

# Earth Observation support for GMES & Africa's Marine and Coastal Operations for North and West Africa

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Training Officer  
MarCNowA UoG



Venue: Cotonou, Benin Date:19/09/2024



## Geographical Coverage



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](mailto:rmc@ug.edu.gh) / [kaagyekum@ug.edu.gh](mailto:kaagyekum@ug.edu.gh)

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



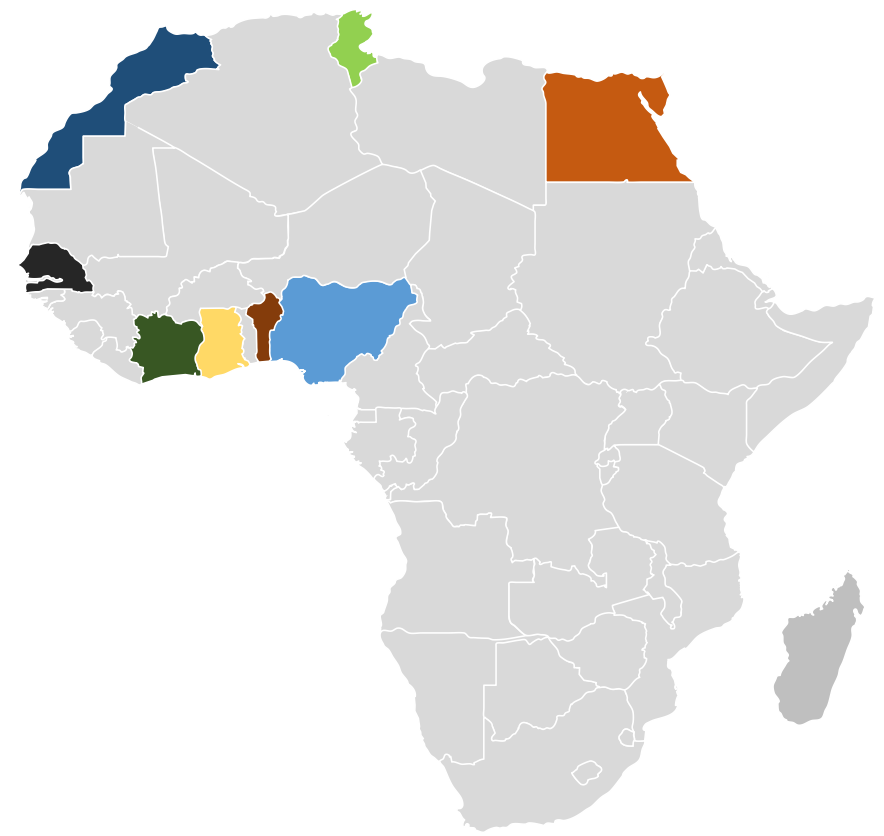


# Consortium Partner distribution

## Partner Locations

11 Partners led by the University of Ghana 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)

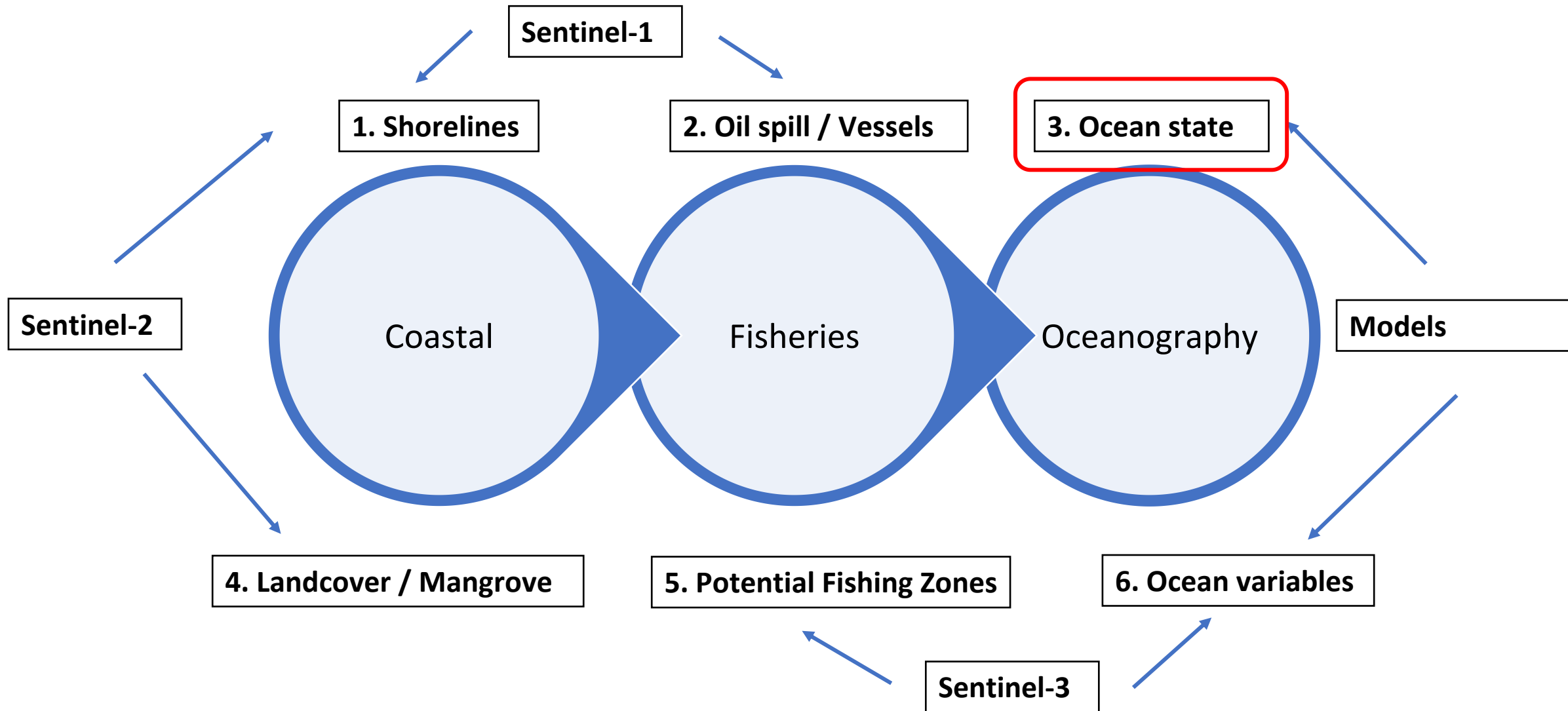


Roles: EO service uptake activities, training; knowledge management; youth engagement and improvement women participation, engaging policy-makers



