

MarCNoWA Presentation



Kwame Adu Agyekum
MarCNoWA Project Coordinator
University of Ghana



Funded by
the European Union



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



**MERCATOR
OCEAN**
INTERNATIONAL

MarCNoWA

Consortium Name: **MarCNoWA**

Title: **Marine and Coastal Areas Management in North and West Africa**

Geographical Coverage: **West & North Africa (18 countries)**

Focus: **Fisheries, Marine meteorology, Coastal ecosystems monitoring and vulnerability assessment, Oil spill monitoring**

Website: <https://gmes.rmc.africa/>

Contacts: rmc@ug.edu.gh / kaagyekum@ug.edu.gh

Partners : **UG, GMet, CEDARE, NTG, CURAT, UCD, CERT, IRHOB, CRODT, NIOMR, Edenway Foundation**

Geographical Coverage



Name of participant: Dr. Kwame A. Agyekum

Position of participant: Project Coordinator of the MarCNoWA

Email: kaagyekum@gmail.com, kaagyekum@ug.edu.gh

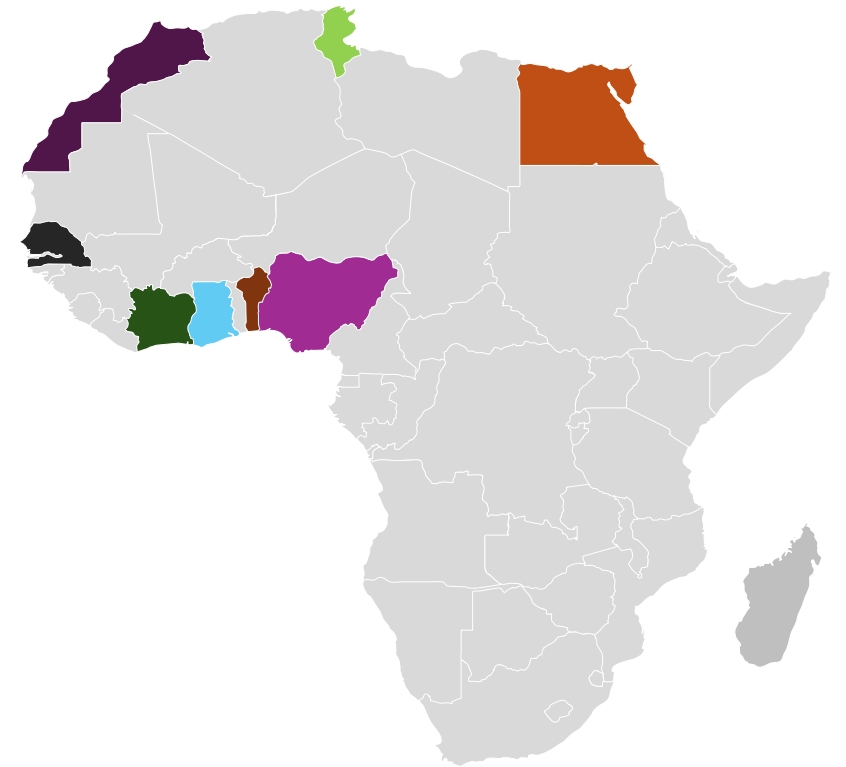


MarCNoWA

11 Partners are highly involved in the design and implementation of the EO Services.

- UG (Ghana)
- GMet (Ghana)
- CEDARE (Egypt)
- NTG (Ghana)
- CURAT (Cote d'Ivoire)
- UCD (Morocco)
- CERT (Tunisia)
- IRHOB (Benin)
- CRODT (Senegal)
- NIOMR (Nigeria)
- Edenway Foundation (Ghana)

Partner Locations



MarCNoWA Services



**Earth
Observation
Applications
& Services**

- 1 Monitoring & forecasting oceanography variables**
- 2 Coastal ecosystem/habitat mapping**
- 3 Monitoring coastal vulnerability**
- 4 Potential fishing Zones and Vessel Traffic Monitoring**
- 5 Regional marine weather forecast**
- 6 Oil spill detection and monitoring**

