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UNOOSA/UN-SPIDER

Knowledge Sharing
and
Improving Access to Emergency Response Mechanisms

December 2022

Joint Open Session, UN-Space / UN-SPIDER Workshop in Bangkok

Access to Knowledge

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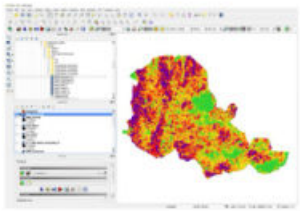
Recommended Practices



When using space technologies for disaster risk management and emergency response, it is not only important to have access to space-based data and software, but also to workflows for processing and mapping the data in order to develop information products and gain insights into hazards.

For this reason, UN-SPIDER is joining efforts with a wide range of partners and its network of Regional Support Offices to provide step-by-step procedures, so-called Recommended Practices, that have proven effective in creating information products based on remote sensing to assess hazards such as floods, drought and forest fires.

Recommended Practices make use of data from different satellites and sensors, for instance Landsat 8 and Sentinel-2. To allow as many interested users as possible to use these procedures, UN-SPIDER makes them available in a growing variety of GIS software packages and programming languages such as QGIS, R and Python.

Each Recommended Practice consists of an overview, a step-by-step and in detail page. To see all software packages and programming languages a Recommended Practice is available in, navigate to its step-by-step page.

As part of its technical advisory support activities, UN-SPIDER regularly trains civil protection agencies and other stakeholders in developing countries in using the Recommended Practices to develop information product that support that disaster management and emergency response efforts.

If you have questions or wish to share your own experience in applying these Recommended Practices, please contact us.

Browse Recommended Practices

Hazard Type
- Any -

Related Software

Related Dataset

UN-SPIDER Recommended Practices

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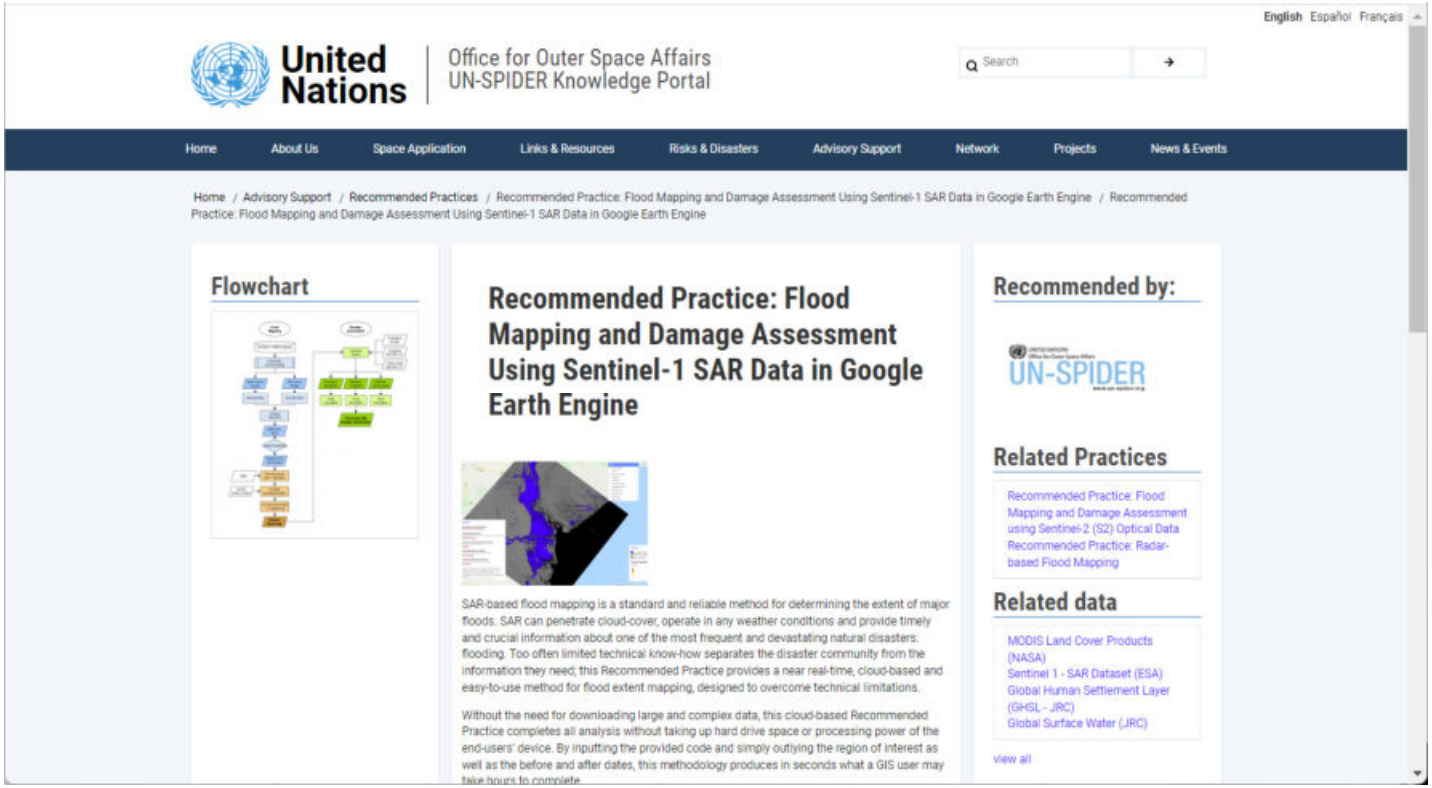

