Benefits for policy sectors

Viola Otieno
ICPAC and President of "Women in GMES&Africa"

15th EUMETSAT User Forum in Africa
HIGHLIGHTS – 29 September 2022

Agenda

Scope of the sessions

- Disaster Risk Reduction
- Blue Economy
- Climate Service

Summary of the presentations.

Main Recommendations / Key messages

Objectives of the thematic sessions

The **overall objective** of the thematic sessions was to showcase the use of EO satellite data in support to three policy sectors:

- **Disaster risk reduction**
- **Blue Economy**
- **Climate change**

The **aim** is to facilitate exchange of experience and best practices among the users in Africa (from Africa to Africa)

The **specific objectives** are

- present data sets, products, tools and services useful for the various sectors
- showcase cooperation between data&service providers and users
- share success stories and challenges

Scope of the session dedicated to DRR

Climate change is exacerbating the frequency and severity of high-impact weather events in Africa

“Early warning for Early Action” is a priority in AFrica

The objective of the session was to share how satellites data can contribute to Early Warning

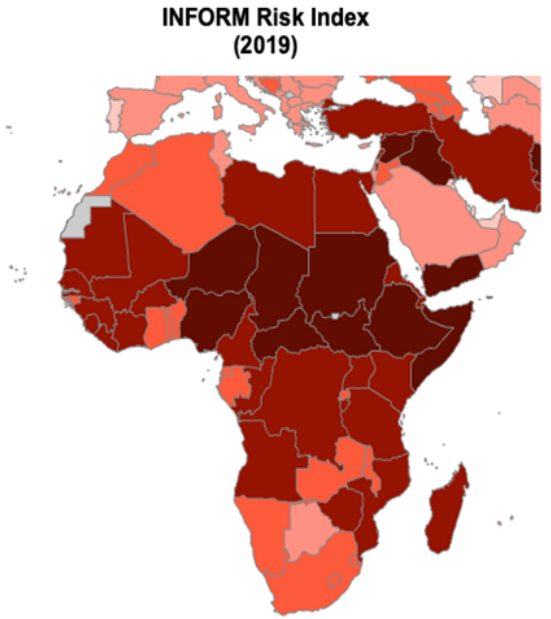
Session dealt with:

- Nowcasting
- Numerical Weather Prediction
- Early Warning System and Disaster Situation Room
- Activities at regional and national level
- Cooperation btw the NMHS and the disaster management authorities

Content of the session :