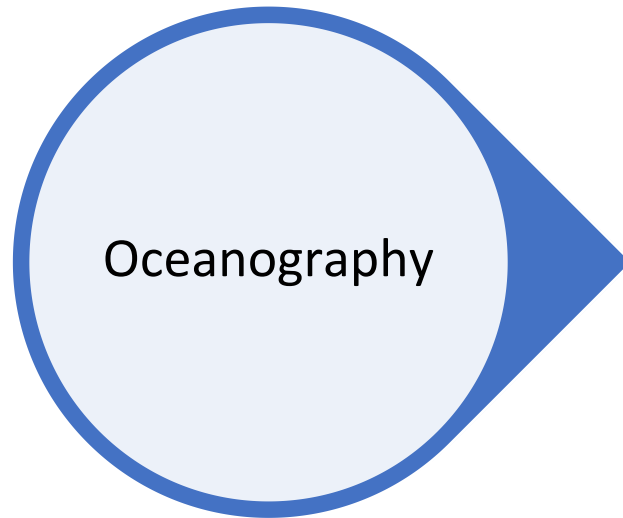


# Contribution of EO to products and services





# Contribution of EO to products and services



**Enhancing safety at sea through the use of Earth Observation data**





Could Jack have survived??

Love story??

Images from Titanic (USA 1997)  
Director: James Cameron.  
Paramount Pictures



**Spoiler Alert!!**

This presentation is not about Jack, Rose or the Titanic

Accident at sea !!!



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# Contribution of EO to communities

## Are our artisanal fishermen safe?



Retrieved from [Fish Reef Project](#) | [Africa Reef Project](#)



- ❖ Use small dug-out canoes
- ❖ Limited means of communication
- ❖ Little to no safety equipment



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# Service Development

- Mainly rely on traditional knowledge to
  - Navigate
  - Locate fish
  - Detect the weather at sea

Needs to **simple** and **easy** to understand

**Needs:** To access **accurate** and **timely** information on ocean conditions prior to their fishing expeditions

**Challenges:** Accidents at sea result in loss of canoes, fishing gear and ultimately lives



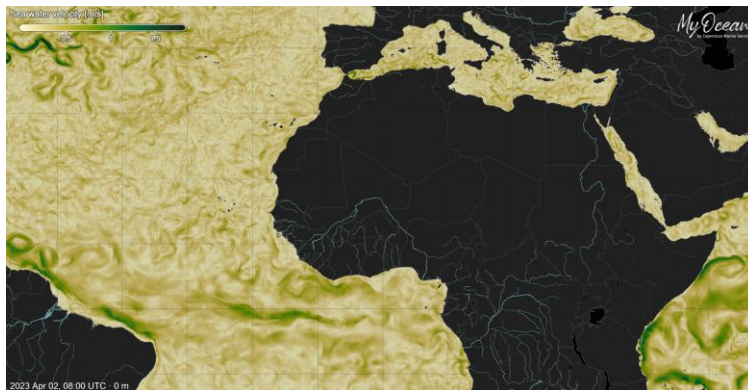
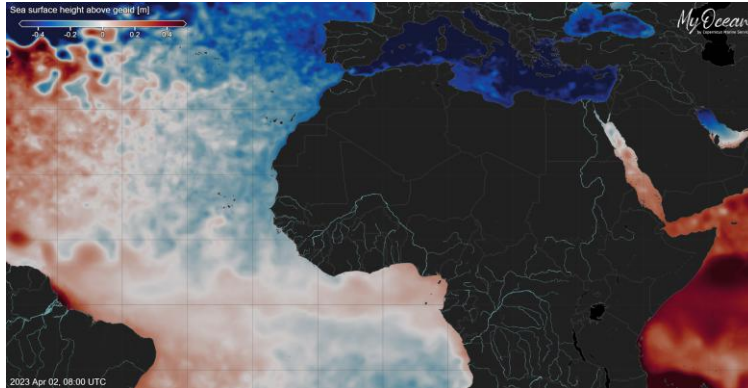
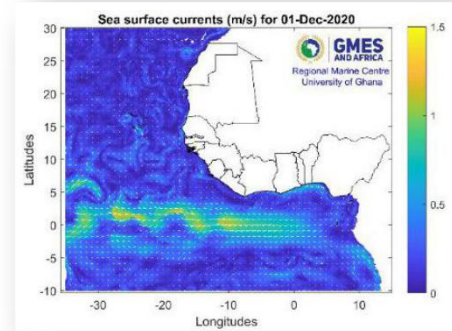
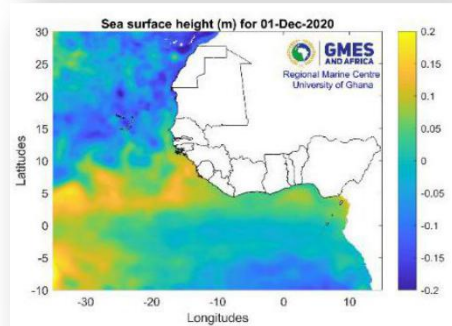
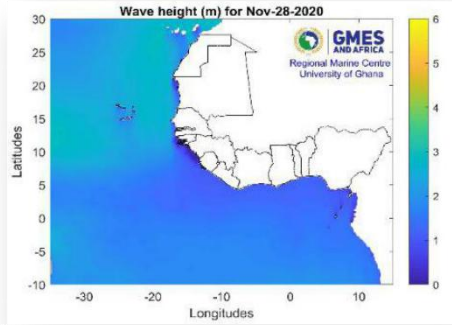
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# About the Service