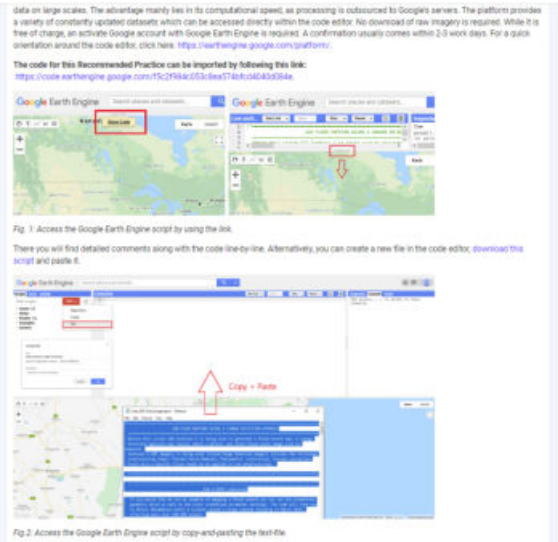

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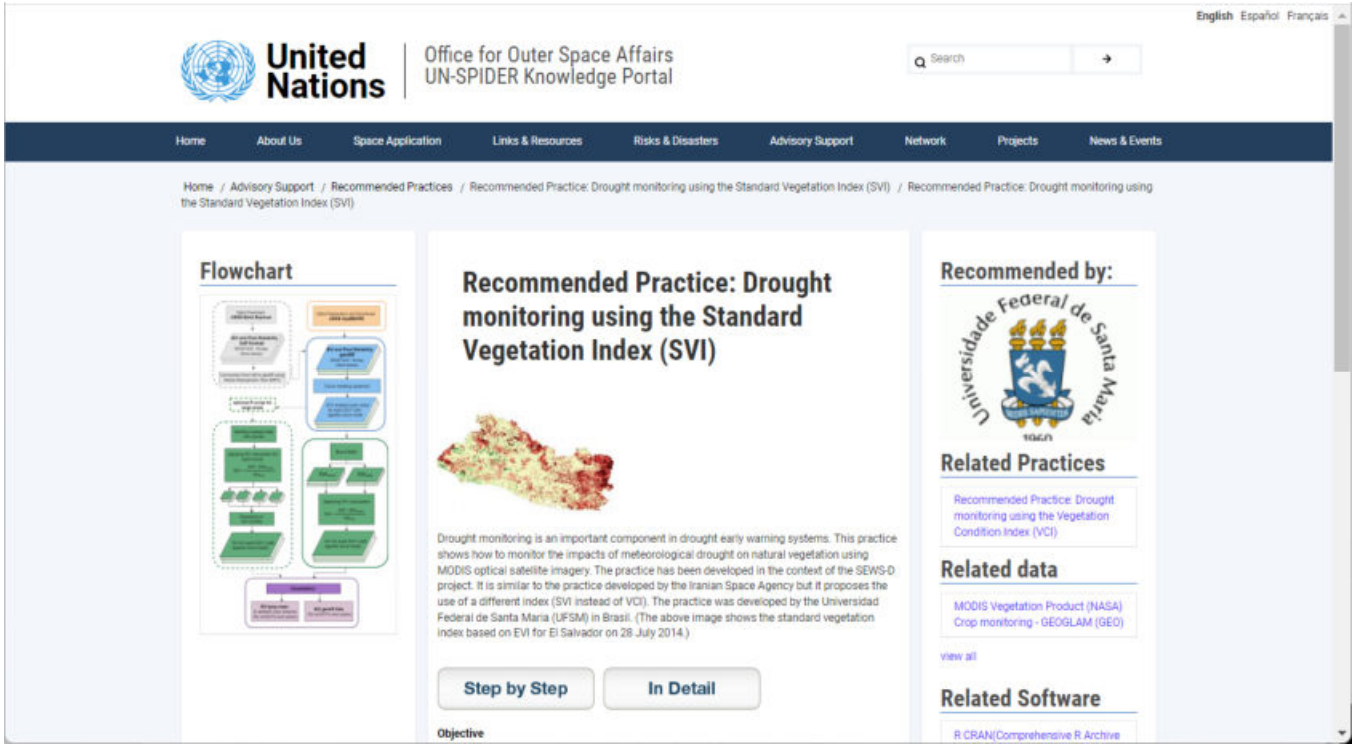