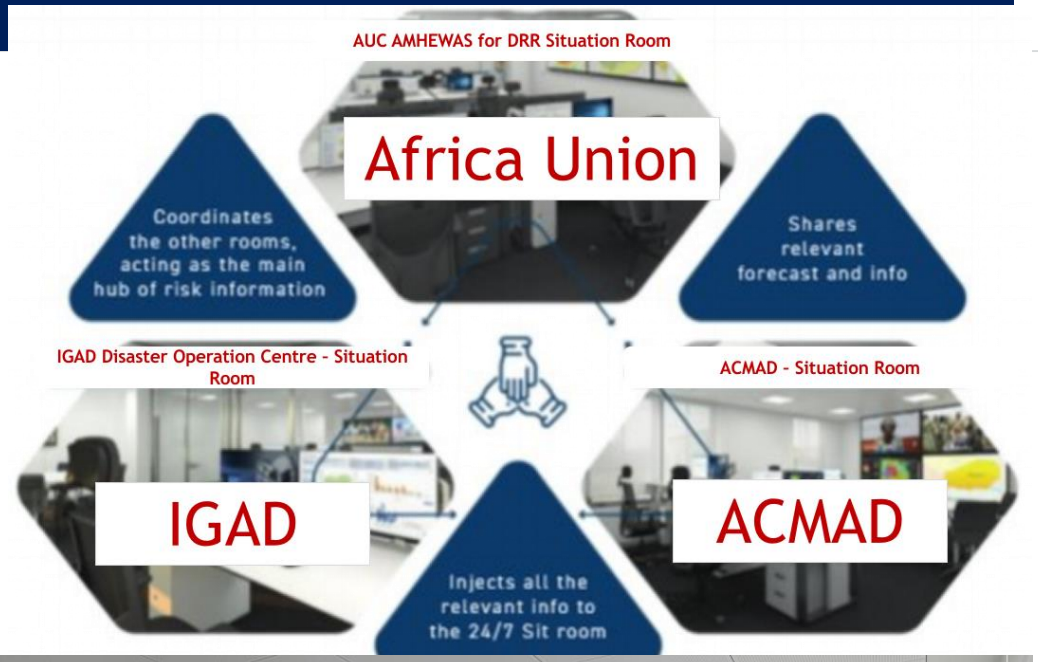
08 presentations and Open discussions

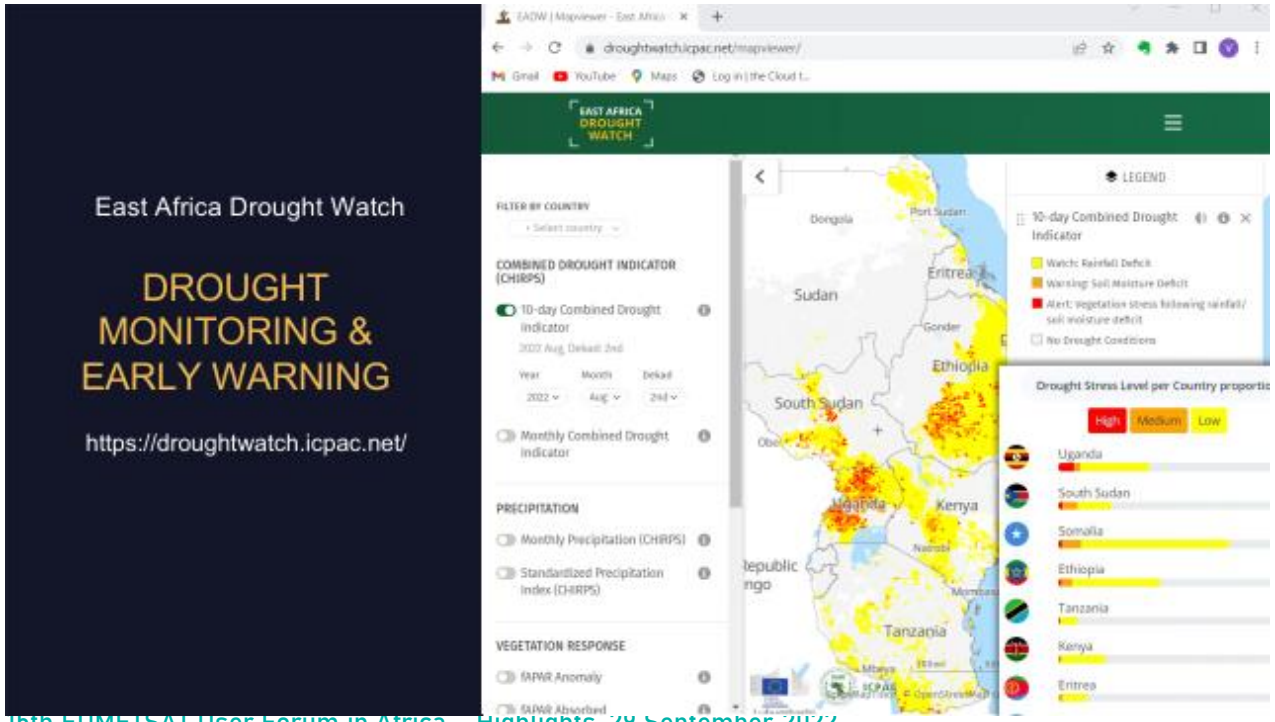
REC	2015	2016	2017	2018
EAC	5.9	6.0	6.4	6.2
ECCAS	3.2	4.9	5.5	5.4
ECOWAS	4.5	4.4	4.9	5.0
IGAD	6.5	6.5	6.8	6.8
North Africa	4.3	4.3	4.6	4.5
SADC	4.3	4.1	4.3	4.4
Africa	**4.8**	**5.0**	**5.4**	**5.4**



Disaster Situation Room in Africa

The ***AMHEWAS Programmme*** has established three (3) situation rooms across the continent and is working on scaling up to other regions and member states.
The three situation rooms are at AUC, ACMAD and ICPAC
Supporting the establishment of the fourth situation room Nacala, Mozambique.

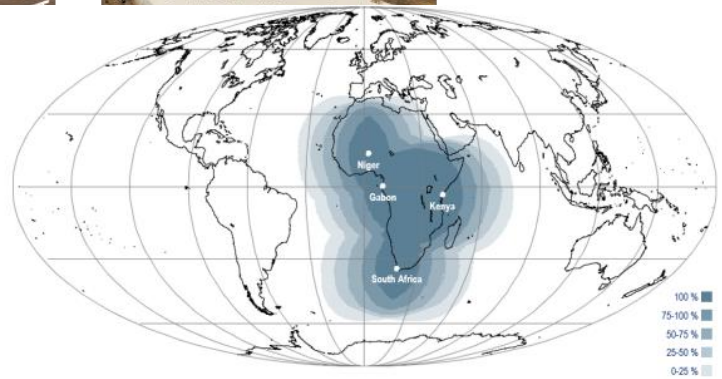




Satellite data for Nowcasting and for Numerical Weather Prediction

SAWIDRA:

four RARS antennas to get polar orbiting satellite data to feed Numerical Weather Prediction over Africa

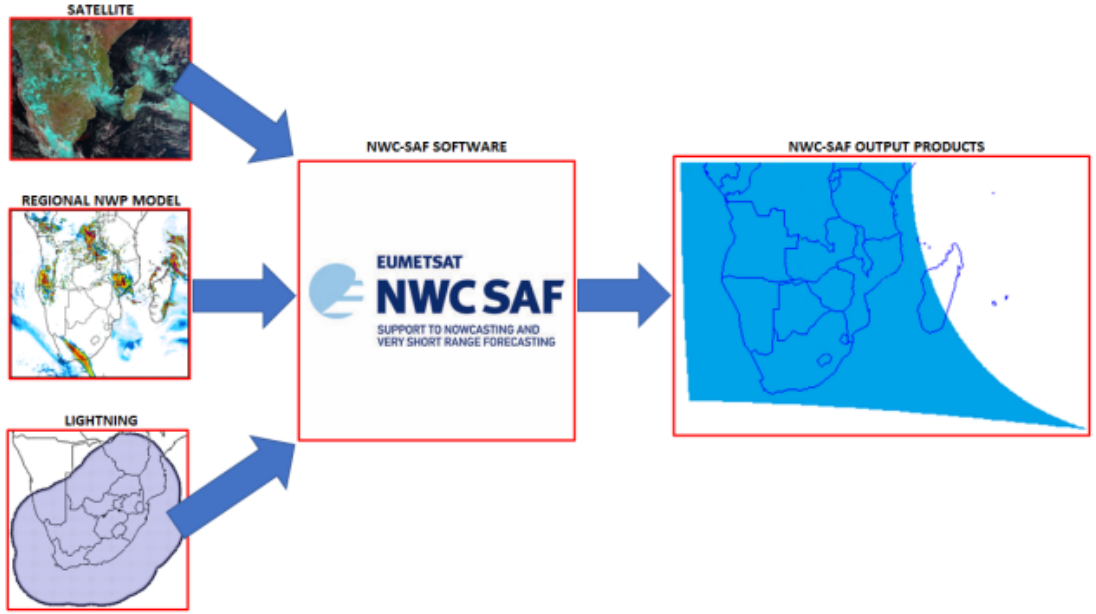


EUMETSAT NWC SAF
SUPPORT TO NOWCASTING AND VERY SHORT RANGE FORECASTING

The NWC SAF develops and maintains SW Packages (for GEOstationary and POLAR Satellites) freely distributed to registered users to generate satellite derived products with a direct application in Nowcasting

