



VOLTALARM using satellite-based products

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Volta Flood and Drought Management (VFDM)

Areas of intervention :

- Disaster risk reduction and early warning systems

Implementing entity :

- World Meteorological Organization

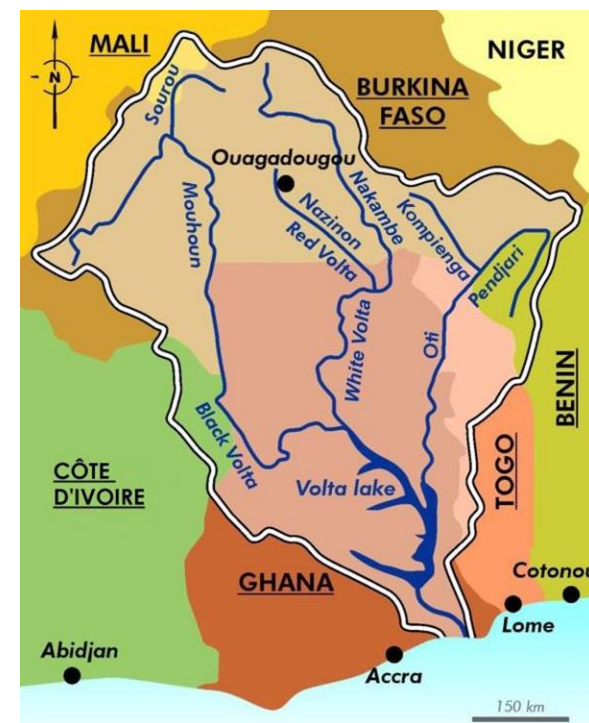
Executing partners:

- World Meteorological Organization
- Volta Basin Authority (VBA)
- Global Water Partnership in West Africa (GWP-WA)

Supported by: National Agencies/organization of the six countries and international organizations

Funding amount:

- 7,920,000 USD for a period of 4 years (June 2019- June 2023)



Project components and results

Component 1 Risk prevention

- Risk maps
- Climate scenarios
- Ecosystem services
- Long-term risk management strategy

Component 2 Concrete adaptation and stakeholder engagement

- Early Warning System
- Pilot sites
- Nature-based solutions
- Gender mainstreaming

Component 3 Governance

- Strengthening resilience
- Capacity building of policy-makers
- Local collaboration

Project concept note and proposal : *click here*

VOLTALARM Web-based Early warning System

Sub-basin Flood Warning

River Warning and forecasts

Volta Basin level

Drought Warning

Drought Monitor and Outlook

The interface displays several key components:

- Volta Basin level:** A large map of the Volta basin with a legend for hazard types (e.g., Flood, Drought) and warning levels (green to red).
- Sub-basin Flood Warning:** A zoomed-in map of a sub-basin showing flood risk levels.
- River Warning and forecasts:** A detailed view of a specific river with a forecast graph showing water levels over time.
- Drought Warning:** A map showing drought risk levels across the basin, with a legend for intensity (e.g., Moderate Drought, Severe Drought).
- Drought Monitor and Outlook:** A table providing statistical data on drought events.

Week	Date	Name	DD04	21-04	10-04	10-04	04	05-04
Current	2023-12-05	19,09	89,61	25,76	3,74	0,50	0,00	0,00
Last Week	2023-11-27	23,40	78,35	23,70	3,74	0,50	0,00	0,00
3 Months Ago	2023-09-28	40,90	50,02	39,59	10,09	1,03	0,00	0,00
Start of Calendar Year	2023-01-27	0,00	49,38	21,54	4,05	0,50	0,00	0,00
Start of Water Year	2023-03-28	16,13	43,80	21,11	8,37	1,32	0,00	0,00
One Year Ago	2022-12-20	44,65	55,13	22,68	4,48	0,50	0,00	0,00

- Location of hydrometeorological stations
- Icons for types of hazards
- Warning levels (green to red)
- Links to social media

Challenges and Limitations in developing Transboundary Flood Monitoring, Forecasting and Warning Services

- Lack of National and Local level Observation data and information
- National to Transboundary Data and information sharing
- Regular Maintenance and Operations of Stations and forecasting and warning systems
- Ensure sufficient number of Staffs at the National and Transboundary Agencies
- Capacity building sessions to the new Technicians and Forecasters
- Synergies and complementarities with other on-going projects

Important to use Satellite based products and tools

VOLTALARM.mydewetra.world: multiple data providers

Based on MyDewetra technology, that systematically organizes data and information produced by multiple institutions and agencies, from local to national and international levels.