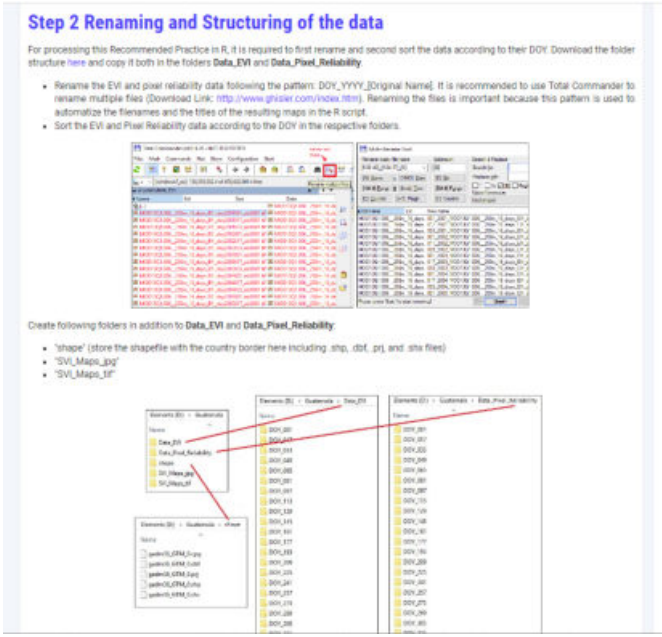

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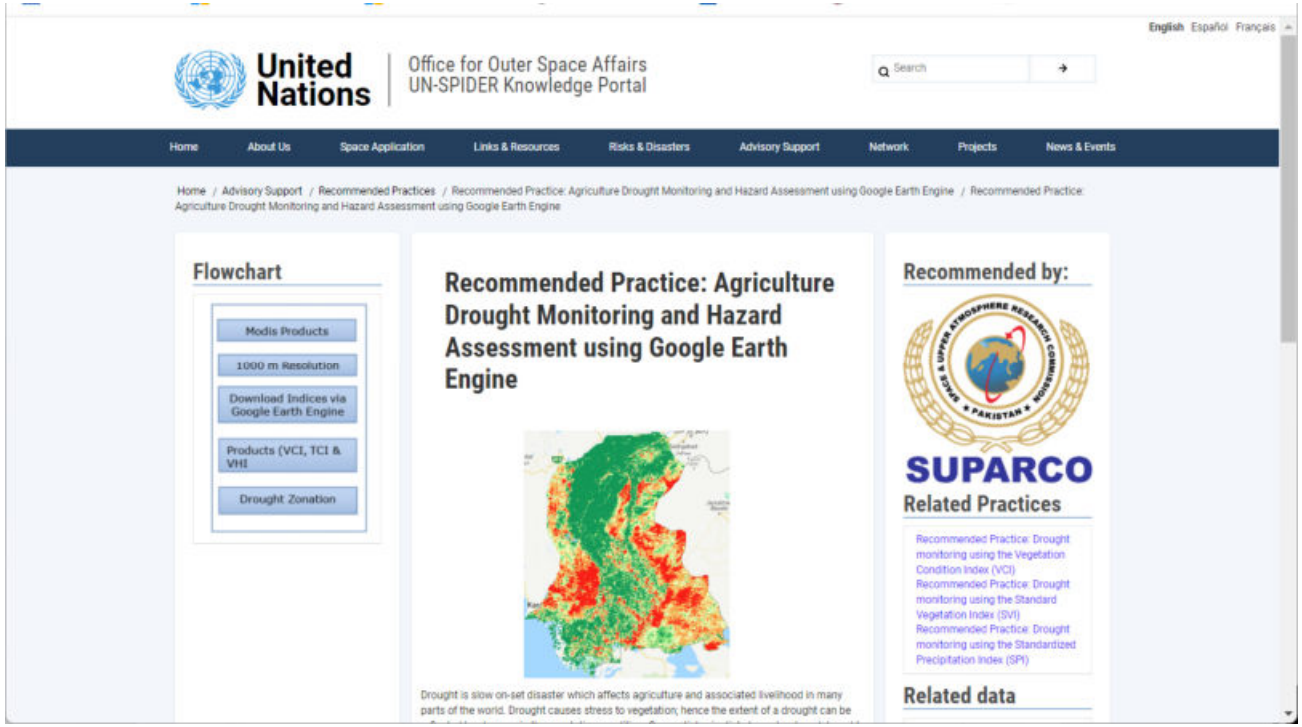