Southern Africa: regional approach

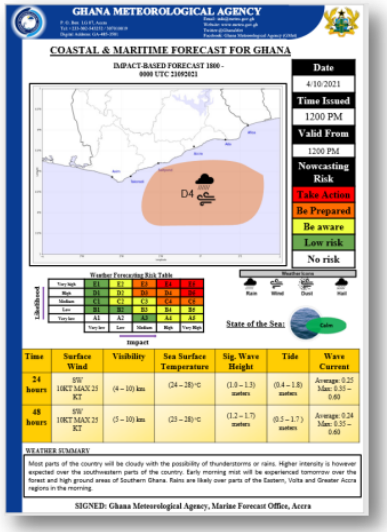
Nowcasting Satellite Application Facility software running locally at SAWS since 2014



Nowcasting based on satellite data at National level : 4 examples

GHANA: Examples of Impact-Based Forecast (IBF)

Marine Forecast


GHANA METEOROLOGICAL AGENCY

COASTAL & MARITIME FORECAST FOR GHANA

IMPACT-BASED FORECAST 1800 - 0000 UTC 21052021

Date 4/10/2021
Time Issued 1200 PM
Valid From 1200 PM
Nowcasting Risk
Take Action
Be Prepared
Be aware
Low risk
No risk

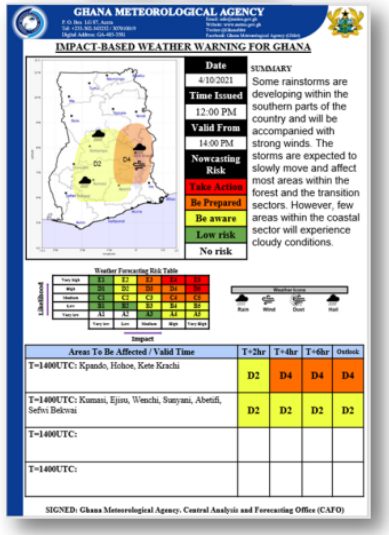
Time	Surface Wind	Visibility	Sea Surface Temperature	Sig. Wave Height	Tide	Wave Current
24 hours	SW 10KT MAX 25 KT	(4 – 10) km	(24 – 28)°C	(1.0 – 1.3) meters	(0.4 – 1.8) meters	Average: 0.25 Max: 0.35 – 0.60
48 hours	SW 10KT MAX 25 KT	(5 – 10) km	(25 – 28)°C	(1.2 – 1.7) meters	(0.5 – 1.7) meters	Average: 0.24 Max: 0.35 – 0.60

WEATHER SUMMARY

Most parts of the country will be cloudy with the possibility of thunderstorms or rains. Higher intensity is however expected over the southwestern parts of the country. Early morning mist will be experienced tomorrow over the forest and high ground areas of Southern Ghana. Rains are likely over parts of the Eastern, Volta and Greater Accra regions in the morning.

SIGNED: Ghana Meteorological Agency, Marine Forecast Office, Accra

Weather Warning


GHANA METEOROLOGICAL AGENCY

IMPACT-BASED WEATHER WARNING FOR GHANA

Date 4/10/2021
Time Issued 12:00 PM
Valid From 14:00 PM
Nowcasting Risk
Take Action
Be Prepared
Be aware
Low risk
No risk

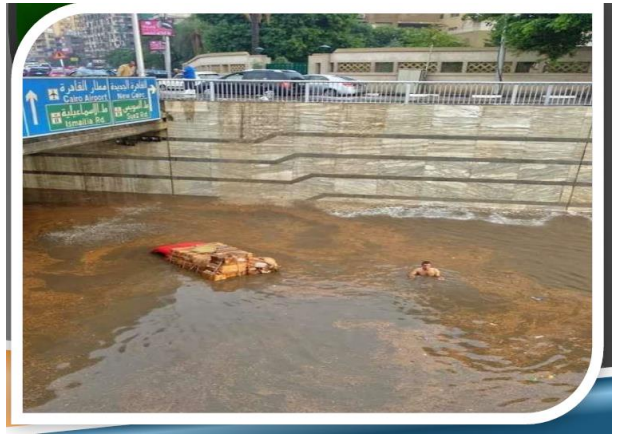
SUMMARY

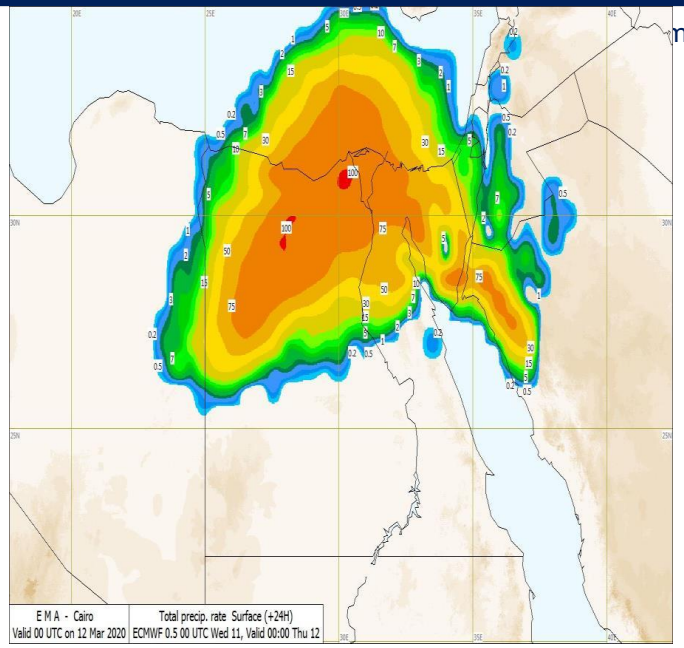
Some rainstorms are developing within the southern parts of the country and will be accompanied with strong winds. The storms are expected to slowly move and affect most areas within the forest and the transition sectors. However, few areas within the coastal sector will experience cloudy conditions.