Different users can have different access profiles to the platform and its products and data.

For example: Ghana forecasters can see the situation of Burkina Faso (upstream) and provide warnings and take necessary preparedness measures



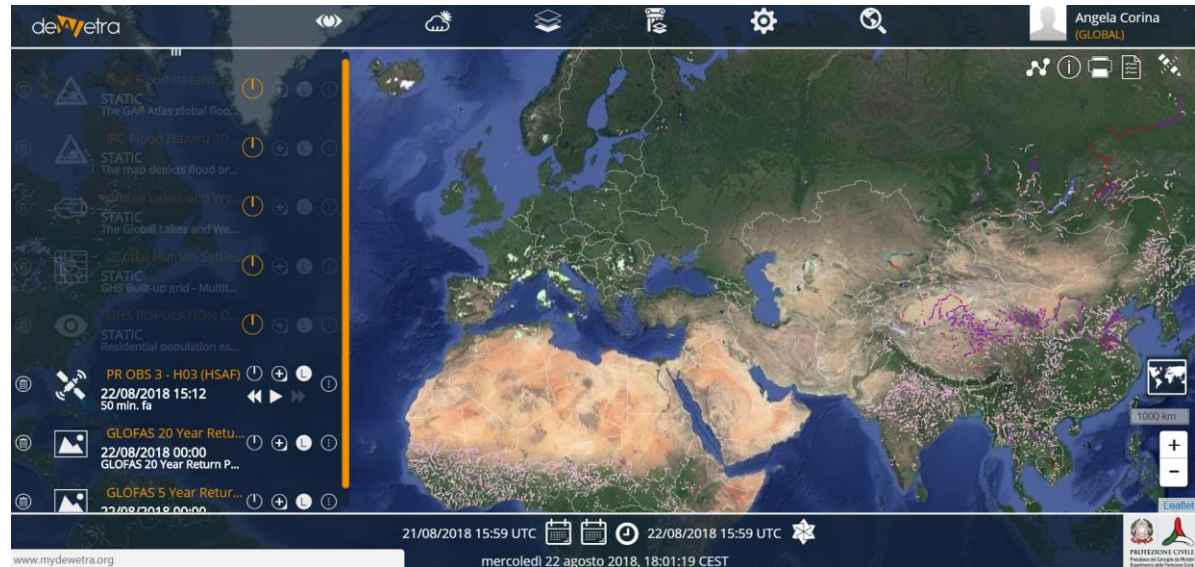
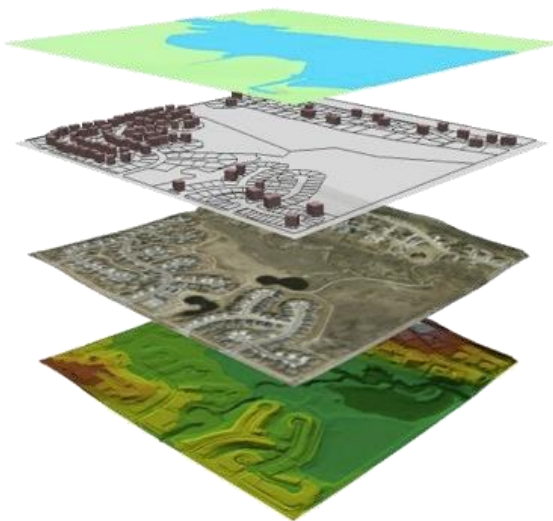
<https://volta.mydewetra.world/>
developed by

MYDEWETRA.WORLD: single access point to international information

myDEWETRA is an integrated system for real-time monitoring, prediction and prevention of natural disasters worldwide.

It improves the accessibility and comparability (Compare, Integrate and Synthesize) of hazard, exposure and risk information and data at multiple level

$$R = E \times V \times H$$

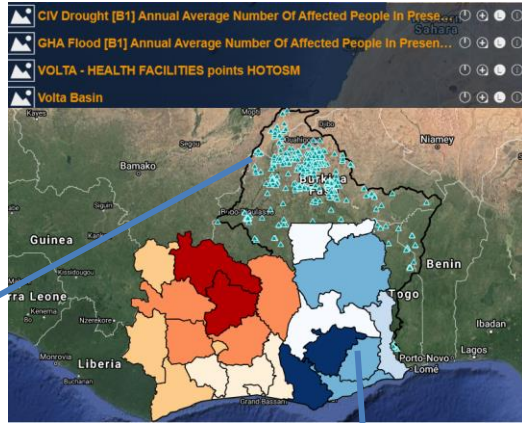


Several monitoring and forecasting products and global datasets are included as a basic version of MyDEWETRA; the data are either free available or open data. A number of products and datasets are already available to Partner Countries and others are in the way to be integrated