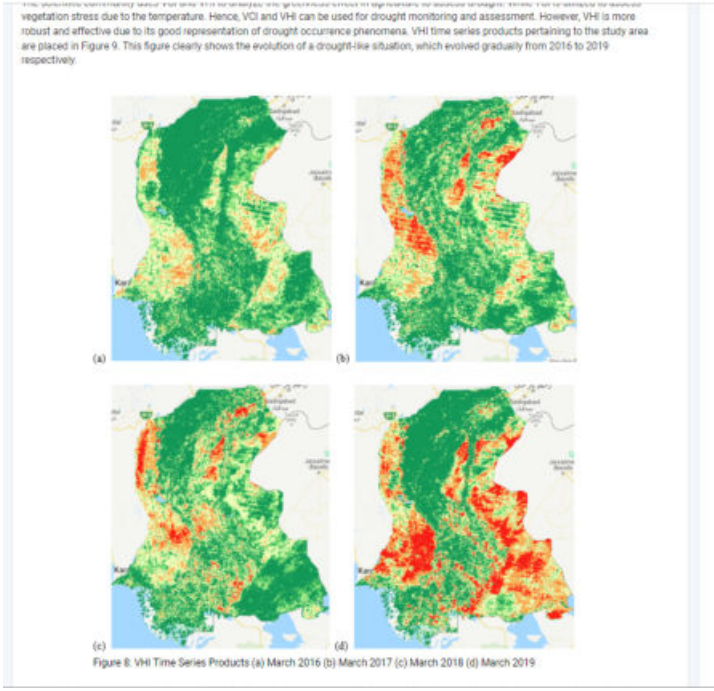

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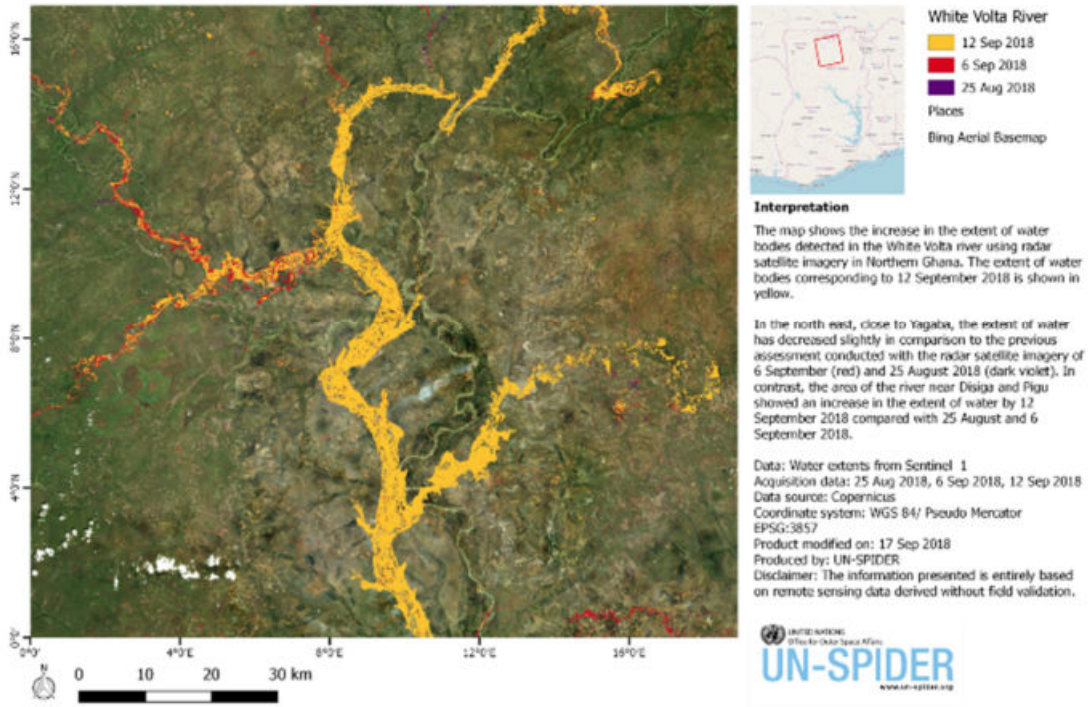
flood mapping in Ghana

Identification of inland water bodies Ghana



Interpretation

The map shows the increase in the extent of water bodies detected in the White Volta river using radar satellite imagery in Northern Ghana. The extent of water bodies corresponding to 12 September 2018 is shown in yellow.