## Target Users:

- Artisanal Fishers
- Semi-industrial and Industrial Fishing Fleet
- Navies and Coast Guards
- Disaster Management Organizations

## Benefits for users :

- Informed decision-making for artisanal fishermen
- Protection of lives and property
- Long-term analysis of trends for academic and scientific community

## Products used :

### Copernicus Marine Service data and products

- Regional and Global ocean 1/12° physics analysis and forecast updated daily
- Global Ocean Wave analysis 0.083°



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# Service Evolution



## GMES AND AFRICA



## GMES AND AFRICA

MESA  
2013-2017

GMES & Africa Phase I  
2017 -2020

GMES & Africa Phase II  
2022-2026

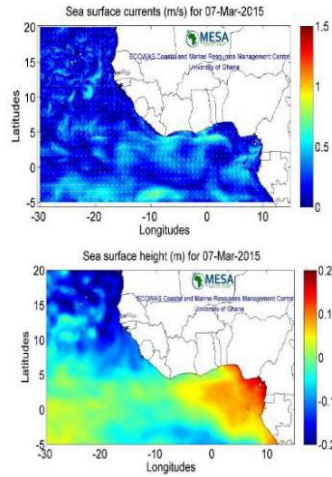
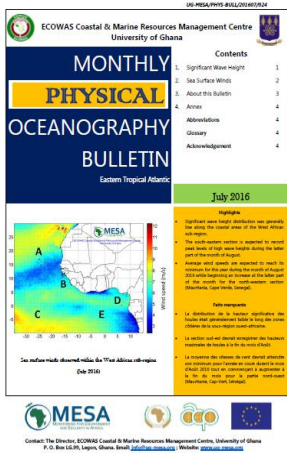
Ocean state early-warning services introduced under the MESA programme in 2014  
**14** coastal West African countries  
12 ECOWAS  
1 North Africa  
1 Central Africa

Service consolidated under GMES phase-I  
**12** coastal West African countries  
Sao tome and Principe – CICOS/AGEOS  
Mauritania – NARSS

Service extended under GMES phase-II  
**18** coastal countries  
12 West Africa  
6 North Africa



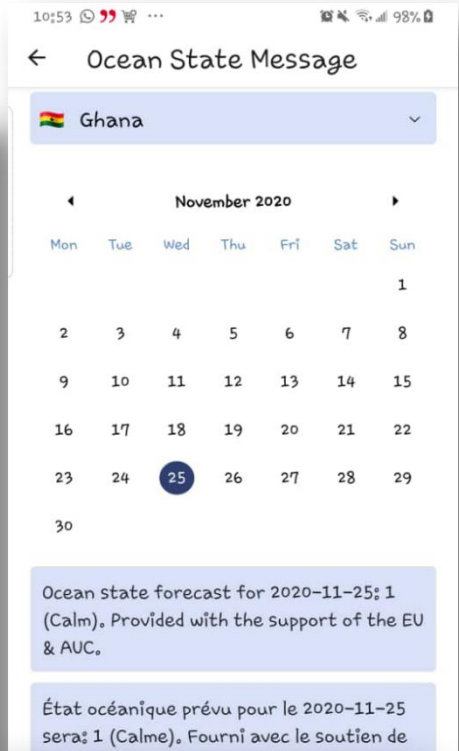
# MESA



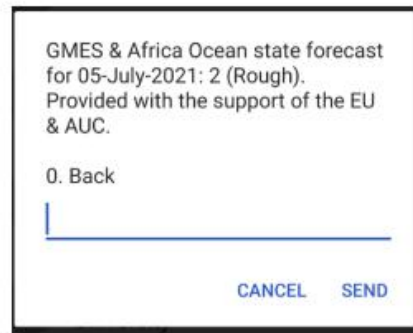
Advance information on ocean weather on your mobile phone



# GMES



**2** USSD codes developed to access 3-day ocean state forecast in Ghana (**\*920\*88#**) and Nigeria (**\*347\*87#**), on any mobile phone.



Ocean state forecast for 2020-11-26: 1 (Calm). Provided with the support of the EU & AUC.

État océanique prévu pour le 2020-11-26 sera: 1 (Calme). Fourni avec le soutien de l'UE et de la CUA.

O estado do tempo no mar para amanhã 2020-11-26 será: 1 (Calmo). Fornecido com o apoio da UE e da CUA.



SITY NA





# Service improvements

Home **Dashboard** Login English

MarcNoWa Services Analysis

Ocean Conditions Forecast

Ocean State

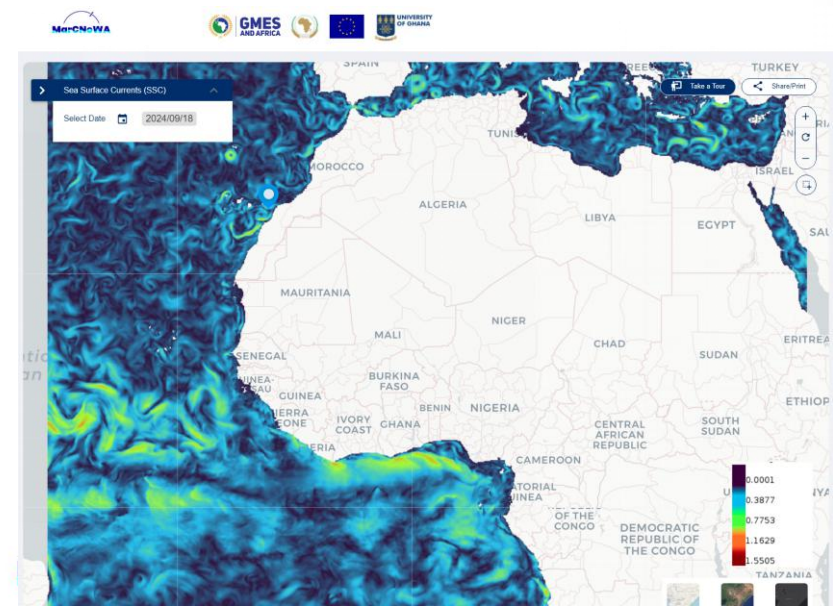
Temperature

Salinity

Currents

Surface Height

Wave Height



MarcNoWa Services Analysis

21.41634981, 23.26106771

Ocean State

Legend: Calm (Green), Rough (Yellow), Dangerous (Red)