Voltalarm.mydewetra.world Integrated flood EWS

To make full use of all the satellite information available (observation, forecast, static data and also damage rapid mapping-e.g. for flooded area assessment) in order to complement the national capacities in the operational decision making process

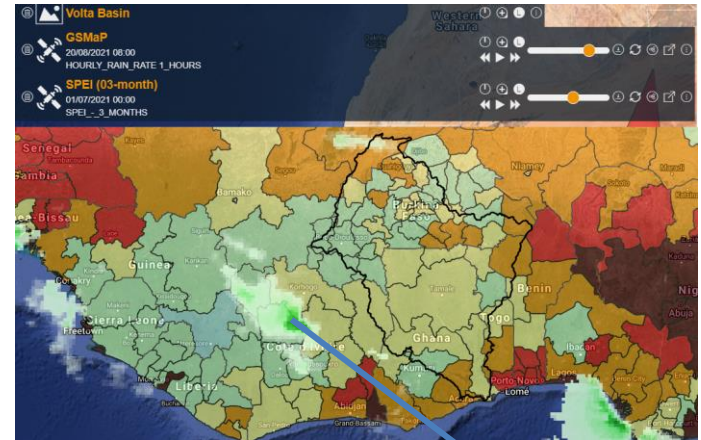
- Integrated Flood STATIC DATA**



Static information

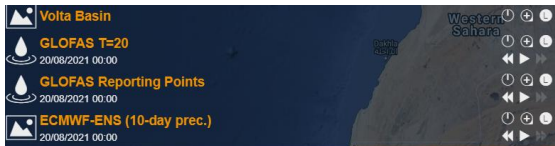
Flood risk maps

- DYNAMIC OBSERVATIONS**



Flood monitoring

- DYNAMIC FORECASTS**



Flood forecasting

MyDewetra- Satellite based products for Monitoring and forecasting

Tag	Layer
Alert	GDACS_RSS
Water Quality	Lake Water Quality (Copernicus)
Rain	GHE GSMaP GSMaP Real Time GSMaP Nowcast IMERG-24hrs IMERG-30mins PR OBS 3 H03 PR OBS 5 H05
Fires	LSASAF - FRP MSG SEVIRI MODIS Hotspots
Drought	SPEI SPI-IRI
Wind	ASCAT Wind
Snow	Copernicus SCE
Soil Moisture	Copernicus SWI

Tag	Layer
Hydrological Models	EFAS layers GLOFAS GLOFAS Seasonal Outlook - Reporting Points GLOFAS Reporting Points Global Flood Monitoring System (GFMS)
Wildfire Models	EFFIS RISICO Europe RISICO World FDI Europe FDI World
Meteorological Models	WRF_CIMA_EUROPE_OL GFS 0.25° ECMWF-ENS
Air Quality	PM10 PM2.5
Landslides	LHASA

MyDewetra - Satellite based static information and past events

Tag	Layer
Exposure	Global Human Settlements (GHS) GHS-Population (2015) Global Roads Network ESRI Health facilities Dams World Population (GPV v4 - 2015) Airports Power Plants Global Railroads Network
Basic	CORINE Land Cover (2018) Digital Elevation Model (Europe only) Global Administrative Boundaries Global Lakes and Wetlands Database Catchments Boundaries River Network (Africa and Europe) River Network (Global)
Hazard	GAR Flood Hazard JRC Flood Hazard
Risk	Economical exposition to flood Flood risk GAR Phisical exposition to flood

Tag	Layer
Floods	Floods EMSR layers
Earthquakes	Earthquakes EMSR layers
Disaster Databases	DesInventar layers EMDAT layers



APFM and Integrated Flood Management Helpdesk

Associated Programme on Flood Management (APFM) is a joint initiative of the World Meteorological Organization (WMO) and the Global Water Partnership (GWP).