In the north east, close to Yagaba, the extent of water has decreased slightly in comparison to the previous assessment conducted with the radar satellite imagery of 6 September (red) and 25 August 2018 (dark violet). In contrast, the area of the river near Disiga and Pigu showed an increase in the extent of water by 12 September 2018 compared with 25 August and 6 September 2018.

Data: Water extents from Sentinel 1
Acquisition data: 25 Aug 2018, 6 Sep 2018, 12 Sep 2018
Data source: Copernicus
Coordinate system: WGS 84/ Pseudo Mercator EPSG:3857
Product modified on: 17 Sep 2018
Produced by: UN-SPIDER
Disclaimer: The information presented is entirely based on remote sensing data derived without field validation.

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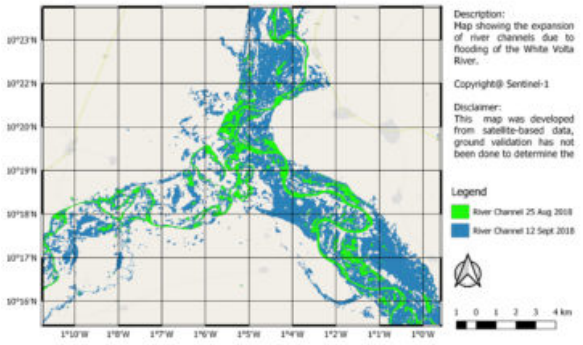
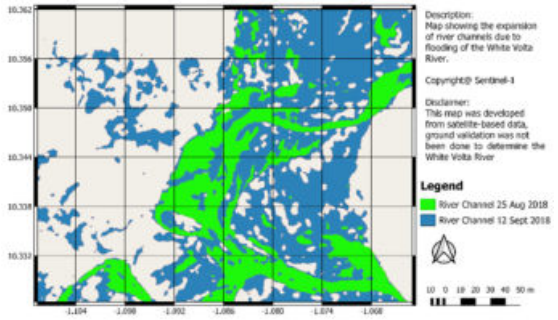
Radar mapping of White Volta before and during floods 2018



Radar mapping of White Volta before and during floods 2018



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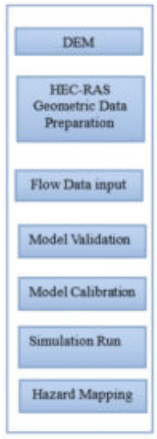
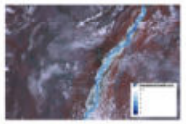
Flowchart



Recommended Practice: Flood Hazard Assessment



Flood hazard assessments are critical to identifying areas at risk and taking relevant preparation and mitigation measures to address the hazard. Using the HEC-RAS 2D model for preparing flood hazard maps, this Recommended Practice explains how to identify flood-prone areas and exposed infrastructure. Through its focus on the prevention and mitigation stages of the disaster management cycle, it complements the Recommended Practice on Flood Mapping and Damage Assessment with Sentinel-2, also developed by SUPARCO.

Step by Step | In Detail

Objective

The objective of this practice is to carry out a flood hazard assessment, identify potential flood-prone areas and potentially affected infrastructure namely roads, settlements, agriculture and in-land areas etc. against a flood hazard of particular return period i.e. 2, 5, 10, 25, 50 and 100

Recommended by:

SUPARCO

Related Practices

Recommended Practice: Flood Mapping and Damage Assessment using Sentinel-2 (S2) Optical Data
Recommended Practice: Use of Digital Elevation Data for Storm Surge Coastal Flood Modeling

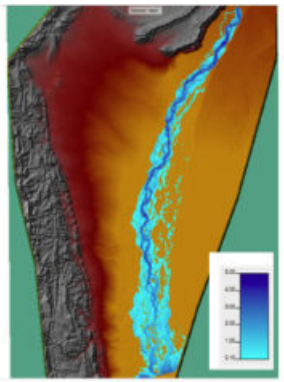
Related data

WorldDEM™ (AIRBUS)

view all

Related Software

31. Simulation results can be viewed in RAS Mapper Window. Flood model main outputs include Depth, Velocity and WSE. Flood model simulated depth, velocity and WSE for known Flood2010 event is shown below (Figure 19-21).