The chart above represents the number of days the ocean conditions was experienced. To see the list of the dates and ocean conditions Click here

Calm Days	Rough Days	Dangerous Days
2024-07-15	2024-08-01	2024-07-02
2024-07-19	2024-08-02	2024-07-06
2024-07-20	2024-08-03	2024-07-11
2024-07-25	2024-07-01	2024-07-22



# Community Level Training

## Safety at Sea in Artisanal Fisheries

### Training Workshop for Community Information Centre Operators

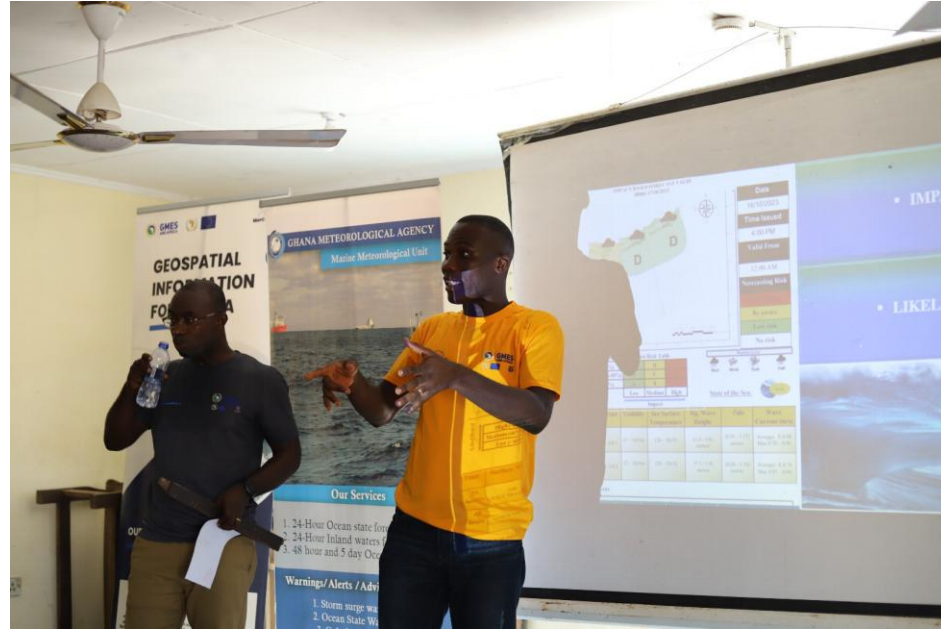
**PHASE II**

#### On Dissemination of Weather and Ocean State Information

*Date: Friday 19<sup>th</sup> January, 2024*  
*Time: 10:00am*  
*Venue: Municipal Assembly Hall, Saltpond*

Supported:

✕ CanoeGear for exclusive updates



**Canoe Owners Association of Ghana (CaFGOAG @CanoeGear · Apr 18** ...  
**#SafetyAtSea** in **#Ghana's** artisanal **#fisheries** sector has improved due to fishers' utilization of weather and ocean state information, made available and accessible by **@GhanaMet** and our partner **@ug\_gmes**.

Fisheries and maritime stakeholders are invited...

**#TheBigAnnouncement**

### 29<sup>th</sup> Meteorological Virtual Seminar Series-Ghana

**Topic**  
**INLAND-WATER, COASTLINE AND MARITIME WEATHER FORECAST OF GHANA**

Kindly register via the link below before you join  
<https://forms.gle/5hYReBVQ8tA35yD9>

**Zoom** MEETING ID: 867 4715 1145  
 PASSCODE: 037991

**THURSDAY**  
 25TH APRIL, 2024

**10:00 AM UTC**

Join Zoom Meeting  
<https://us02web.zoom.us/j/86747151145?pwd=b2RwZWpOVjRpdTlVYURHNTX0tE14Z209>

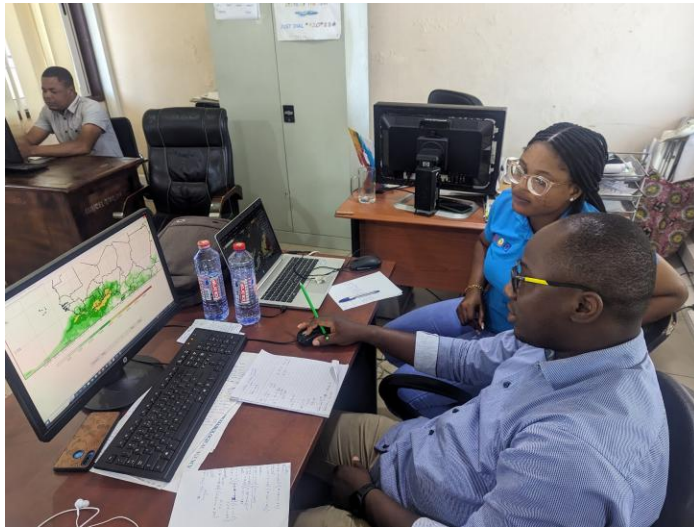
**SPEAKER**  
**MR. ADOM DERKYE**  
 A PRINCIPAL METEOROLOGIST AND MARINE WEATHER FORECASTER

Ghana Maritime Authority and 3 others





# Institutional Training



## BULLETIN DE PREVISION METEO MARITIME POUR LA COTE TOGOLAISE N°001

VALIDITE : 03/04/2024 DE 00 UTC À 18 UTC  
(DE LA CÔTE JUSQU'À 20 MILES NAUTIQUES; 37KM)

L'état de la mer : PEU AGITEE



**Avertissement : RAS**

PARAMETRES	DONNEES
VENT	09-14 KT, MAX 22 KT du Sud variant entre Sud-Est et Sud-Ouest
TEMPERATURE DE SURFACE DE L'EAU	(28-30) °C
HAUTEUR DE VAGUE	(1-1.2) m Sud, max (1.7 m)
COURANT MARINS DE SURFACE	(0.20) m/s, Est/Nord-Est
COURANT MARINS (PROFONDEUR 10 M)	(1) m/s, Est/Sud-Est

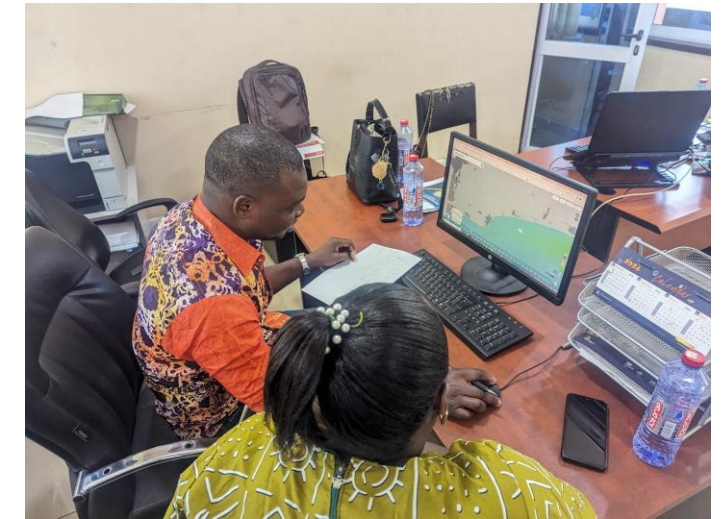
### SITUATION METEOROLOGIQUE :

Le Ciel sera nuageux à très nuageux avec des manifestations orageuses ou pluvio-orageuses dans la journée de demain ; le temps restera variable l'après-midi. La visibilité sera moins bonne le matin au large et deviendra progressivement bonne au cours de la journée.

### SITUATION DES MAREES :

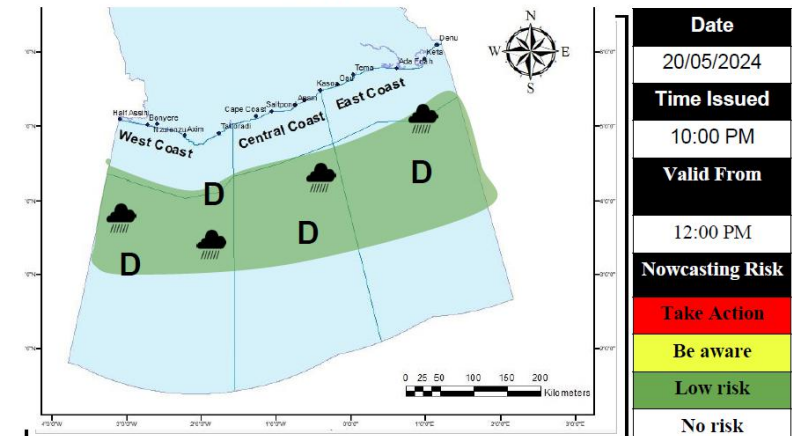
	Heure	Hauteur des eaux
Basse mer	04h42	0.6 m
Pleine mer	11h36	1.5 m
Basse mer	17h37	0.8 m
Pleine mer	23h34	1.5 m

### LEGENDE

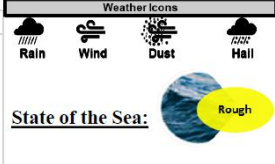


## COASTAL & MARITIME FORECAST FOR GHANA

IMPACT-BASED FORECAST VALID  
1200Z 20/05/2024



		Weather Forecast Risk Table		
Likelihood	High (>60%)	G	H	I
	Medium (40%-60%)	D	E	F
	Low (<40%)	A	B	C
		Low	Medium	High
		Impact		







**Permanent Secretary  
Gambia**



**Sierra Leone Met  
Office**



**Gambia Navy**



**Sierra Leone Met  
Deputy Director**



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# International Collaboration

**SAVE THE DATE**  
**2-Day WORKSHOP**  
**#MarineData4Africa**  
 Powered by Copernicus Marine Service

**Session 1 - Products & Use Cases**  
 May 10, 2023, 10am - 1pm (UTC+2)  
**Session 2 - Practical Session**  
 May 11, 2023, 10am - 1pm (UTC+2)

[REGISTER NOW](#)

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Recent GMES web platform | List of Courses | Search a Course

Introduction to Marine Meteorology

212 ENROLLED STUDENTS | 11 STUDENTS COMPLETED | 66 IN PROGRESS | 135 YET TO START

General | DAY 1 | DAY 2 | DAY 3

General Links | Medias | Follow Us

Monitoring of Ocean Variables training

01:15:06

Participants: 66

**Monitoring Ocean Variables**  
 Discovery, Access and Exploitation of EU Marine Product Portfolios

Dr Hayley Evers-King  
 Marine Applications Expert  
 EUMETSAT

Participants list: Bennet Atsu Kwame Foli, Hayley Evers-King (Guest), Ben Loveday (Guest), idoubley (Guest), Phyllis Akua Amamoo, Cynthia Addo (External), Getachew Alaba... (External), Angel Ruiz Angu... (External), ZAN-BI TIZE TH... (External), Sebe Abena Ser... (External), Reginald Ayeh (External), Halima Idris (External)

**Copernicus Earth Observation Data Visualisation Workshop**

**Being Practical: How to Access & Process Copernicus & EUMETSAT Data**

+ 20 June 2023  
 + 14:00-16:00 (CEST)

IMPLEMENTED BY EUMETSAT, MERCATOR OCEAN INTERNATIONAL, ECMWF, European Space Agency

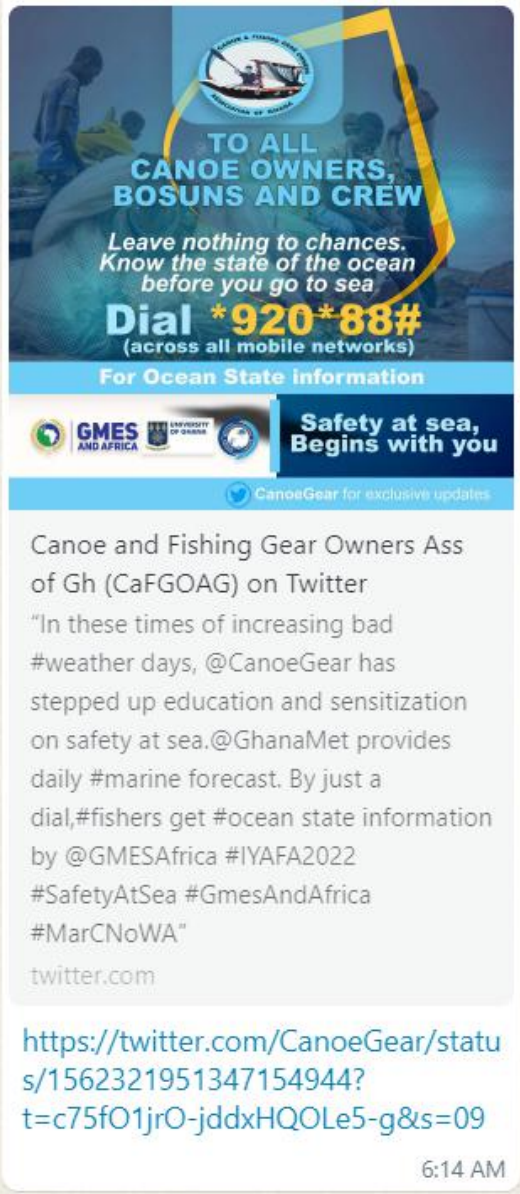


**GMES AND AFRICA**





# User Feedback



**TO ALL CANOE OWNERS, BOSUNS AND CREW**  
Leave nothing to chances. Know the state of the ocean before you go to sea.  
**Dial \*920\*88#**  
(across all mobile networks)

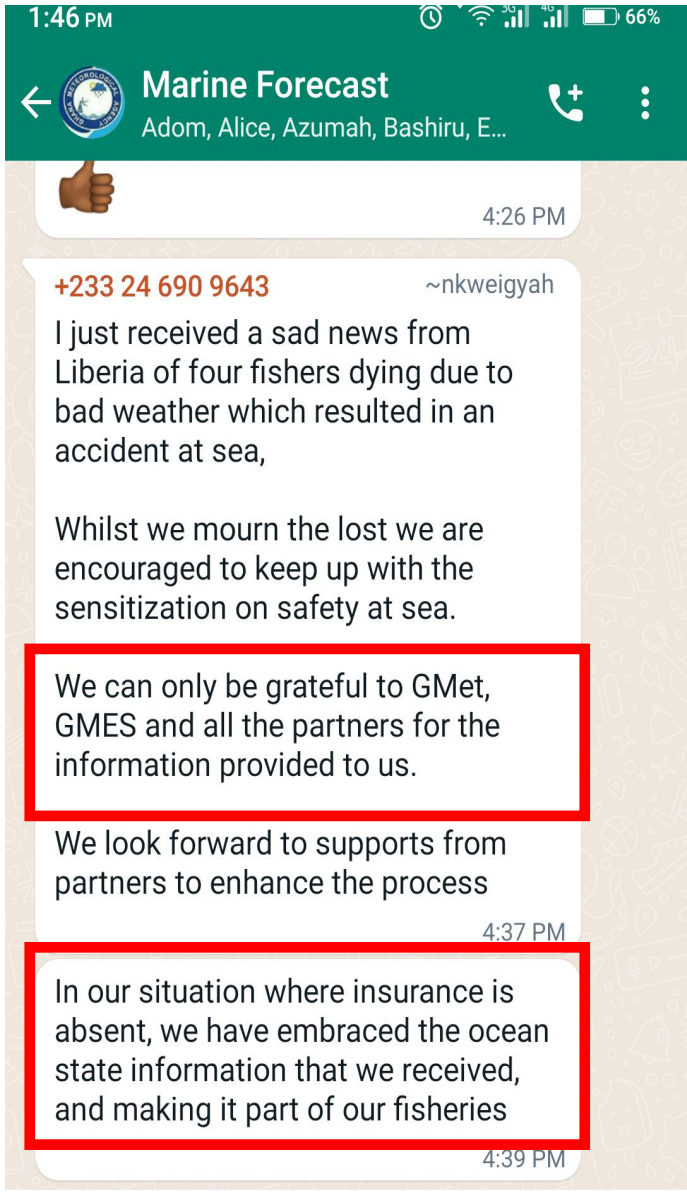
For Ocean State information

**Safety at sea, Begins with you**

CanoeGear for exclusive updates

Canoe and Fishing Gear Owners Ass of Gh (CaFGOAG) on Twitter  
"In these times of increasing bad #weather days, @CanoeGear has stepped up education and sensitization on safety at sea. @GhanaMet provides daily #marine forecast. By just a dial, #fishers get #ocean state information by @GMESAfrica #IYAFA2022 #SafetyAtSea #GmesAndAfrica #MarCNoWA"  
<https://twitter.com/CanoeGear/status/1562321951347154944?&t=c75f01jrO-jddxHQOLe5-g&s=09>

6:14 AM



1:46 PM

Marine Forecast  
Adom, Alice, Azumah, Bashiru, E...