Last 20 years, It promotes and apply the concept of Integrated Flood Management (IFM)

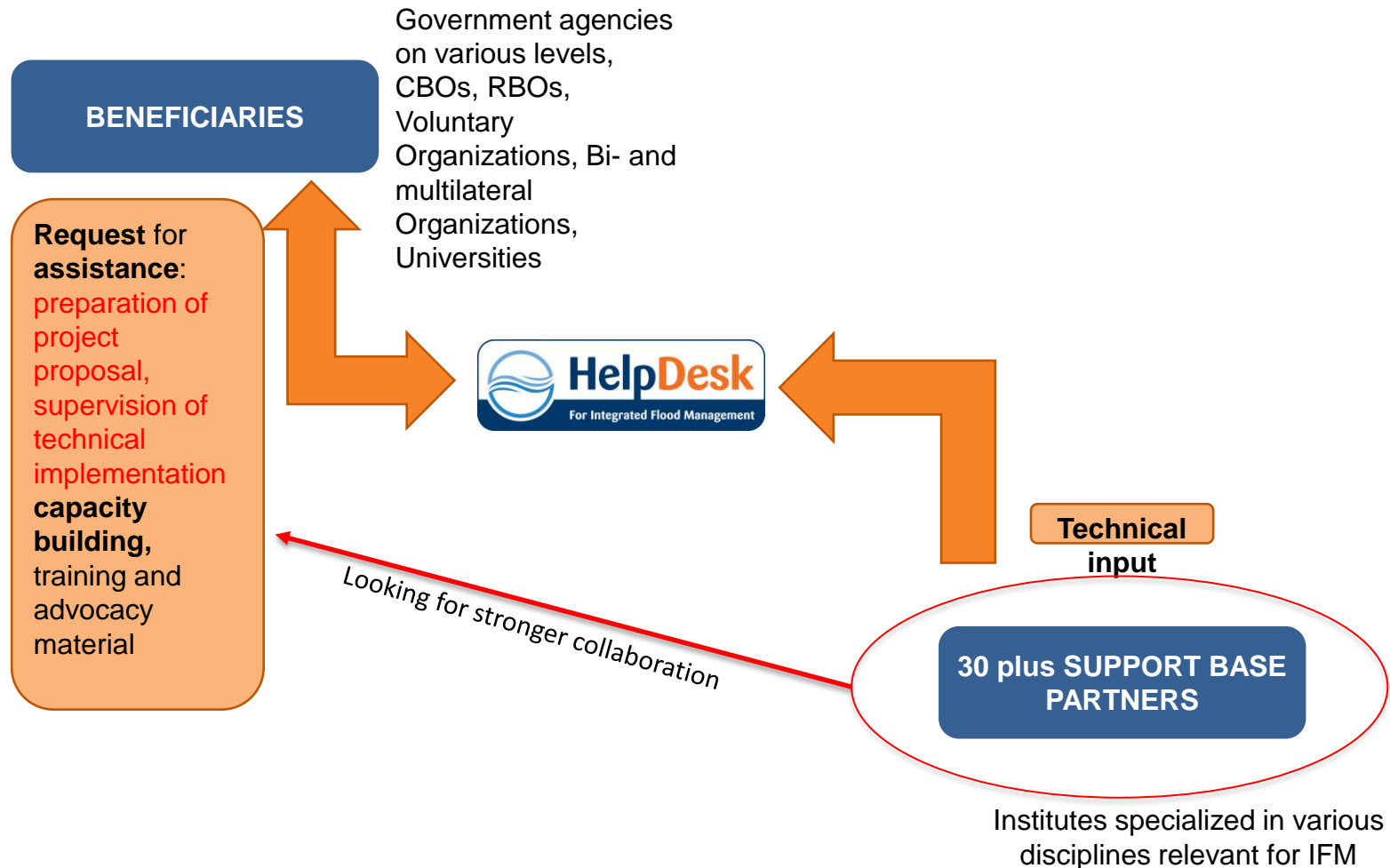


IFM integrates **land use** and **water resources** in a river basin, in accordance with Integrated Water Resources Management, with the objective of **maximizing net benefits** derived from the use of floodplains and **minimizing loss of life** due to flooding. IFM keeps in consideration environmental preservation, balancing development needs with **flood risk** towards **sustainable development**.

<http://www.floodmanagement.info>

Similar project or technical support using APFM Integrated Flood Management HelpDesk

A facility to provide guidance on flood-related issues to countries that seek to adopt the IFM concept.



risk data **integration** can significantly increase the **value** of information available and the **knowledge** level of forecasters and decision makers.

Integration bw national and international data, and mainly satellite-based data, as the way forward for effective flood management.

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**thank you for
your kind attention**