Regional Marine Weather Forecast

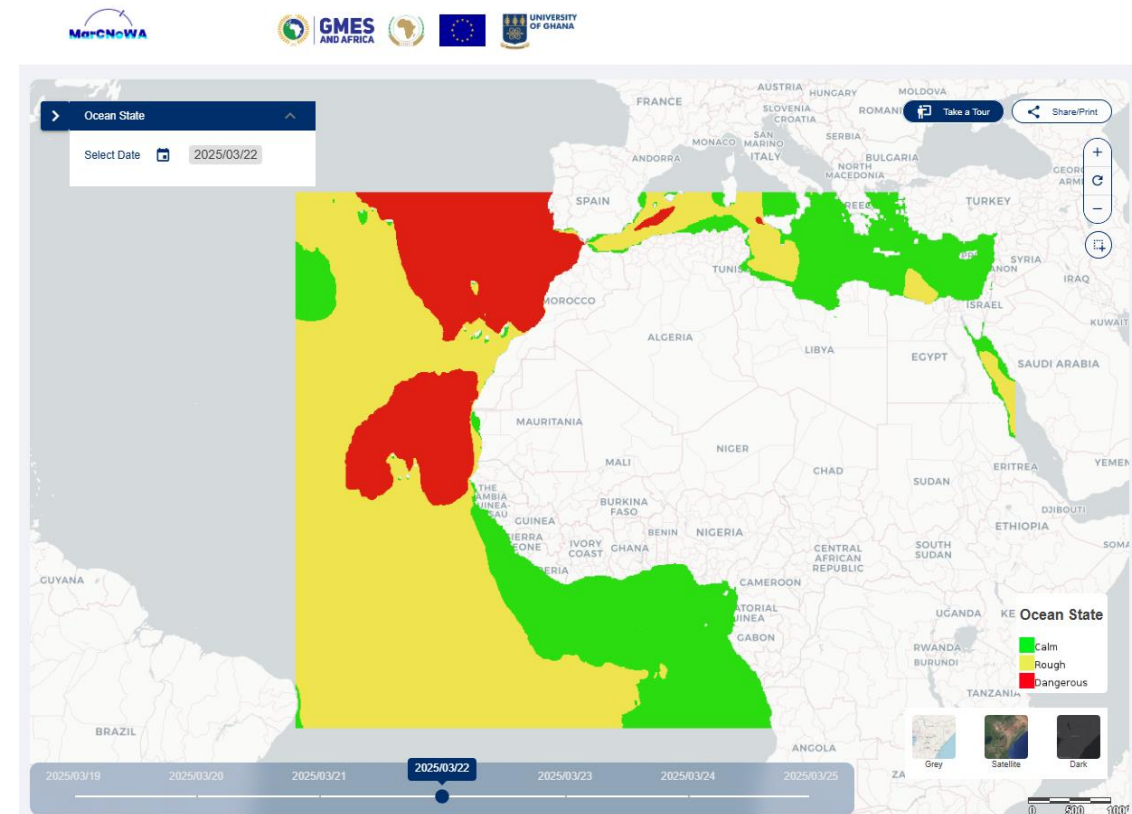
Regional Marine Forecast

- Alert system for ocean state
- Significant wave height data
- This data is converted into three indices: **1 (Calm)**, **2 (Rough)**, and **3 (Dangerous)**, corresponding to mean wave heights of $<1.5\text{m}$, $1.5\text{-}2.5\text{m}$, and $>2.5\text{m}$ respectively.