Areas To Be Affected / Valid Time	T+2hr	T+4hr	T+6hr	Outlook
T=1400UTC: Kpando, Hohoe, Kete Krachi	D2	D4	D4	D4
T=1400UTC: Kumasi, Ejisu, Wenchi, Sunyani, Abetifi, Sefwi Bekwai	D2	D2	D2	D2
T=1400UTC:				
T=1400UTC:				

SIGNED: Ghana Meteorological Agency, Central Analysis and Forecasting Office (CAFO)

EGYPT:
monitoring of flash floods

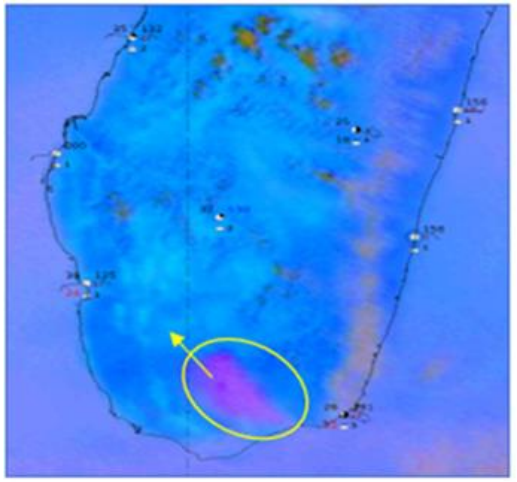




netsat.int

TANZANIA: Wild fire management

MADAGASCAR:
dust storm monitoring



SYNOP/RGB Dust à 06/09Z

Scope of the session dedicated to Blue Economy

The Africa Blue Economy Strategy was adopted in 2019

The main objective of the session was to see how EO can support implementation of the Blue Economy Strategy.

Specific objectives

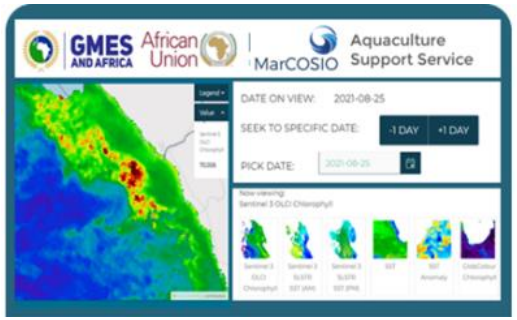
- Address satellite applications for Marine, Great Lake and Rivers,
- Focus on the access and use of data and products of the Copernicus Sentinel-3, the OSI-SAF as well as the Copernicus Marine Environment Monitoring Service.

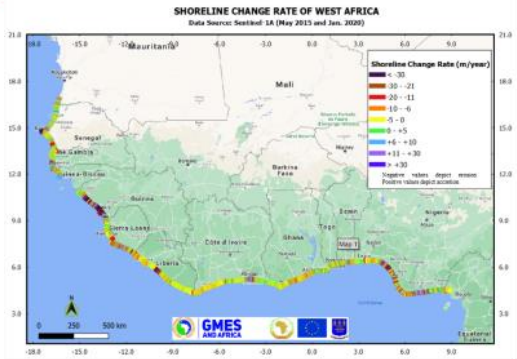
Content of the session :

- 09 presentations and Open discussions

GMES&Africa: Marine and Coastal services

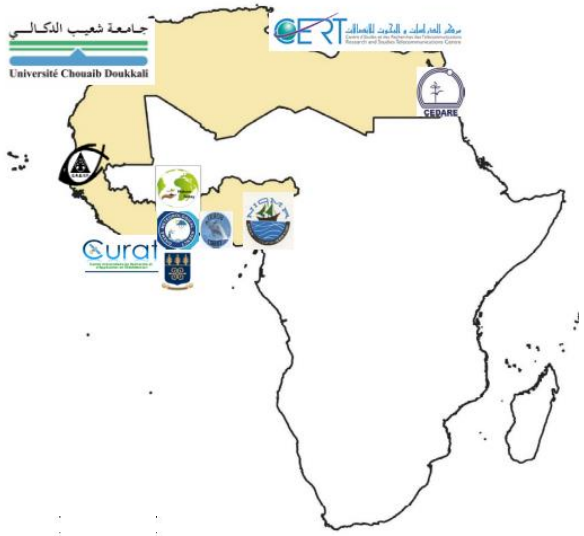
MARCOSIO Consortium





Shoreline change map of West Africa

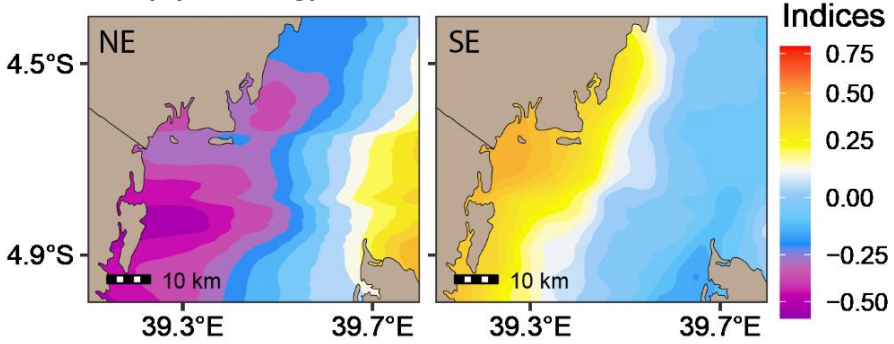
MarCNoWA Consortium

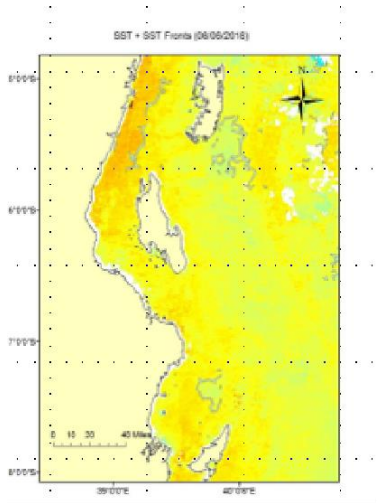


Locating potential fishing zone in Tanzania (TAFIRI)