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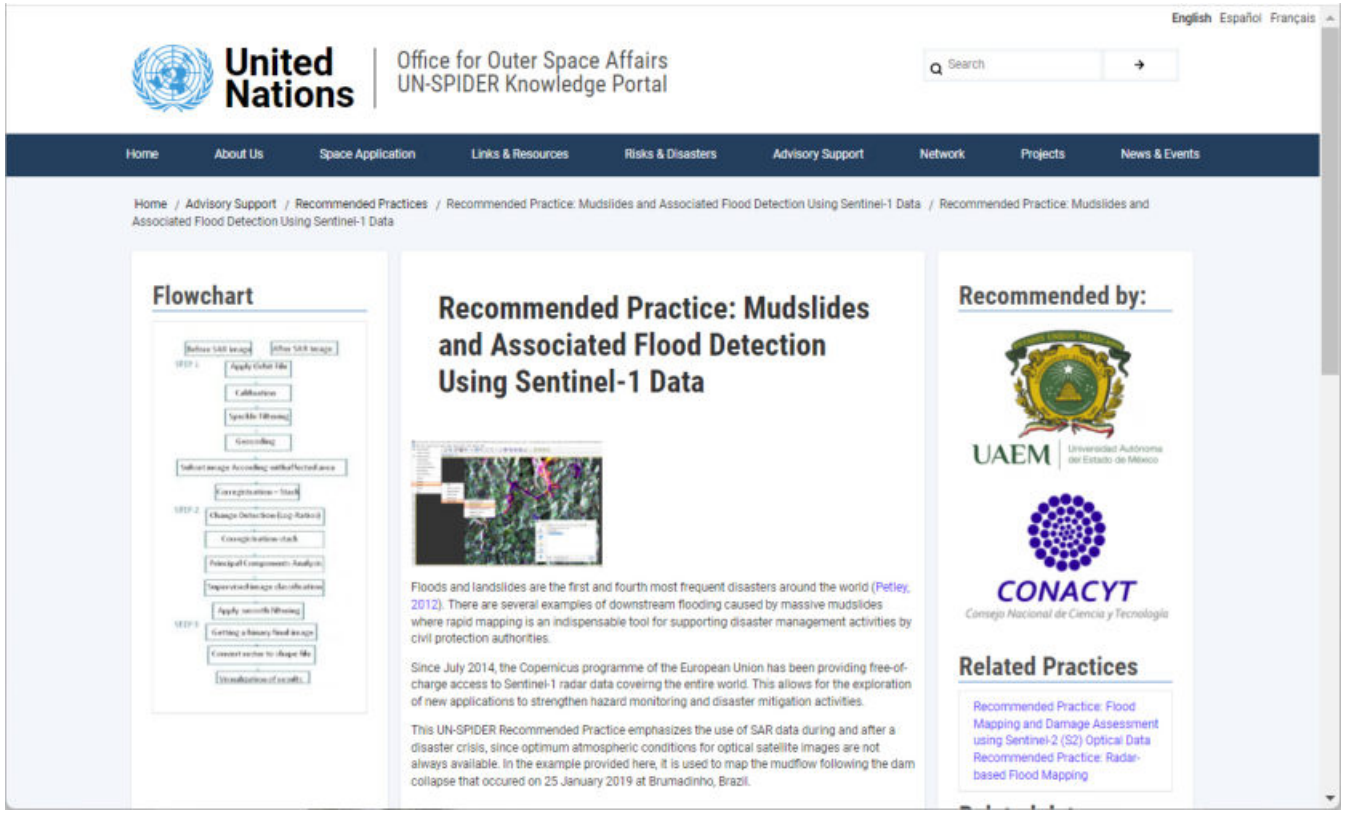