Global Ocean Waves Analysis and Forecast

MarCNoWA Geoportal



<https://geoportal.gmes.ug.edu.gh/%23/dashboard#/dashboard>

Regional Marine Forecast

- The Regional Marine Forecast service supports safe marine navigation by providing real-time and forecasted ocean state information to artisanal fishermen to make informed decisions before venturing to sea.
- The service aids in disaster response and preparedness by equipping coastal communities and authorities with the data needed to anticipate and mitigate maritime hazards.



*Nana Kweigyah
President of the Canoes and
Fishing Gear Owners
Association of Ghana
(CaFGOAG)*

Regional Marine Weather Forecast



Regional Marine Forecast

1 Mobile Application
(GMES-UG) developed

to access ocean state forecasts and fishing vessel information in **North** and **West Africa**

Available on **Android** and **iOS** phones.

Service Menu

- Ocean State Map
Map of ocean state forecast
- Ocean State Alerts
Ocean state messages disseminated in English, Portuguese and French
- Potential Fishing Zones Map
Get map view of potential fishing zones
- Information Segment
Get more information about GMES & Africa Project

Ocean State Map

November 2023

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Ocean State Message

Egypt

November 2023

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Ocean state forecast for 2023-11-28: 1 (Calm). Provided with the support of the EU & AUC.

État océanique prévu pour le 2023-11-28 sera: 1 (Calme). Fourni avec le soutien de l'UE et de la CUA.

O estado do tempo no mar para amanhã 2023-11-28 será: 1 (Calmo). Fornecido com o apoio da UE e da CUA.

Regional Marine Forecast



USSD short code to access forecast.
***920*88# for Ghana**
***348*87# for Nigeria**

16,071 unique users (Nov. 24, 2023)

GMES and Africa Safety at sea service
Please enter an option

1. Today, Sat 22nd Mar
2. Sun 23rd Mar
3. Mon 24th Mar
4. Tue 25th Mar

GMES and Africa Ocean state forecast for 22-Mar-2025: 1 (Calm). Provided with the support of the EU&AUC.

0. Back

About 3,500,000 fishers in West Africa, with an estimated fatality rate of **1000 per 100,000**.

In Ghana, before the introduction of Safety at Sea Service (**2016**), the following were estimated for 2014 – 2015.

- Number of accidents: **168**
- Number of deaths: **52**
- Number of canoes damaged: **110**, mainly from storm surges, tidal waves

In 2022

- Number of accidents: **08** from tidal waves
- Number of deaths: **01**
- Number of canoes, nets and outdoor motors damaged: **75**, mainly from storm surges, tidal waves on land