EO strong support to locate PFZ in Tanzania in monitoring Sea Surface Temperature

Example of linking fishing grounds and EO (upwelling)



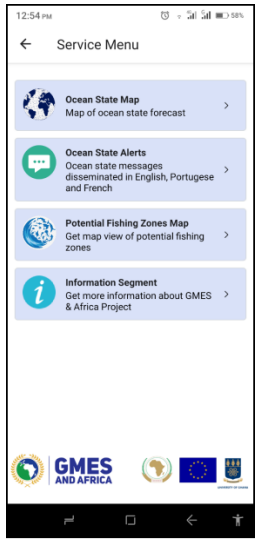


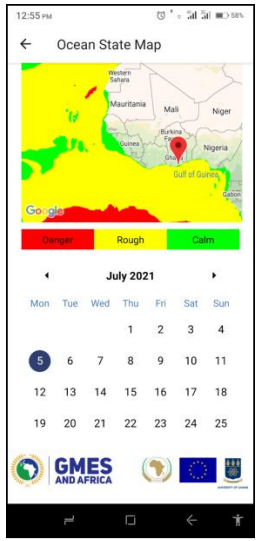
ty of institutions as well as

Weather forecast for fisherman on the sea and lake

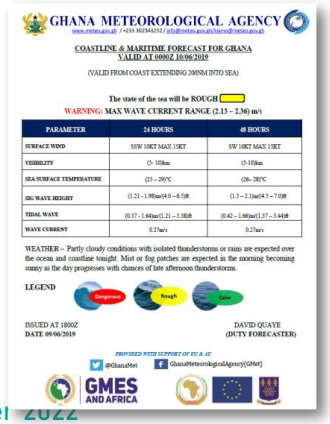
Marine Weather Forecast in Ghana

Provision of Ocean State Early-Warning Information to Artisanal Fishers generated from data obtained from the Copernicus Marine Environment Monitoring Service





Importance of the cooperation with Ghana Meteo (GMet) who provide Daily ocean state forecast.


GHANA METEOROLOGICAL AGENCY

COASTLINE & MARITIME FORECAST FOR GHANA
VALID AT 0000Z 10/06/2019

(VALID FROM COAST EXTENDING 200NM INTO SEA)

The state of the sea will be ROUGH

WARNING: MAX WAVE CURRENT RANGE (2.13 – 2.36) m/s

PARAMETER	24 HOURS	48 HOURS
SURFACE WIND	SSW 10KT MAX 15KT	SW 10KT MAX 15KT
VISIBILITY	(5- 10)km	(5-10)km
SEA SURFACE TEMPERATURE	(25 – 29)°C	(26- 28)°C
SIG WAVE HEIGHT	(1.21 - 1.98)m/(4.0 – 6.5)ft	(1.3 – 2.1)m/(4.5 – 7.0)ft
TIDAL WAVE	(0.37 - 1.64)m/(1.21 – 5.38)ft	(0.42 – 1.60)m/(1.37 – 5.44)ft
WAVE CURRENT	0.27m/s	0.27m/s

WEATHER – Partly cloudy conditions with isolated thunderstorms or rains are expected over the ocean and coastline tonight. Mist or fog patches are expected in the morning becoming sunny as the day progresses with chances of late afternoon thunderstorms.

LEGEND

ISSUED AT 1800Z
DATE 09/06/2019

DAVID QUAYE
(DUTY FORECASTER)

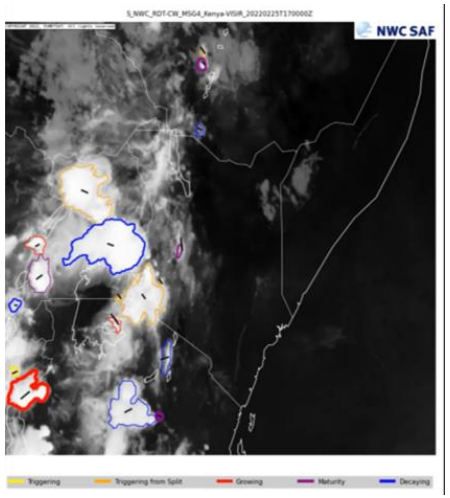
PROVIDED WITH SUPPORT OF EU & AU

@GhanaMet GhanaMeteorologicalAgency(GMet)

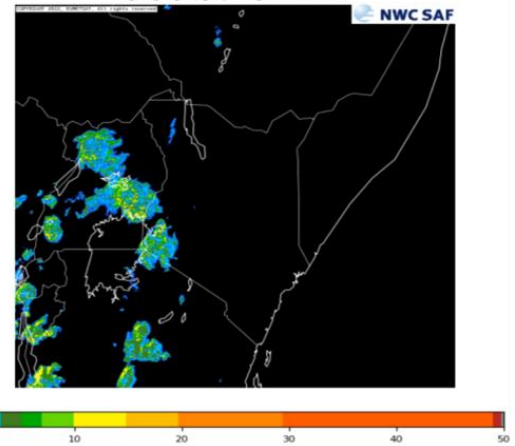
GMES AND AFRICA

Forecasting Lake Victoria Storms using NWCSAF Products: the case of 25 February 2022

Transporters often use small boats that are vulnerable to severe weather.



Rapid developing Thunderstorms



Convective Rain Rate

The use of RDT and CRR (allows forecasters to detect and nowcast storms over Lake Victoria.

Satellite-based nowcasting e.g. NWCSAF fills the gap left by “short-range” forecasts (6 hours to 5 days).

Use of EO Data by River Basin Authorities

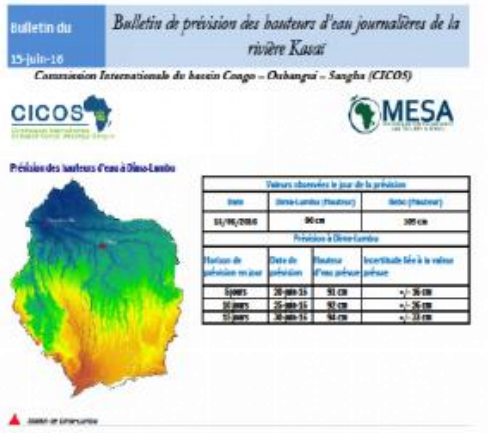
CICOS
Commission Internationale du Bassin Congo-Oubangui-Sangha

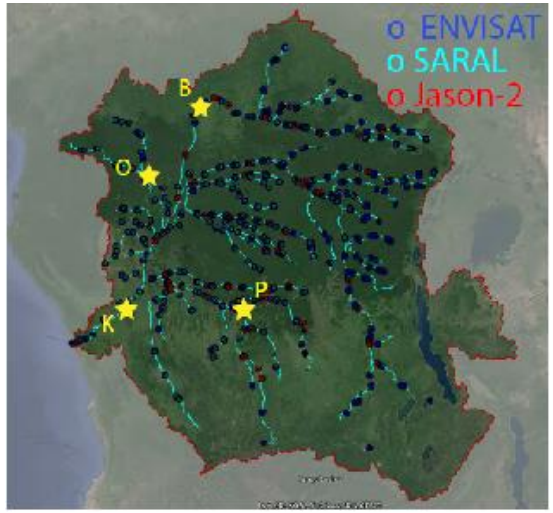
EO support to navigation on Congo River and subsidiaries

ABN
NBA

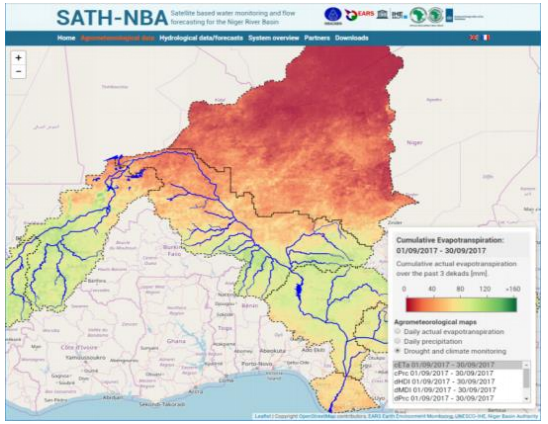
From MSG data to Niger River Discharge Forecast

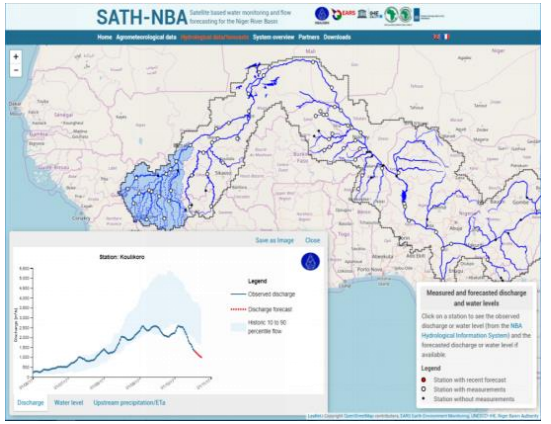
RADAR altimetry in support of navigation safety





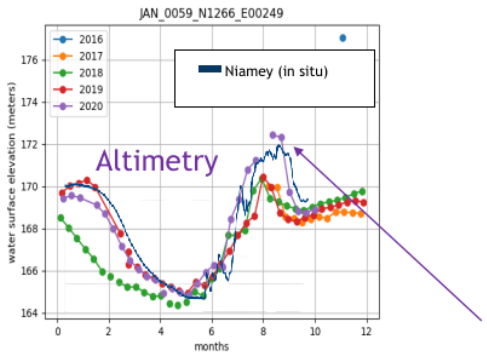
Low water Level Alert Bulletin

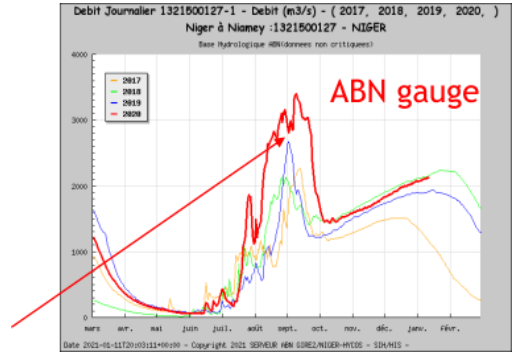




http://www.sath.abn.ne/

Ongoing developments: Integrate SATELLITE altimetry to add virtual stations along the river





2020 record : well seen by altimetry data base

Scope of the session dedicated to Climate Services

Reliable information on climate change and climate variability can build resilience to climate impacts. Climate Services include the timely production, translation, provision and use of climate data, information and knowledge for informed societal decision-making regarding climate risks

ClimSA
INTRA-ACP CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAMME
An initiative of the Organisation of African, Caribbean and Pacific States funded by the European Union

Specific objectives

- Share information on how EO data and products and dedicated tools could be used into the development of Climate services.
- Take stock of status of implementation of Climate Services in Africa via the ClimSA programme

Content of the session:

- 06 Introductory presentations
- Splinter groups per region to collect feedbacks to their RCC about the implementation of the ClimSA.

