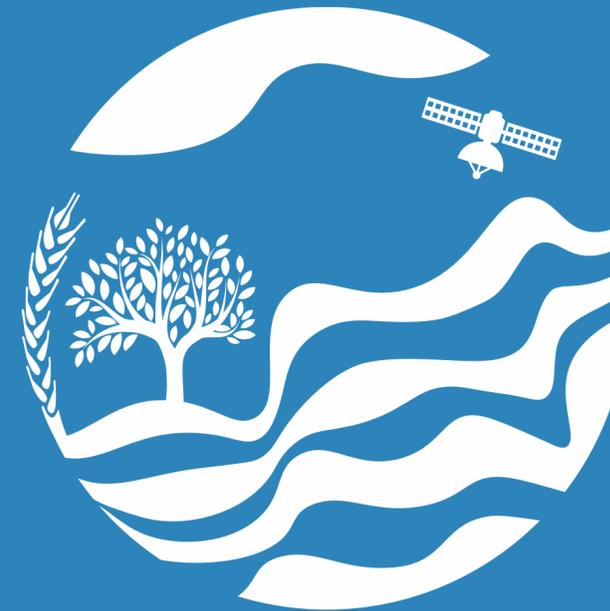
#TheEarthTalks

Thank you for your attention!

Contact Information:

NASA:

[shanna.n.mcclain@nasa.gov](mailto:shanna.n.mcclain@nasa.gov)



**GEO  
WEEK  
2023  
MINISTERIAL  
SUMMIT**

**6-10 NOVEMBER**  
CAPE TOWN, SOUTH AFRICA

---

# Conclusions & Way forward

---

GEO Capacity Building efforts

 **TEC-GEO knowledge product**

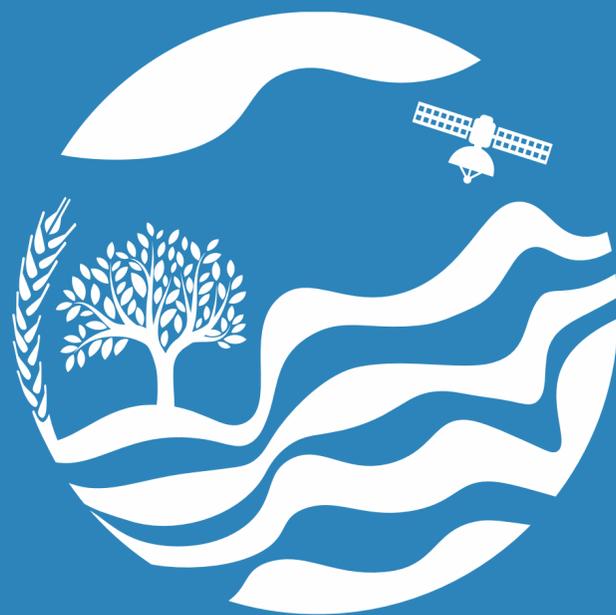


**Sousan  
Torabiparizi**



**Ernest  
Acheampong**

#TheEarthTalks



**GEO  
WEEK  
2023  
MINISTERIAL  
SUMMIT**

**6-10 NOVEMBER**  
CAPE TOWN, SOUTH AFRICA

---



**science & innovation**  
Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA

