SPEAR
A joint initiative by UN-SPIDER and ZFL of UniBonn

UN-SPIDER  ZFL
Regional Virtual Expert Meeting
“Space-based Solutions for Disaster Risk Management and Emergency Response”
13 to 15 July 2021
UN-SPIDER

*United Nations Platform for Space-based Information for Disaster Management and Emergency Response*

- Established by the UN General Assembly in 2006:

- Managed by the United Nations Office for Outer Space Affairs (UNOOSA)

- Headquarters at the United Nations Office in Vienna and additional offices in Bonn, Germany and in Beijing, China.
Technical Advisory Support
UN-SPIDER provides support to countries in assessing national capacity and in evaluating disaster and risk reduction activities, policies and plans

Knowledge Portal
The UN-SPIDER Knowledge Portal is a web-based tool for information, communication and process support

Capacity Building
UN-SPIDER facilitates capacity building and institutional strengthening, including the development of curricula and an e-learning platform (e-SPIDER)

Fostering Cooperation
UN-SPIDER fosters alliances and creates forums where both space and disaster management communities can meet
Access to Knowledge

- Geoinformation for Hazard, exposure, vulnerability, and risk assessment
- Recommended Practice on Flood Hazard Mapping
- Recommended Practice on Storm surge hazard mapping
- Geoinformation for Post Disaster Needs Assessment (PDNA)/Damage and Loss Assessment (DaLA)
- Re...
Main Aim:
Institutionalizing the generation and use of space-based information:

Establish inter-institutional teams in developing countries

Capacity building and Institutional strengthening
Technical Advisory Support to Nigeria:

- **Technical Advisory Mission:**
  - 13-17 June 2011, coordinated with NASRDA and NEMA

- **Advisory Support due to floods:**

- **Capacity building efforts:**
  - Virtual training course for staff of NEMA, NASRDA and ARCSSTE-E in Oct. 2020 on flood mapping using Sentinel 1 radar imagery and Google Earth Engine.

- Mobilization of experts from Nigeria to UN-SPIDER Conferences in Vienna, Bonn and Beijing since 2007.
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Space-based Earth observation Applications for Emergency Response and Disaster Risk Reduction

2019 - 2023
Objectives

• Raise awareness for the usefulness of EO to contribute to efforts conducted in the areas of DRR, preparedness, response, and recovery with a focus on African countries and in line with the German Africa Strategy.

• Make use of and strengthen German expertise for the use of EO information to support international conventions in the fields of disaster preparedness and response in the multi-hazard and multi-risk context.

• Ensure that space-based data, information, tools and applications are accessible based on actual needs and requirements of users, especially in African countries.
Objectives

• Facilitate international cooperation between the space community and the communities that focus their efforts on disaster risk reduction, preparedness, response, and recovery efforts.

• Contribute to the strengthening of institutional capacities at the national level, in particular of institutions in developing countries.

• Strengthen Bonn as UN and Science location and increase the cooperation between the Center for Remote Sensing of Land Surfaces (ZFL) of the University of Bonn and the UN-Campus
National Needs & International Conventions

- SFDRR
- SDGs
- UNFCCC
  Measures/Goals of NAPAs

National Needs & Knowledge Transfer

- CEOS
- Charter
- GP-STAR
- GEO
- ...

EO for Disaster Risk Reduction, Response, & Recovery

Use and development of EO-based information products and recommended practice to strengthen disaster mitigation, preparedness, response & recovery

Knowledge generation and exchange by
- Capacity building
- Training and Technical Advisory Missions
- Widening Collaborations
- Knowledge Platform

International exchange

Data & Information

Satellite Data
- Sentinel 1,2,3
- Landsat
- AVHRR
- MODIS
- ...

Ancillary Data
- In-situ data
- Multi-Hazard and Risk Assessment
- Models and Scenarios
- ...

Pilot Countries

UN-SPIDER

National Needs
Disaster Preparedness and Response, Capacities

Knowledge Portal

TAM
TAM Follow-Up
Regional Expert Meeting South Africa
Country Boundaries

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EO related activities

UN-SPIDER Recommended Practices
- Guidelines for different disaster related methods
- Available through UN-SPIDER Knowledge Portal

Method testing and development
- Testing of recommended practices and other methods and tools
- Development of new or improved methods

Map and Information production
- To prepare and support UN-SPIDER missions and events in Africa
- To support African institutions and make them aware of different EO capabilities

Training and user feedback
- Demonstration and training of methods in virtual and live events, MOOCs etc.
- Development of guidelines and training materials
Current EO priorities

Method development: Multi scale monitoring of Locust infestations

Method development: Sentinel-1 based landslide monitoring approaches

Method development: Radar based damage assessment procedures

Method development: SAR and modelling approaches for dam failure

Testing and updating of already existing recommended practices
Technical Advisory Missions (TAM)  
Institutional Strengthening Missions (ISM)

- 2-3 missions per year
- Regional Expert Meetings
- Training and Capacity Building
- On-demand -> Specific requests
- Africa-wide network
- Shapening EO-based applications
Outreach

2019
- Conference Bonn Challenges, Applications, Partnerships
- TAM & ISM

2020
- Expert Meeting Bonn
- TAM & ISM

2021
- Conference Bonn Strategies, Technology, Implementation
- Switch to virtual formats
- Expert Meeting South Africa
- TAM & ISM
- Additional Virtual Events

2022
- TAM & ISM

2023
- Conference Bonn Outcomes and way forward
- TAM & ISM
- Expert Meeting Bonn

Publications, Newsletters ...

TAM = Technical Advisory Mission
ISM = Institutional Strengthening Mission
The way forward

• Continue and strengthen virtual activities

• Continue work on recommended practices and EO applications
  • Improve methods
  • Incorporate new possibilities and data sources
  • Cover different disaster types
  • Develop pilot studies

• New Sentinels-4-African-DRR activity together with DLR
  • EU funded action to strengthen the benefits from Copernicus in the fields of Disaster Management and Risk Reduction in Africa
  • Technical Session tomorrow afternoon!