Needs



Obtaining USSD codes (channel) at country levels for dissemination

Improved Dissemination for Multilingual and Local Users

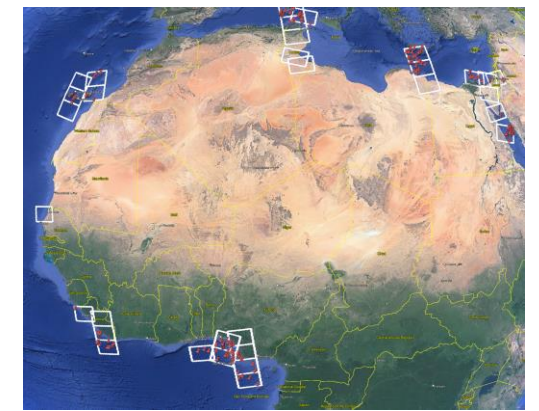
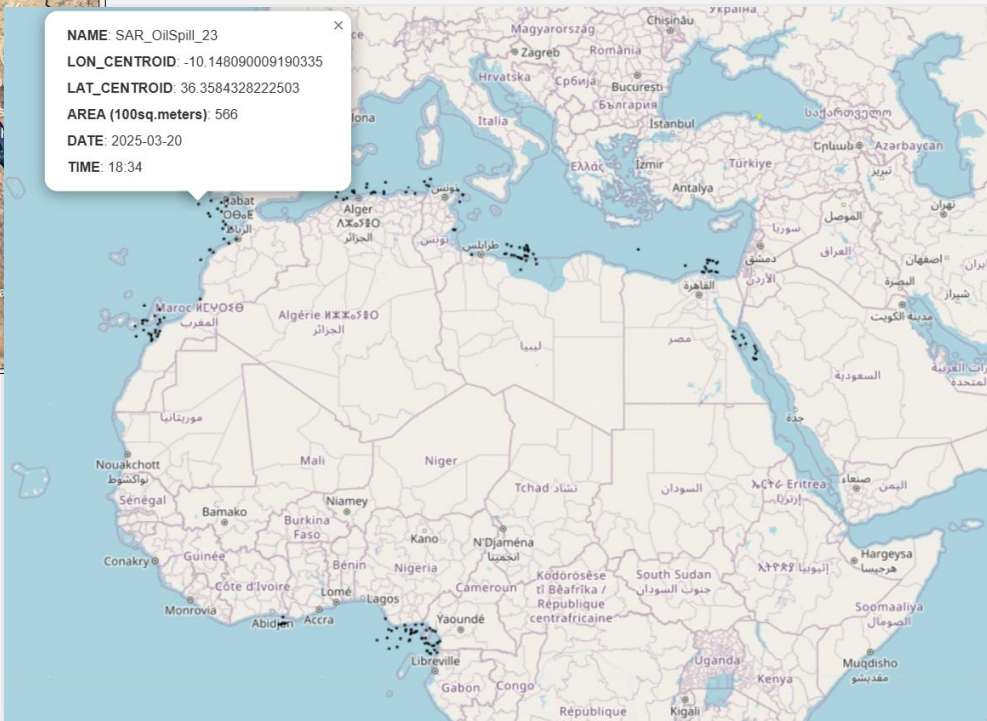
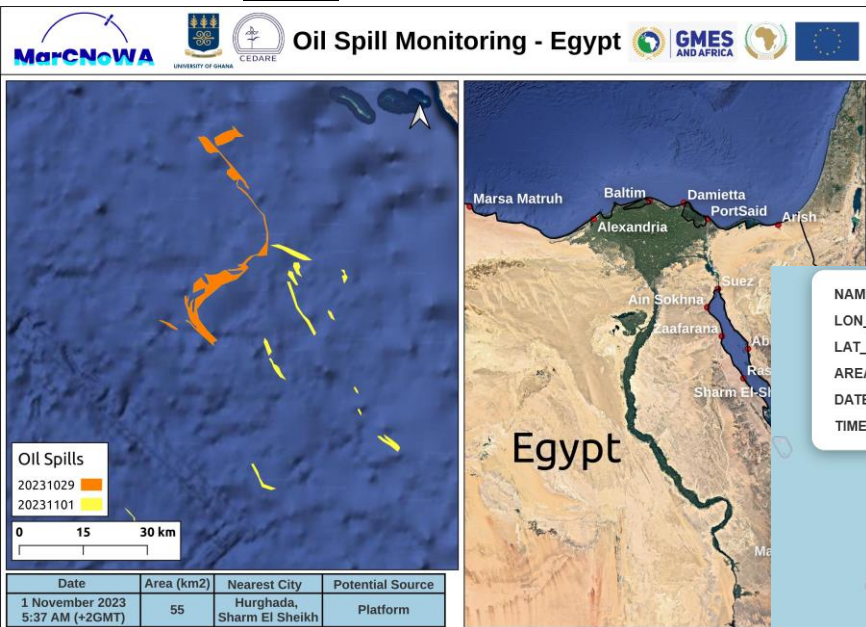
- Multilingual Interface and Alerts: Integrate translations of forecast summaries and alert messages into major regional languages (e.g. French, Portuguese, Arabic, Hausa, Wolof, Twi, Ewe).
- Audio-based Alerts: Develop an IVR (**Interactive Voice Response**) system or WhatsApp voice note alerts in local dialects to convey ocean state forecasts.

