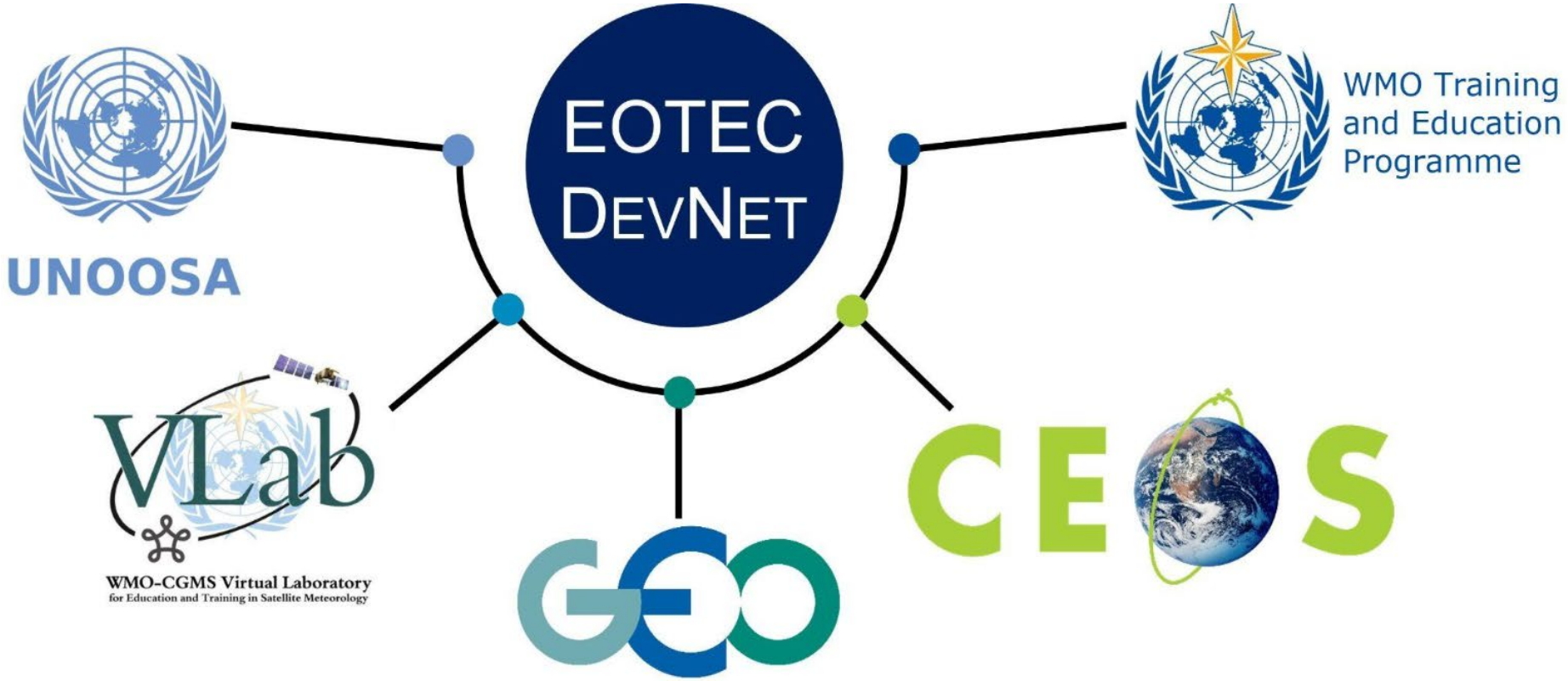
ENHANCING DISASTER RESPONSE THROUGH IMPROVED ACCESS TO EO DATA

EOTEC DevNet's Collaborative Approach



EGU24-20230

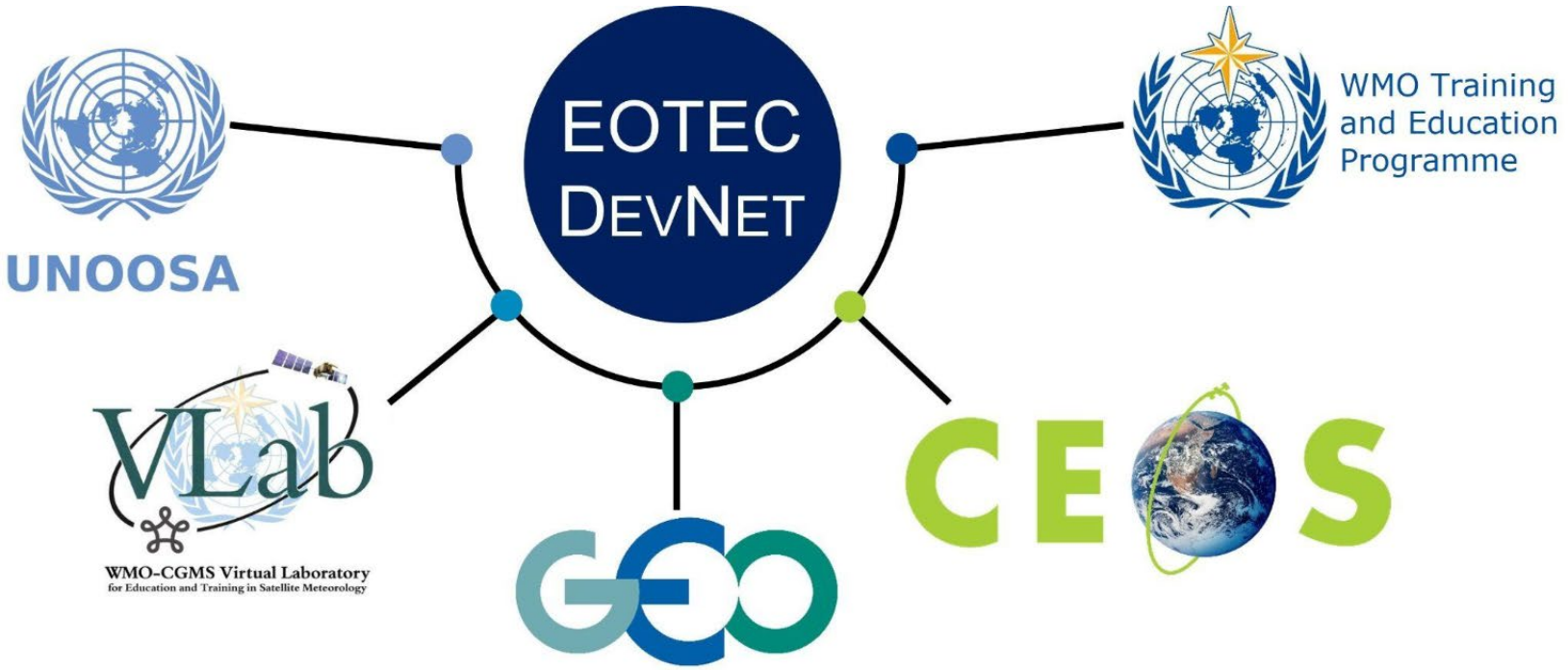
Earth Observation Training, Education, and Capacity Development Network

EGU General Assembly 2024, 14-19 April

Martyna Stelmaszczuk-Górska on behalf of EOTEC DevNet

EOTEC DevNet:

Promoting collaboration among leading EO capacity providers



AIMS

- **Improve collaboration among EO-capacity building providers**
- **Foster exchange of capacity building resources**
- **Reduce duplication of effort**

THEMATIC FOCUS

- Disaster risk reduction
- Climate adaptation and mitigation

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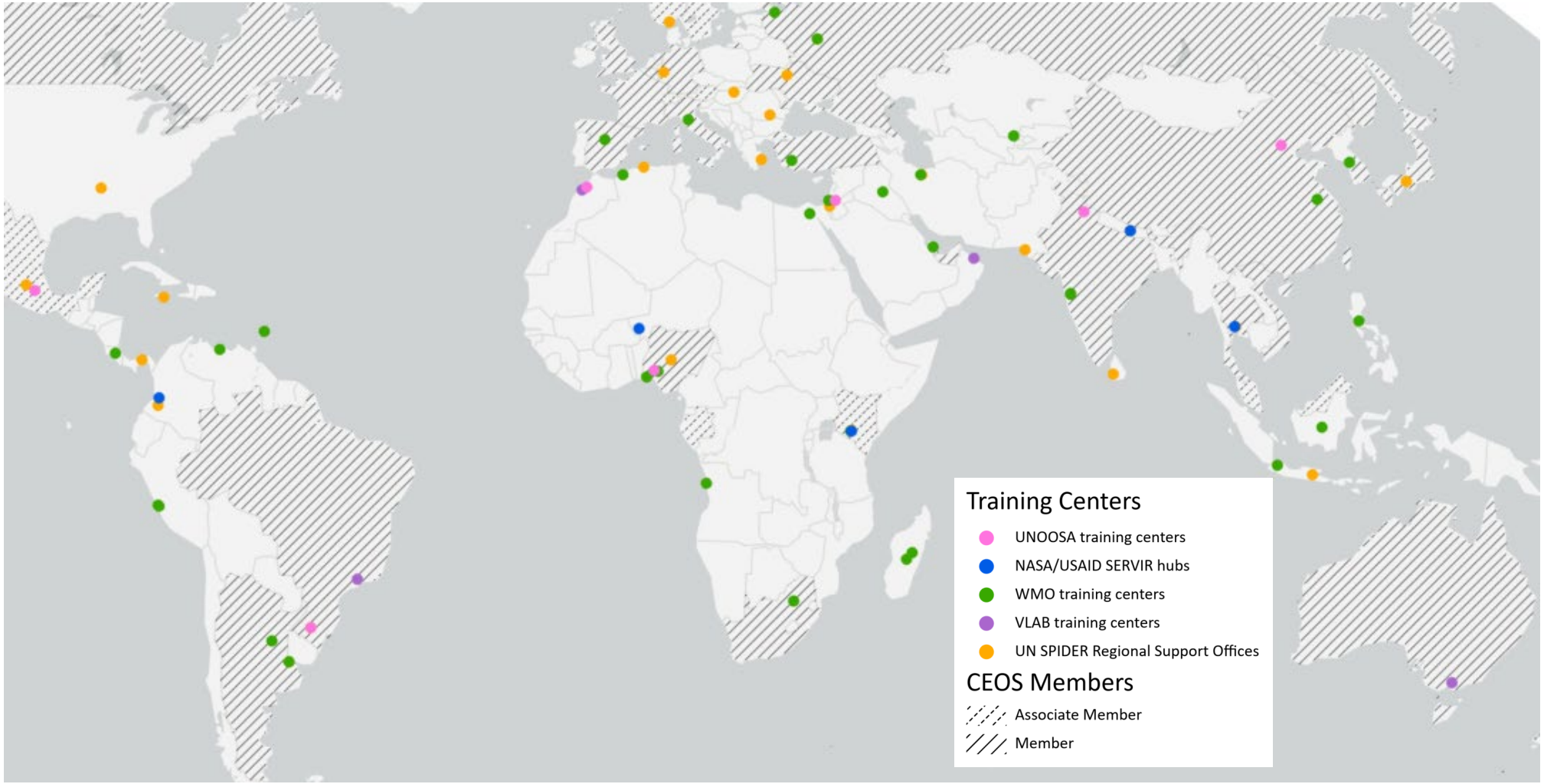
Leveraging a vast global network