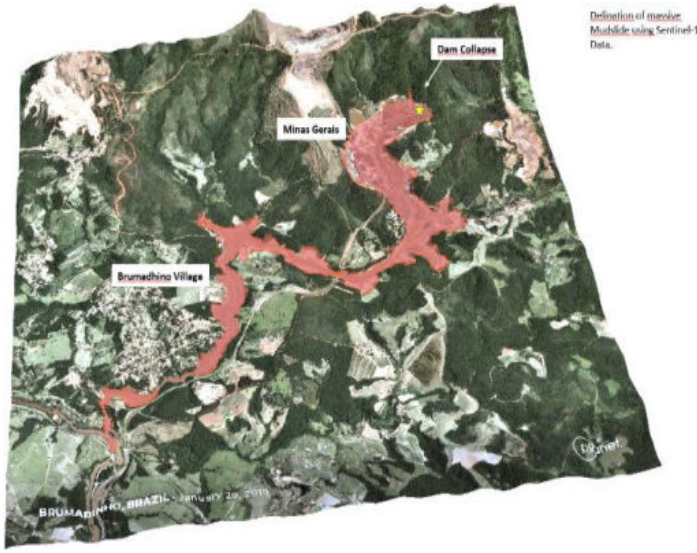
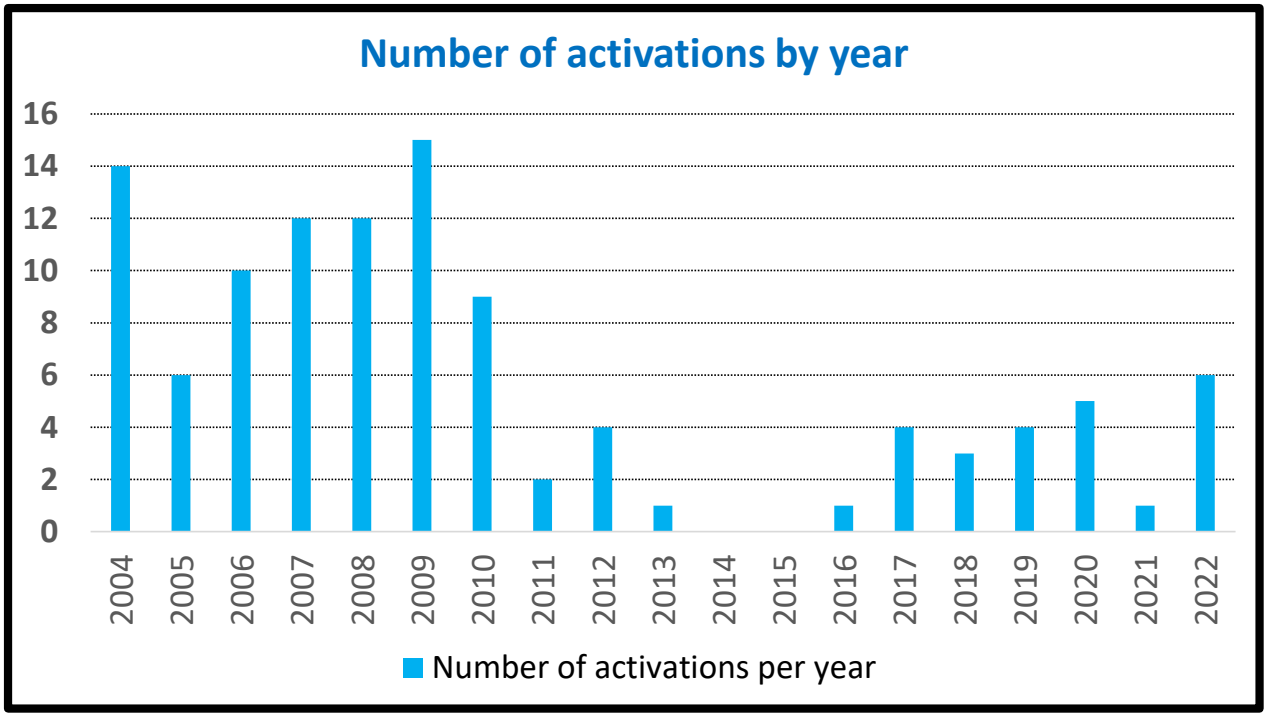