Inclusion of Additional Marine Weather Parameters

- Rainfall Forecasts: Integrate daily forecast precipitation data (e.g. from ECMWF or Copernicus CAMS) into the platform.
- Wind Forecast Integration & Alerts: Overlay wind speed and direction data from Copernicus.

Oil Spill Monitoring

Since **March 2022** Egypt / Libya – NafCoast Oil Spill Detection service extended for North and West Africa (18 coastal countries)

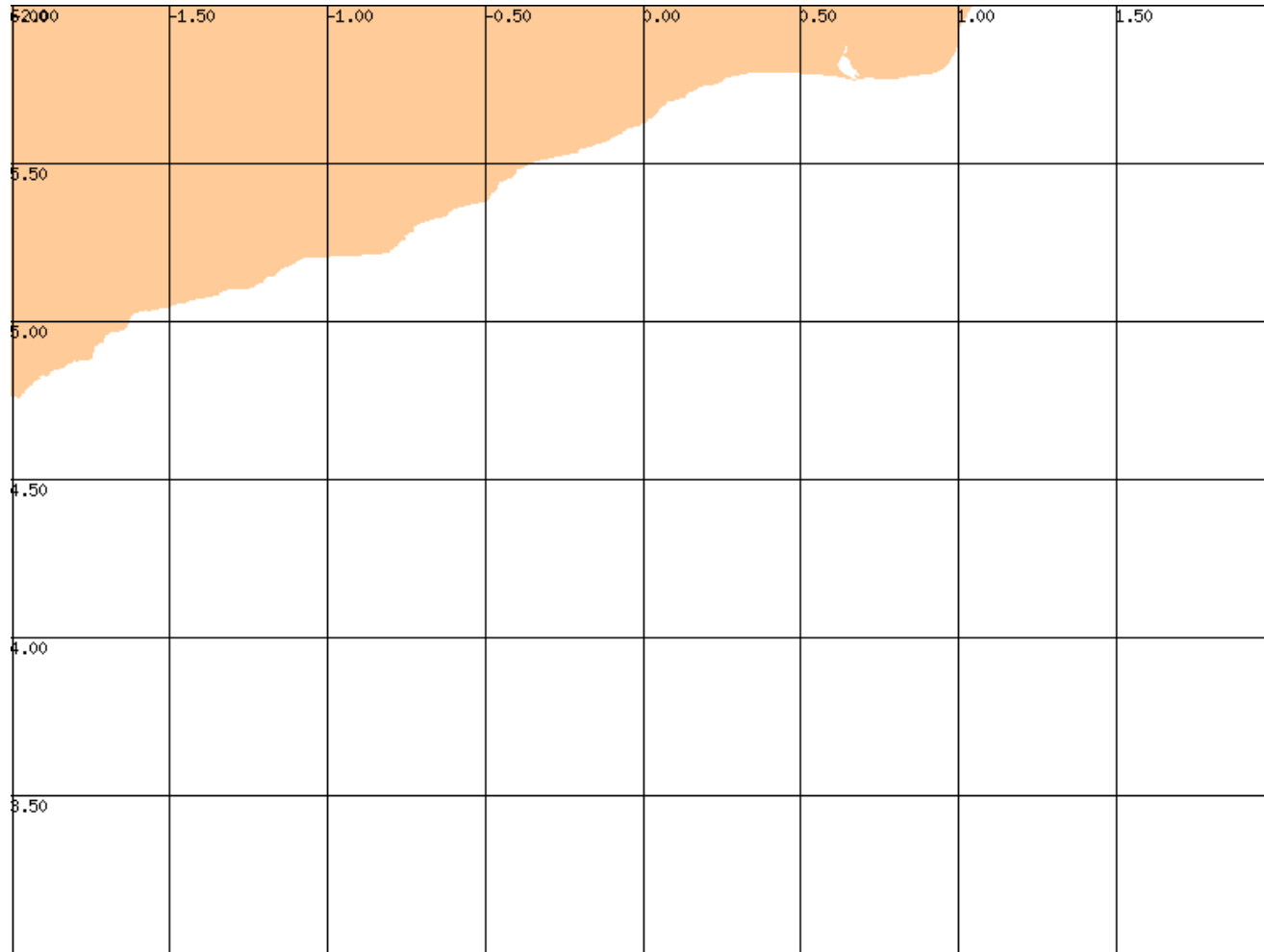


Users of the services include personnel of **Navy/Coast Guard**, Port Authorities, Fisheries Officers, Environmental Protection Agencies etc.

Needs

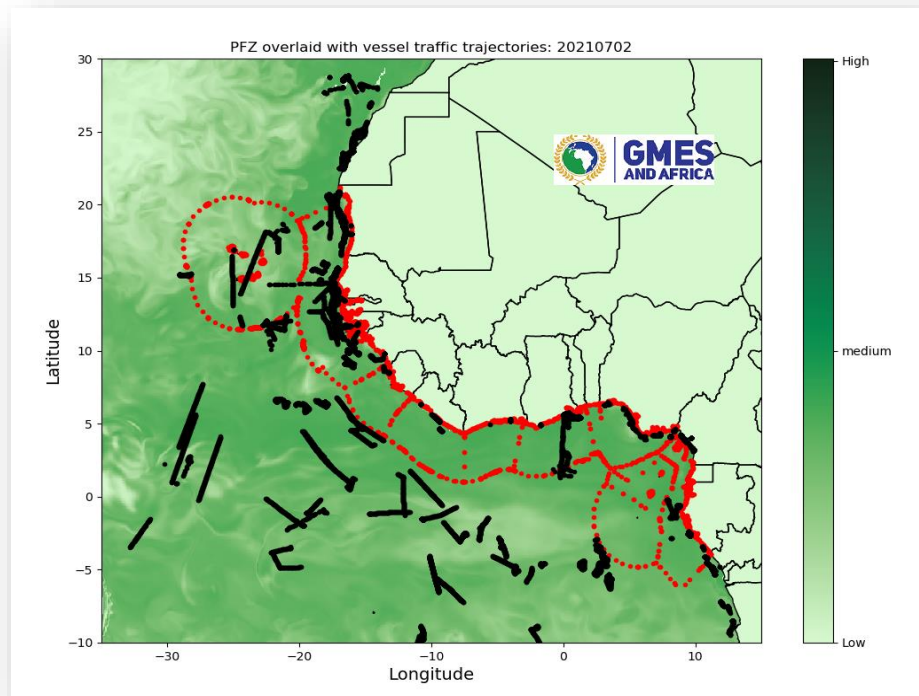
- Area-based auto report generators for targeted information dissemination
- Oil spill drift forecasting (**PyGNOME**) to support decision-making





Sample animation of spill trajectory. Simulation is developed using surface wind fields and currents from models.

Potential Fishing Zone and Vessel Monitoring



75 Recipients of service
Ministry of Fisheries, Monitoring, Control and
Surveillance (MCS) Units,
Regional Fisheries Bodies (SRFC & FCWC GoG)

THE FISHERIES (AMENDMENT) REGULATIONS, 2019. The Gambia

- The GMES Africa programme has enhanced the visibility of F/V operating within the EEZ of The Gambia.
- Initiate legal proceedings against fishing vessels that have engaged in violations.
- This requires the integration of the Automatic Identification System (AIS) into the legal documents pertaining to fisheries.

Policy implementation

Implemented a fishing ban commencing at the baseline and extending to 1 nautical mile, as well as a 6-month period of biological rest spanning from Bijol island to 2 nautical miles.

Needs

-
- Area-based auto report generators for targeted information dissemination
 - Training in forecasting tools and techniques





THE END