EOTEC DevNet:
Where we come from

Space Policy 51 (2020) 101346

Contents lists available at ScienceDirect

Space Policy

journal homepage: www.elsevier.com/locate/spacepol

Coordinated Capacity Development to Maximize the Contributions of Space Science, Technology, and its Applications in Support of Implementing Global Sustainable Development Agendas—A Conceptual Framework

A. Senthil Kumar [a,*], Sergio Camacho [b], Nancy D. Searby [c], Joost Teuben [d], Werner Balogh [e]

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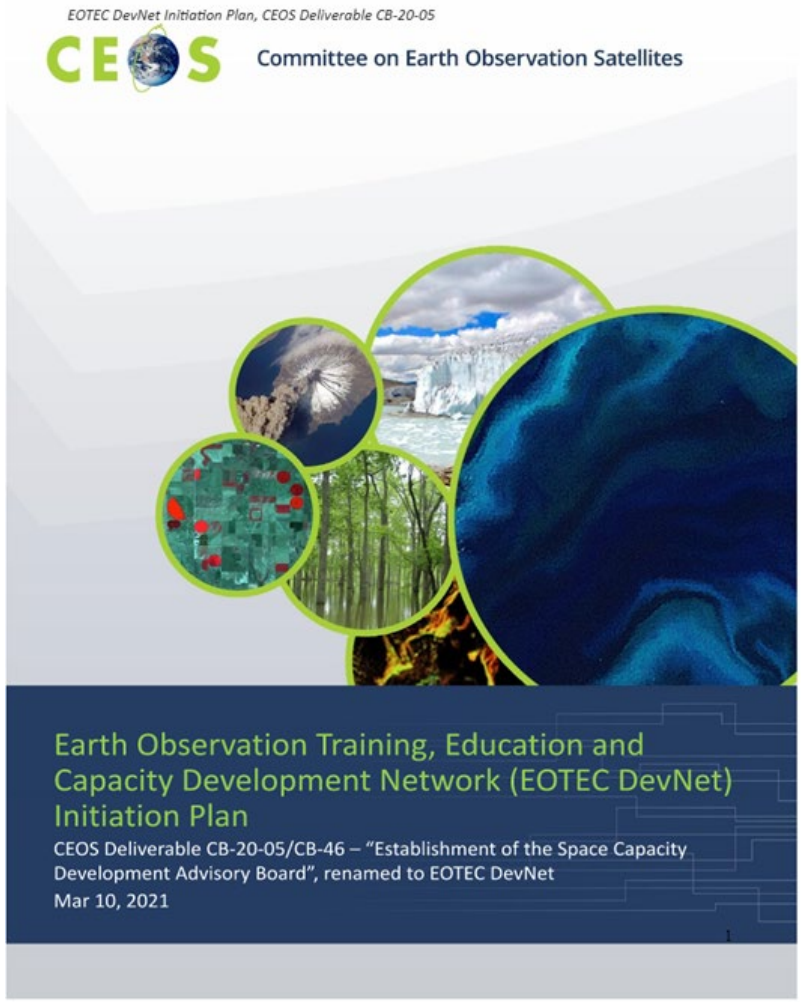
[b] Regional Centre for Space Science and Technology Education for Latin America and the Caribbean, Luis E. Erro No.1, Tonantzintla, Puebla, 72840, Mexico
[c] NASA Headquarters, Earth Science Division, 300, E St. SW, Washington, DC 20546, USA
[d] Group on Earth Observations, 7 Bis, Avenue de La Paix, Case Postale 2300 CH-1211 Geneva, Switzerland
[e] World Meteorological Organization, Space Programme Office, 7 Bis, Avenue de La Paix, Case Postale 2300, CH-1211 Geneva, Switzerland

https://doi.org/10.1016/j.spacepol.2019.101346

- Approved by CEOS in March 2021
- Global structure launched February 2022
- CoPs launched March 2022



https://ceos.org/wp-content/uploads/2021/05/EOTEC-DevNet-Overview-1.pdf

How the Network Operates

Regional Communities of Practice (CoPs)