4:26 PM

+233 24 690 9643 ~nkweigyah

I just received a sad news from Liberia of four fishers dying due to bad weather which resulted in an accident at sea,

Whilst we mourn the lost we are encouraged to keep up with the sensitization on safety at sea.

We can only be grateful to GMet, GMES and all the partners for the information provided to us.

We look forward to supports from partners to enhance the process

In our situation where insurance is absent, we have embraced the ocean state information that we received, and making it part of our fisheries

4:37 PM

4:39 PM



J. Etonam Avornyo Kassah

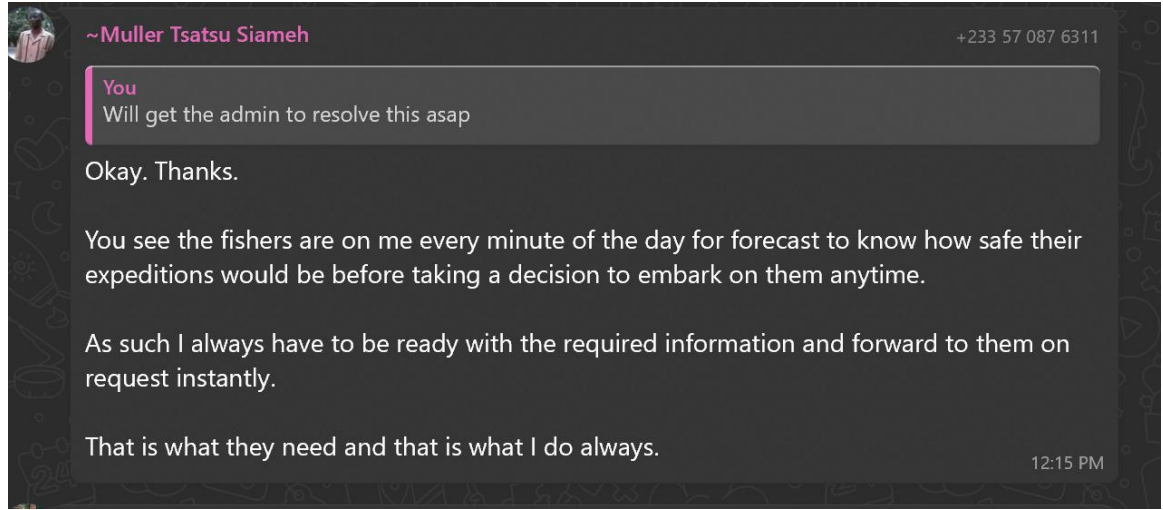
Thank you too . A lot of Ghanaians have come to appreciate the forecasts from GMet and GMES and we will share as given to us 🙏

3:13 PM

so sorry, there are plans with GIMET to train other meteor agencies in a west and North Africa who need help in that field. Additional efforts are being made for Liberia to get the USSD code as well an...

Is it possible to have voice messages as it is with the customer care call lines of the mobile networks

4:45 PM



~Muller Tsatsu Siameh +233 57 087 6311

You Will get the admin to resolve this asap

Okay. Thanks.

You see the fishers are on me every minute of the day for forecast to know how safe their expeditions would be before taking a decision to embark on them anytime.

As such I always have to be ready with the required information and forward to them on request instantly.

That is what they need and that is what I do always.

12:15 PM





# Impacts

**Reduced** incidents at sea

**Increase** in the number of fishermen engaging with meteorological services.

**Localized** and IBF forecasts developed for Ghana

Knowledge transfer to **Togo, Gambia and Sierra Leone**

Creation of a **Marine Forecast Unit** under the **Ghana Meteorological agency**

GHANA METEOROLOGICAL AGENCY

**State of the Sea expected to be dangerous and rough on Tuesday, 21st & Wednesday, 22nd May, 2024. Mariners and Coastal residents advised.**

[f GMet Forecast Office](#)
[@GhanaMet](#)
[ghana\\_meteorological\\_agency](#)
[www.meteo.gov.gh](#)  
[Ghana Meteorological Agency](#)
[Let's talk weather](#)
[0553538292](#)
[Ghana Meteorological Agency](#)



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**UNIVERSITY  
OF GHANA**



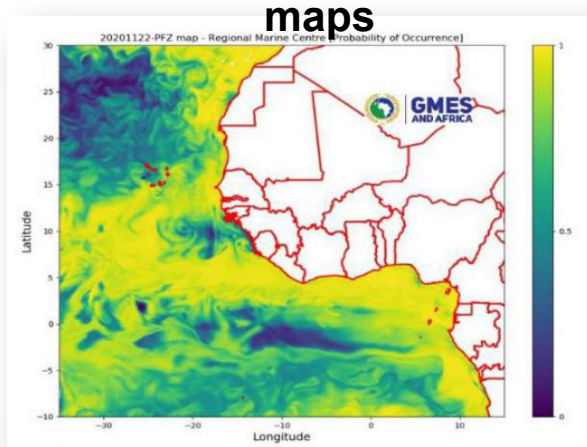
## Next Steps

- Dial-in services with voice-over in local languages for USSD service
- Extend USSD service to other countries
- Addition of rainfall layer to ocean state application
- Form a community of practice between fishermen associations and Meteorological agencies in other beneficiary countries