Brumadinho mining dam collapse in Brazil, using Sentinel 1 radar imagery

Requests for activation of the International Charter

Between 2003 and 2022, UNOOSA and its UN-SPIDER programme sent 113 requests for activation to the Charter (nearly 15% of all activations of the Charter up to Sept. 2022).



UNOOSA as a Cooperating Body

- UNOOSA's 113 requests for activation of the International Charter were at the request of UN agencies, national disaster management agencies and in selected cases, ministries of environment. In addition, it has supported other activations
- UNOOSA through UN-SPIDER has constantly raised awareness about the International Charter in a variety of ways (International conferences, expert meetings, publications, UN-SPIDER Knowledge Portal, Technical Advisory Missions to developing countries)
- UN-SPIDER has actively promoted the International Charter with the disaster management community and has carried out efforts to engage national disaster management agencies of countries in Asia, Asia Pacific, Africa, Latin America and the Caribbean as users
- More than 20 national disaster management agencies have submitted official requests to be incorporated as Charter Authorised Users as a result of UN-SPIDER efforts

International Charter Space and Major Disasters

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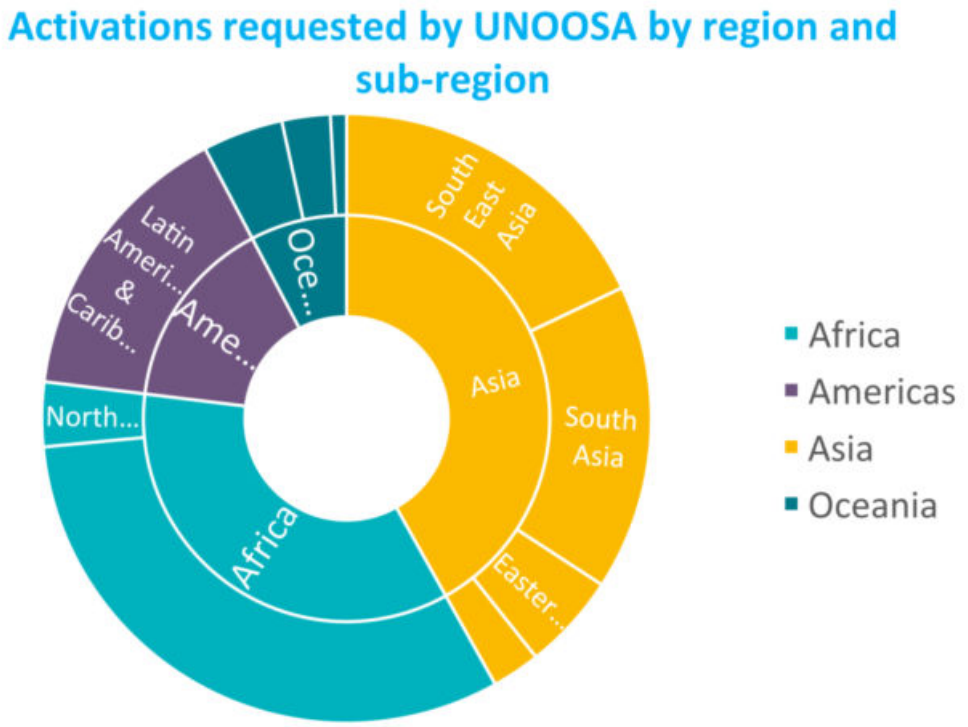
- The activations addressed disasters of different types affecting around 60 developing countries in Asia, Asia Pacific, Africa, Latin America and the Caribbean.

Region	Activations
Africa	37
Americas	18
Asia	49
Oceania	9
Total	**113**



Facilitating admission of national disaster management agencies as Authorised Users

Contribution to the Charter Universal Access initiative:

- Since 2014, UN-SPIDER has been encouraging National Disaster Management Agencies (NDMAs) to request Authorised User status with the International Charter
- The over 20 NDMAs admitted as Authorised Users are from Asia, Africa, Latin America and the Caribbean

Efforts to engage NDMAs in Asia and Asia Pacific as Authorised Users

COUNTRY	STARTED PROMOTING EFFORTS	INCORPORATION AS AU
Myanmar	2017	2017
Vietnam	2017	in process
Samoa	2019	in process
Salomon Islands	2019	in process
Mongolia	2020	in process
Armenia	2022	in process
Philippines	2022	In process

Facilitating admission of national disaster management agencies as Authorised Users

Efforts to engage African NDMAs as Authorised Users

COUNTRY	STARTED PROMOTING EFFORTS	INCORPORATION AS A. U.
South Africa	2018	2021
Ghana	2018	2019
Zimbabwe	2018	in process
Cameroon	2019	2020
Ethiopia	2019	2020
Tanzania	2019	2020
Gambia	2020	2021
Mozambique	2020	in process
Niger	2020	2021

Efforts to engage Latin American and Caribbean NDMAs as Authorised Users

COUNTRY	STARTED PROMOTING EFFORTS	INCORPORATION AS A. U.
Colombia	2013	2014?
Dominican Republic	2014	2015
El Salvador	2015	2015
Guatemala	2015	2016
Honduras	2015	2022
Uruguay	2016	2016
Ecuador	2016	2017?
Costa Rica	2017	2020
Haiti	2017	2019?
Mexico	2020	2021
Cayman Islands	2020	2020
Nicaragua	2021	2022
Panama	2021	2022

Recent activities carried out with the Charter and some of its members

- Joint UN-SPIDER/Charter/CEPREDENAC Training for project managers of Mexico, Central America and Dominican Republic (Guatemala, Dec, 2021)
- Simulation of activation of the Charter for a hypothetical earthquake in Guatemala (Feb. 2022)
- Joint UN-SPIDER/Charter/NASRDA virtual training on the use of the Charter Mapper (Sept 2022)
- Simulation of activation of the Charter for hypothetical very large floods in Nigeria at NASRDA/UN-SPIDER workshop in Abuja (Nigeria, Sept 2022)

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Thank you

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