Africa, Americas, Asia/Oceania, Europe

Regional Task Teams

Thematic Working Groups

+

Global Structures

Leadership Team

Task Team

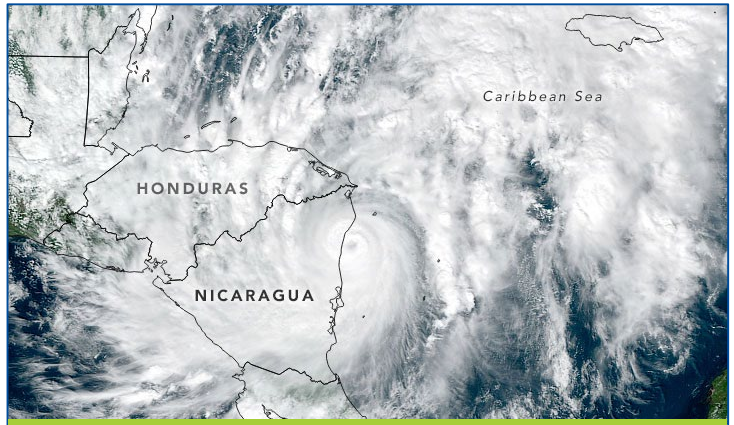
Secretariat

- 1.000+ people engaged
- Active task teams and flood working groups
- Droughts working group at an early stage
- Climate adaptation group coming 2024-25

- Management: Theory of Change/M&E, communications/social media, CoP support
- Global partner coordination/engagement
- New outreach: SPACE4GEO, UNCCD, Digital Earth Africa, SELPER

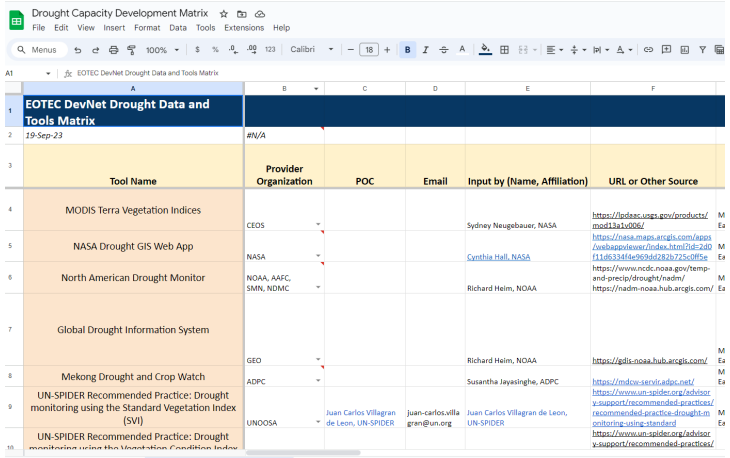
Regional communities of practice drive our work

CoP volunteers collaborate on guidance and tools to make Earth information more accessible

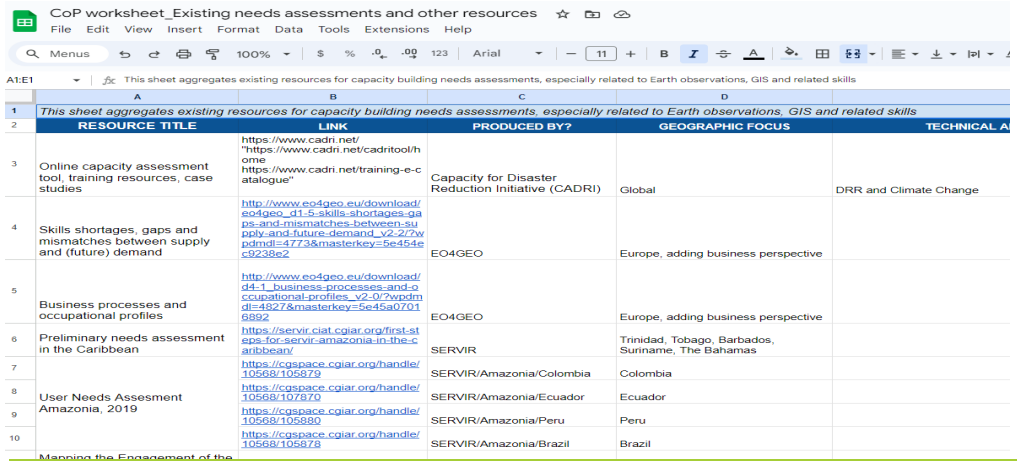


Global case on flood extent tools

Flood tools tracker: https://eotec-dev.ceos.org



Drought Tools Matrix



EO Needs Assessment Guidance

Flood Tools Tracker

Helping users find the right flood tools and capacity building resources

- **Goal:** Help users find the most relevant flood tools and related capacity building resources to prepare for, mitigate, and manage responses to flood events
- **Content:** The tracker's searchable database currently contains 30+ flood tools and similar number of capacity building resources
- **Key Functionality:** Tracker enables filtering flood tools based on the disaster risk response stage, tool category, geographic domain, operational status and other criteria

https://eotec-dev.ceos.org

Demo: Flood Tools Database

Flood Tools

About Tools Capacity Development Resources Admin

Name contains

Name contains

Disaster risk response stage

Forecasting
Response
Risk

Geographic domain

Global
Local
Regional

Region

Africa
Americas
Asia/Oceania
Europe

License type

Open Source
Proprietary

Status

In Development
Operational

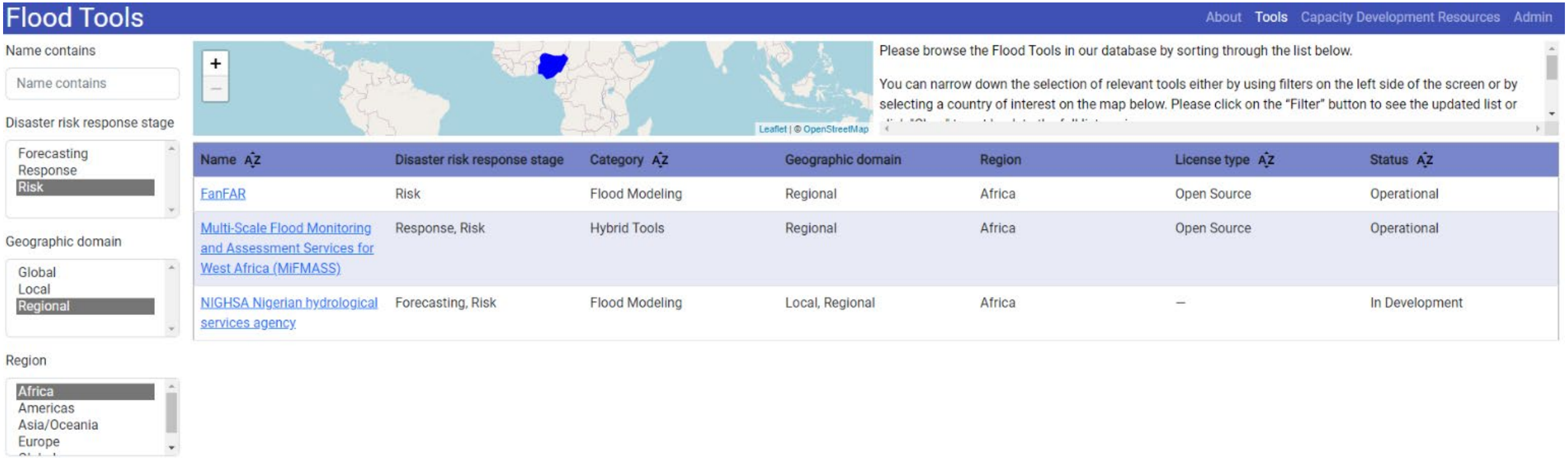
Please browse the Flood Tools in our database by sorting through the list below.

You can narrow down the selection of relevant tools either by using filters on the left side of the screen or by selecting a country of interest on the map below. Please click on the "Filter" button to see the updated list or click "Clear" to get back to the full list again.

If you are aware of the flood tool that is currently not in our database, please submit it by filling the form HERE.

Name	Disaster risk response stage	Category	Geographic domain	Region	License type	Status
Copernicus EMS Rapid Mapping Activations	Response	Flood Extent Mapping	Local, Regional	Global	Open Source	Operational
European Flood Awareness System (EFAS)	Forecasting, Response, Risk	Hybrid Tools	Regional	Europe	–	Operational
FanFAR	Risk	Flood Modeling	Regional	Africa	Open Source	Operational
FloodHub 24/7 Real-Time Floods Monitoring service	Forecasting, Risk	Flood Extent Mapping	Local	Europe	Proprietary with free and open access to all the relevant stakeholders.	Operational
Flood Inundation Damage Assessment System	Response, Risk	Hybrid Tools	Global, Regional	Asia/Oceania	–	Operational
FloodScan	Response, Risk	Flood Extent Mapping	Regional	Africa, Americas	Proprietary	Operational
Floodwater Depth Estimation	Response, Risk	Flood Depth Mapping	Local, Regional	Global	Open Source	Operational

Demo: Flood Tools Database (Filtering)



Demo: Flood Tools Example

Tool Details

About

European Flood Awareness System (EFAS)

Disaster Risk Response Stage	Forecasting Response Risk
Category	Hybrid Tools
Input Network	GEO
Input Network Member	WGCapD
Provider Organization:	European Commission / Copernicus EMS
Point of Contact:	Peter Salamon
E-mail:	peter.salamon@ec.europa.eu
Source	https://www.efas.eu/
Geographic Domain	Regional
Geographic Product Locations	Europe
Geographic Product Locations - Detailed	Albania Andorra Austria Belarus Belgium Bosnia and Herzegovina Bulgaria Croatia
Producing Daily Global Coverage?	True
Globally Extensible	True
Product Delivery Latency	Near-real time, Forecasts are updated twice daily with a latency of approx. 11 hours
Data Type	Uses multiple weather forecasts (ECMWF, German Weather Service, COSMO-LEPS) as input
Associated Capacity Development Resources	• EFAS Wiki

Demo: Flood Tools Example (Continued)

Product Format	WMS-T, netCDF
Archived	True
Tailored Service Available	True
License Type	None
Spatial Extent	European
Spatial Scale	5km
Caveats	Detailed skill assessment available on EFAS wiki
Frequency	forecasts updated twice daily
Overpass Latency	NA
Downlink Latency	NA
Processing Latency	NA
Impacted By Cloud Shadows	None
Impacted By Terrain Shadows	None
Status	Operational
Input By	Peter Salamon, European Commission , Joint Research Center
Notes	Data archive URLs: Past forecasts: https://cds.climate.copernicus.eu/cdsapp#!/dataset/efas-forecast?tab=overview Reforecasts: https://cds.climate.copernicus.eu/cdsapp#!/dataset/efas-reforecast?tab=overview Reanalysis: https://cds.climate.copernicus.eu/cdsapp#!/dataset/efas-historical?tab=overview

Demo: Capacity Building Resources

Capacity Development Resources

About Tools **Capacity Development Resources** Admin

Name contains

Name contains

Category

Training
Webinar
MOOC
Guidance

Provider organization contains

Provider organization cont

Language

English
French
Spanish

Target audience contains

Target audience contains

Filter Clear

Please browse the capacity building and training resources in our database by sorting through the list below. You can narrow down the selection of relevant resources by using filters on the left side. Please click on the "Filter" button to see the updated list or click "Clear" to get back to the full list again.

For the list of upcoming training events, visit the CEOS Training Calendar.

If you are aware of the capacity building resource not currently in our database, please submit it by filling the form HERE.

Name	Category	Provider organization	Url	Length of training	Language	Target audience
Disaster Risk Management	MOOC	ISRO/UNOOSA/CSSTEAP	https://isat.iirs.gov.in/mooc.php	–	–	–
Echoes in Space: Introduction to Flood monitoring	Training	ESA/ EO College	https://www.youtube.com/watch?v=yJjns8iXFgU	–	English	–
EFAS Wiki	Guidance	ECMWF	https://confluence.ecmwf.int/display/CEMS/European+Flood+Awareness+System	–	English	–
Extracting flood information from SAR	Training	NASA-USAID-SERVIR	http://servir.icimod.org/events/hydrosar-training-extracting-flood-information-from-sar	–	English	–
Flood Forecasting and Early Warning in Transboundary River Basins	Toolkit	UN Economic and Social Commission for Asia and the Pacific (ESCAP) and the Regional Integrated Multi-Hazard Early Warning System (RIMES)	https://www.unescap.org/sites/default/files/Flood_toolkit_HighRes.pdf	–	–	–
Flood Monitoring with Sentinel-1 toolkit	Toolkit	ESA RUS Copernicus	–	–	–	–
Flood Monitoring with Sentinel-1 webinar	Webinar	ESA RUS Copernicus	https://www.youtube.com/watch?v=ux4tx87ux94	–	–	–
GloFAS Wiki	Guidance	ECMWF	https://confluence.ecmwf.int/display/CEMS/Global+Flood+Awarenes	–	English	–

Demo: Capacity Building Resources (Filtering)

Capacity Development Resources

About Tools

Name contains

Name contains

Category

Training
Webinar
MOOC
Guidance

Provider organization contains

Provider organization conta

Language

English
French
Spanish

Target audience contains

Target audience contains

Filter Clear

Please browse the capacity building and training resources in our database by sorting through the list below. You can narrow down the selection of relevant resources by using filters on the left side. Please click on the "Fi
"Clear" to get back to the full list again.

For the list of upcoming training events, visit the CEOS Training Calendar.

If you are aware of the capacity building resource not currently in our database, please submit it by filling the form HERE.

Name	Category	Provider organization	Url	Length of training	Language
Monitoring Urban Floods Using Remote Sensing	Training	NASA ARSET	https://appliedsciences.nasa.gov/join-mission/training/english/arset-monitoring-urban-floods-using-remote-sensing	2 hrs	English, Spanish
NASA Remote Sensing Observations for Flood Management	Training	NASA ARSET	https://appliedsciences.nasa.gov/join-mission/training/english/arset-nasa-remote-sensing-observations-flood-management	4 hrs	English, Spanish

Demo: Capacity Building Resources (Example)

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Resource Details

NASA Remote Sensing Observations for Flood Management

Category	Training
Provider Organization	NASA ARSET
Point of Contact	Amita Mehta
Email	None
URL	https://appliedsciences.nasa.gov/join-mission/training/english/arset-nasa-remote-sensing-observations-flood-management
Length of Training	4 hrs
Geographic Domain	Global, Regional
Geographic Focus	None
Language	English, Spanish
Description	This training introduces remote sensing resources available for monitoring extreme precipitation and flooding, as well as flood mapping tools for flood management and planning.
Target Audience	None
Level of Complexity	None
Product Format	Video
License Type	Open Source
Recording Available	True
Status	Complete
Input By	Sydney Neugebauer, NASA Capacity Building Program
Updated Date	March 12, 2022, 12:37 a.m.
Notes	None

Global use case on use of flood extent tools

5 regional event analyses and synthesis complete

Central America	Chamoli, India	Ebro River, Spain	Malawi	Maluku, Indonesia
Hurricanes Eta and Iota, 2020	Rockslide-triggered flood, 2021	Extreme rainfall/ snowmelt, 2021	Cyclones Ana and Gombe, 2022	Extreme rainfall, 2022
SERVIR Science Coordination Office	**CM Bhatt, CoP Floods WG Chair, etal**	**Ebro Hydrographic Confederation, with J. Fernandes and M.Górska**	**Calvince Wara, RCMRD, etal**	**Rion Salman, BKMG, and Ayufitriya, STMKG**

Synthesis analysts:
Vida Akyeampong (Africa), Sergio Camacho, (Americas), João Fernandes (Europe), Jean Hounpke (Africa), Fabiola Yepez (Americas task team lead)

Drought Tools Matrix

Toward a Drought Tools Tracker

- **Goal:** Assist users in finding relevant tools and resources for drought preparedness and response.
- **Content:** The initial phase in constructing a drought tools tracker similar to the flood tools tracker involves establishing a matrix to compile drought-related tools and capacity building resources and initiatives.
- **Key Functionality:** Enable filtering of tools based on drought management stage, type, geographic area, and operational status, similar to the flood tools tracker.

Link to drought tools matrix

Drought Working Group

Contribute by reviewing, adding resources, and participating

EOTEC DevNet Drought Data and Tools Matrix							
26-Sep-23	*#N/A*						
Tool Name	**Provider Organization**	**POC**	**Email**	**Input by (Name, Affiliation)**	**URL or Other Source**	**Drought Management Stage**	**Drought Type**
MODIS Terra Vegetation Indices	CEOS			Sydney Neugebauer, NASA	https://lpdaac.usgs.gov/products/mod13a1v006/	Monitoring and Early Warning	Agricultural
NASA Drought GIS Web App	NASA			Cynthia Hall, NASA	https://nasa.maps.arcgis.com/apps/webappviewer/index.html?id=2d0f11d6334f4e969dd282b725c0ff5e	Monitoring and Early Warning	All
North American Drought Monitor	NOAA, AAFC, SMN, NDMC			Richard Heim, NOAA	https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/ https://nadm-noaa.hub.arcgis.com/	Monitoring and Early Warning	All
Global Drought Information System	GEO			Richard Heim, NOAA	https://gdis-noaa.hub.arcgis.com/	Monitoring and Early Warning	All
Mekong Drought and Crop Watch	ADPC			Susantha Jayasinghe, ADPC	https://mdcw-servir.adpc.net/	Monitoring and Early Warning	All
UN-SPIDER Recommended Practice: Drought monitoring using the Standard Vegetation Index (SVI)	UNOOSA	Juan Carlos Villagran de Leon, UN-SPIDER	juan-carlos.villagran@un.org	Juan Carlos Villagran de Leon, UN-SPIDER	https://www.un-spider.org/advisory-support/recommended-practices/recommended-practice-drought-monitoring-using-standard	Monitoring and Early Warning	Agricultural
UN-SPIDER Recommended Practice: Drought monitoring using the Vegetation Condition Index (VCI)	UNOOSA	Juan Carlos Villagran de Leon, UN-SPIDER	juan-carlos.villagran@un.org	Juan Carlos Villagran de Leon, UN-SPIDER	https://www.un-spider.org/advisory-support/recommended-practices/recommended-practice-drought-monitoring-using-vegetation	Monitoring and Early Warning	Agricultural
UN-SPIDER Recommended Practice: Drought monitoring using the Standardized Precipitation Index (SPI)	UNOOSA	Juan Carlos Villagran de Leon, UN-SPIDER	juan-carlos.villagran@un.org	Juan Carlos Villagran de Leon, UN-SPIDER	https://www.un-spider.org/advisory-support/recommended-practices/recommended-practice-drought-monitoring-spi	Monitoring and Early Warning	Meteorological
South Asia Drought Monitoring System (SADMS)	IWMI	Giriraj Amarnath, IWMI	a.girira@cgiar.org	Giriraj Amarnath, IWMI	http://dms.iwmi.org/	Monitoring and Early Warning	All
Regional Drought Monitoring and Outlook System (RDMOS)	ICIMOD | SERVIR-HKH	Rajesh Thapa | Kiran Shakya | Faisal Qamer	Kiran.Shakya@icimod.org	Tim Mayer, NASA SERVIR	See the SERVIR service catalog for the geosptail tool and product description Major events include https://servir.icimod.org/regional-knowledge-forum-on-drought/ https://servirglobal.net/ServiceCatalogue/details/5bc8936451ebdcae7968335e	Monitoring and Early Warning	All
Africa Flood and Drought Monitor (WASA Secure Africa Initiatives)	IWMI	Giriraj Amarnath, IWMI	a.girira@cgiar.org	Giriraj Amarnath, IWMI	ESRI Africa Geoportal (to be available soon)	Monitoring and Early Warning	All
ClimateSERV	SERVIR			Sara Miller, NASA SERVIR	https://climateserv.servirglobal.net/	Monitoring and Early Warning	All
North America Drought Indices and Indicators Assessment				Richard Heim, NOAA	https://www.ncdc.noaa.gov/temp-and-precip/drought/nadiia/	Vulnerability and Impact Assessment	All
Drought Toolbox by UNCCD International Drought Resilience Alliance	UNCCD	Secretariat	secretariat@unccd.int	Martyna Stelmaszczuk-Górska, EOTEC DevNet	https://www.unccd.int/land-and-life/drought/toolbox	All Stages	All
Global and regional (Europe, Central and South America, Africa) Drought Observatory	EC	Dario Masante	Dario.MASANTE@ec.europa.eu	Martyna Stelmaszczuk-Górska, EOTEC DevNet	https://edo.jrc.ec.europa.eu/gdo/php/index.php?id=2001	Monitoring and Early Warning	All