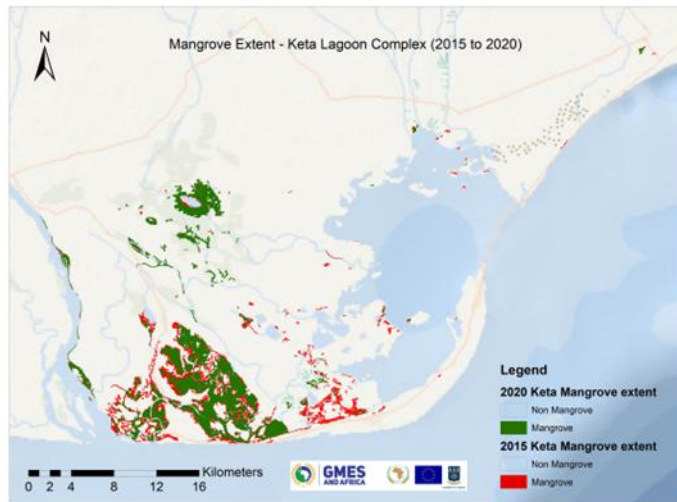


# Learn about our other services

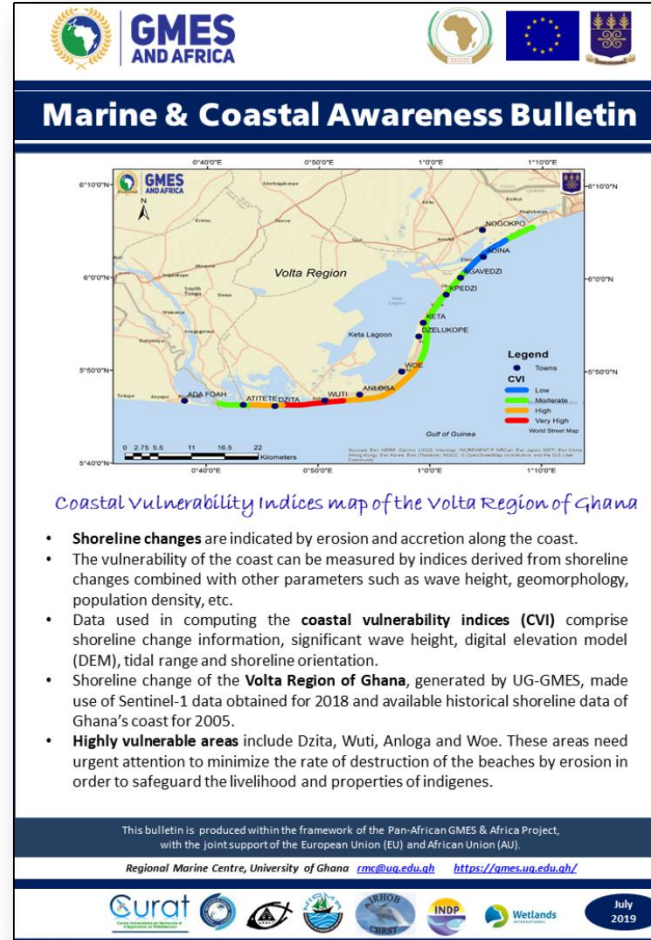
## Potential Fishing Zone (PFZs) maps



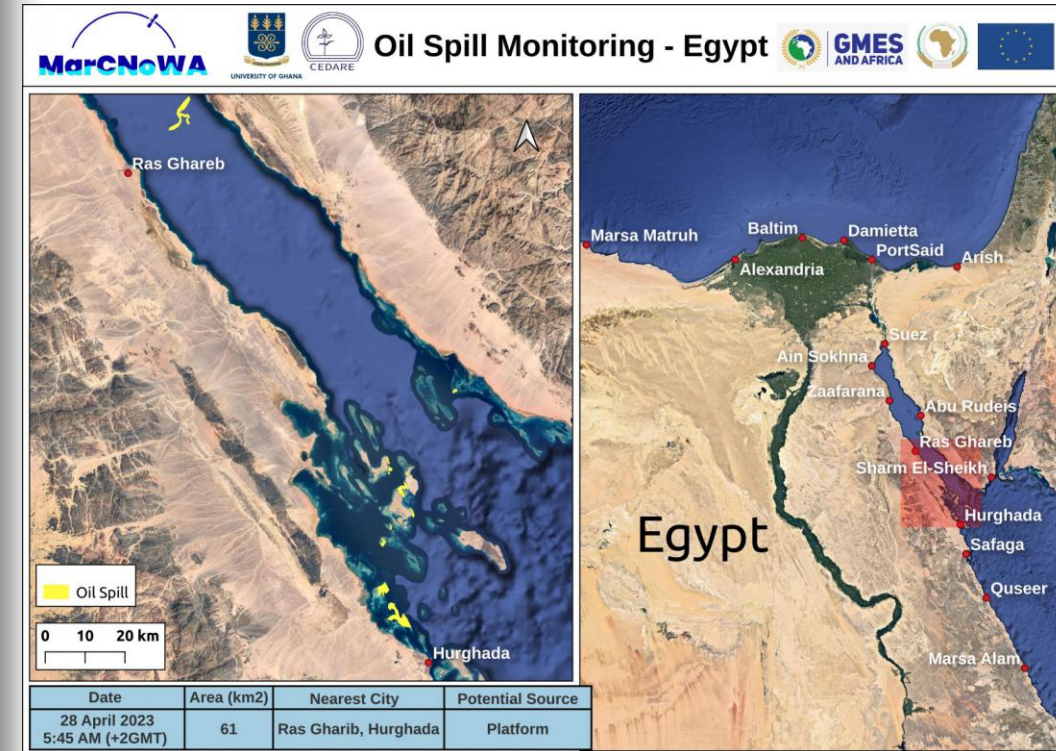
## Mangrove extent maps



## Coastal Vulnerability maps



## Oil Spill Occurrence maps







# Interested?? Follow us!!



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



[rmc@ug.edu.gh](mailto:rmc@ug.edu.gh)



[Regional Marine Centre](#)



[@ug\\_gmes](#)



[Regional Marine Centre](#)



[UG-GMES\\_Regional Marine Centre](#)





**Thank  
You  
Medaase**

**Asant**

**Merci**

**Na gode**

شكرا

**Obrigad**

**un dó kú nú  
we**

**Akpe**

**Daalụ**

**Matondi**

**Grazie**

**Danke**

**Mahadsanid**