https://eotecdev.net/connect/

Make a difference with your work

Join us in advancing EO for informed decision-making

EOTEC DevNet

Help create a new interface for our flood tools tracker

Next flood working group meetings:

July 17/18, online

Contribute to the drought working group

Next drought working group event organized together with UNCCD:

June 18, online webinar

Determine key tasks for the new climate adaptation groups

In the future

Engage with global peers and promote your work through our online member platform

Visit: www.eotecdev.net/connect/

Visit www.eotecdev.net to learn more and register

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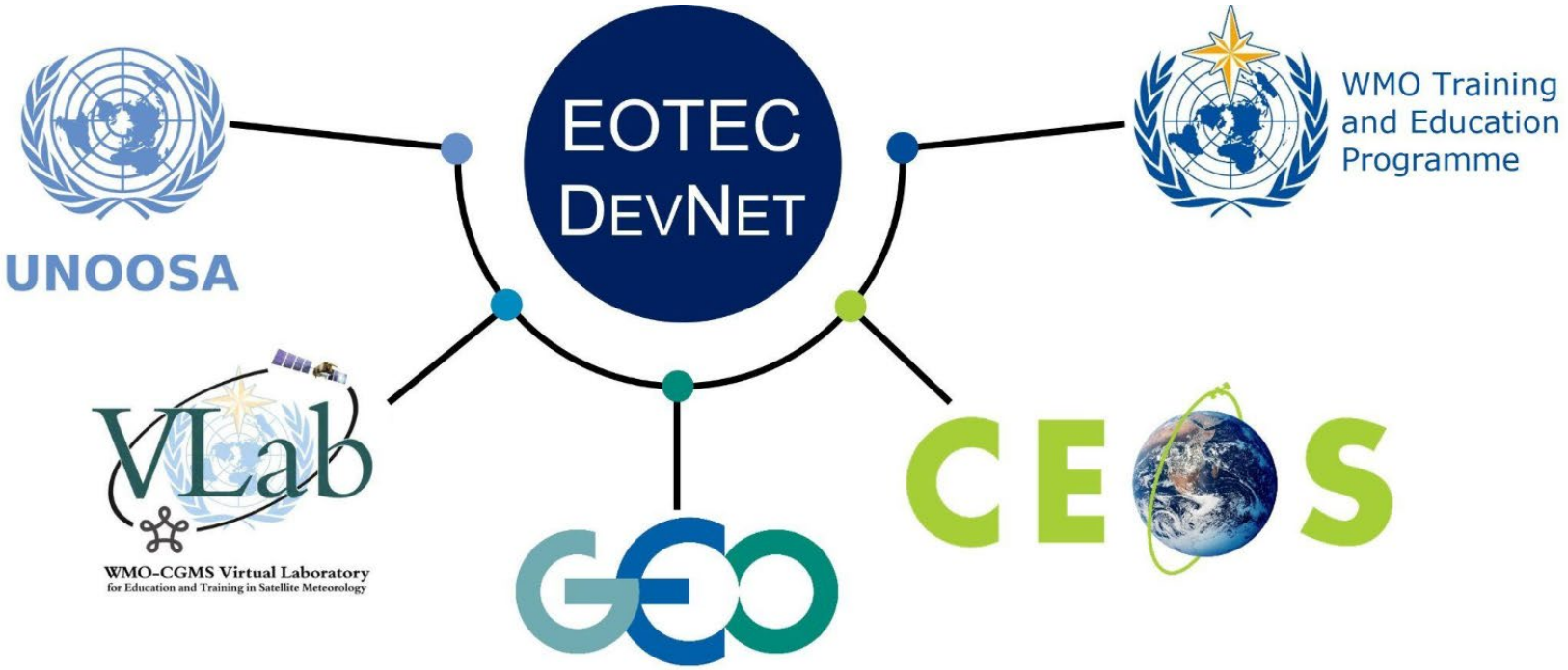
secretariat@eotecdev.net

Thank you for your attention!



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