Copernicus Climate Services: Data & Tools

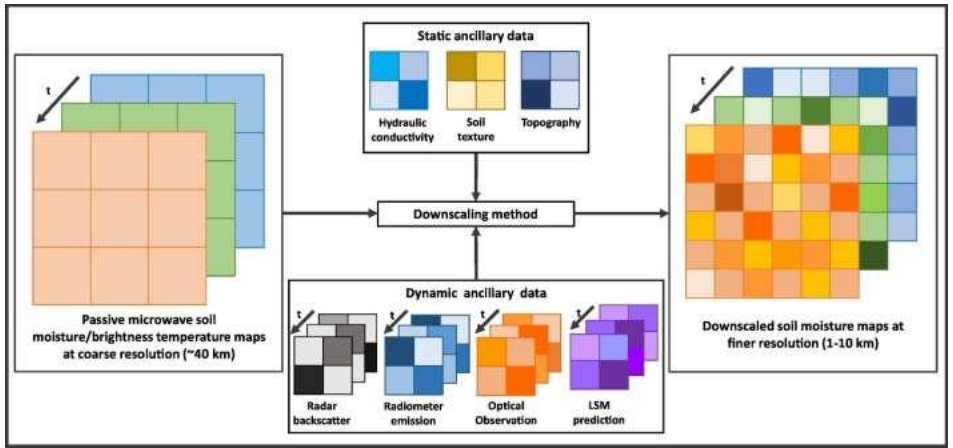
EUMETSAT climate products (EUMETSAT)

Large variety of CDRs based on long term cross-calibrated GEO and LEO data

Access through EUMETSAT product navigator/datastore & SAF webpage

Prototyping of a Data Cube on Europe

Example of application: Downscaling Soil moisture products (from 25 to 5 km):

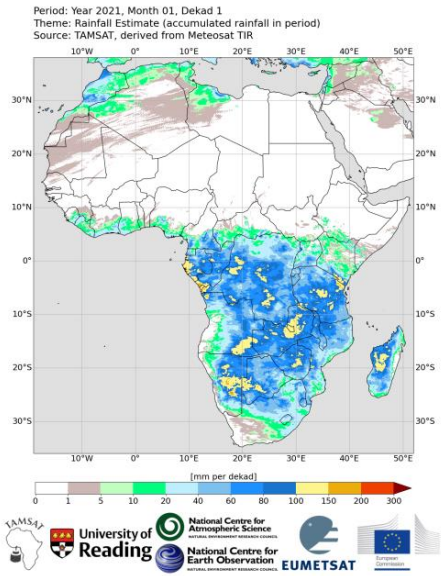


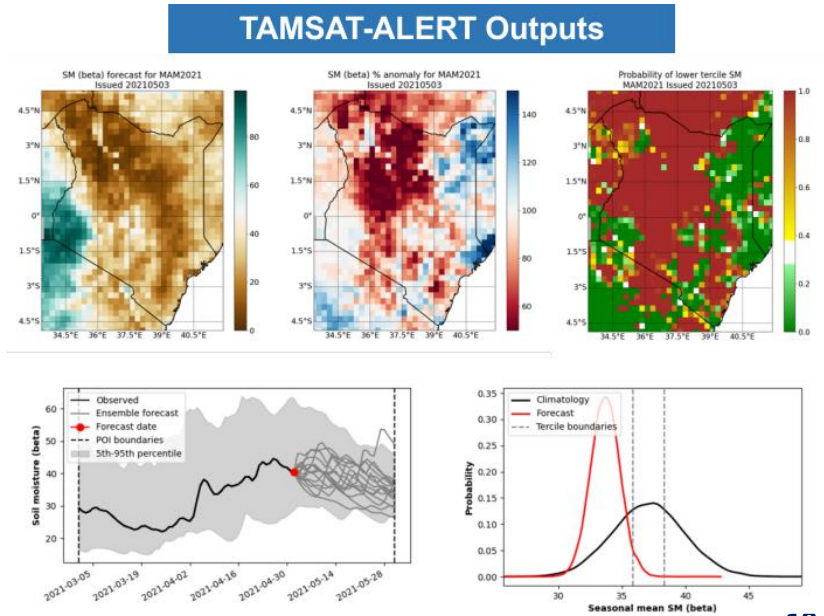
TAMSAT provides several established and soon to be released products that can help support existing climate services

Latest op version: TAMSAT 3.1 at 4 km resolution based on CCD.

Other data/tools available:

- TAMSAT Soil Moisture
- TMSAT Alert



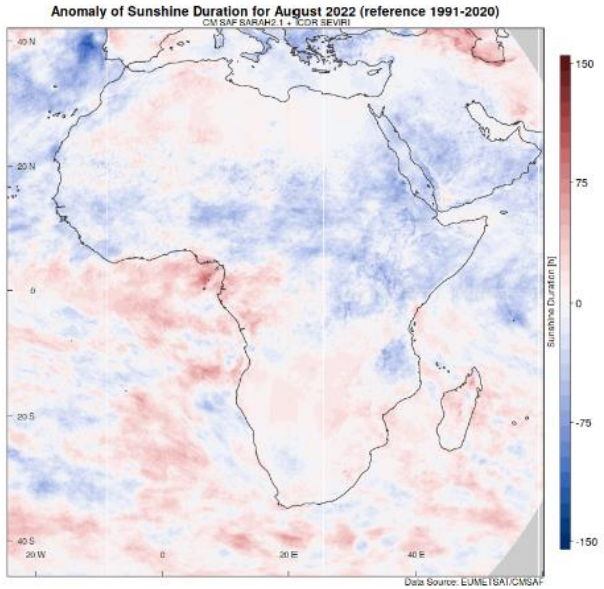


Climate Monitoring SAF data for Africa

Climate Data Records in connection with global energy and water cycle

Quality assurance and control mechanisms

Free and easy access + tools to work with data



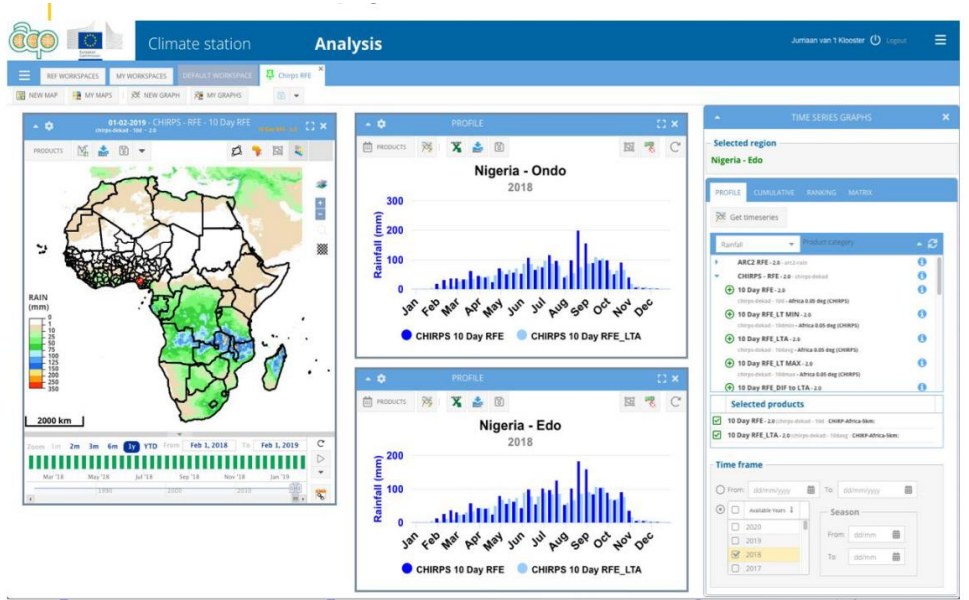
EUMETSAT CM SAF CLIMATE MONITORING

Climate Station / JRC

JRC main contribution to Intra-ACP ClimSA programme :

The Climate Station is a free SW designed based on dialogue with RCCs and users that will establish/Improve access to the CSIS in operational context :

A prototype version is distributed to RCCs & to be distributed at national level (NHMS) / Regular meeting organized



Climate Station User Interface

ClimSA: programme and regional discussion

Intra-ACP ClimSA programme (2019-2024)

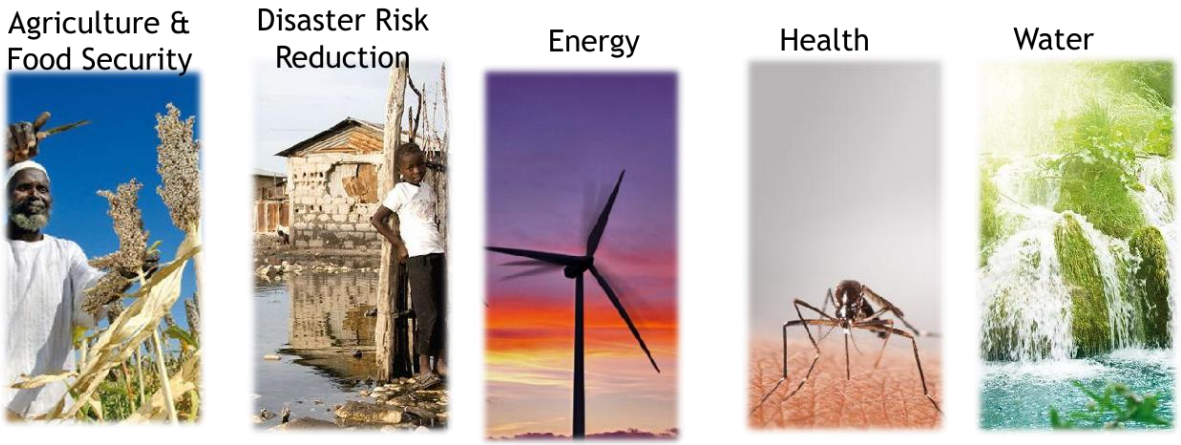
EU-Funded, in support of the implementation of the Global Framework for Climate Services in ACP region

Objective : To strengthen the entire climate services value chain

Implementing Entities in Africa: (ACMAD (continental), AGRHYMET (western Africa), ICPAC (Eastern Africa), SADC-CSC (Southern Africa), CAPC-CA (Central Africa), IOC (indian Ocean)

Technical implementing Partners:

Provide Climate Services in five climate-sensitive areas



Working Groups organised per Region

Discussion on ClimSA implementation Status

Main recommendations

- Encourage the use of Nowcasting SAF at both Regional and National level in support to Early Warning Systems, as well as for aviation (turbulence products)
- Ask ACMAD to finalise the RARS Africa network and share data worldwide for Numerical Weather Prediction models
- Integrate more satellite-based products into Disaster Situation Room

- Encourage cooperation between GMES&Africa and Meteorological community
- G&A to plan sufficient efforts to engage with users, policy and decision makers in all countries covered by their products, through awareness raising and training activities.
- River Basin Authorities to consider transition to MTG as soon as possible

- Strengthen collaboration btw African and European institutions to optimize utilization of available Climate data & tools (AMSAT, EUMETSAT Data Cube, CM SAF products and toolbox, JRC Climate station), through training and other means
- Assess the possibility to make available these products on a cloud service, such as the European Weather Cloud, or on an African Cloud service that could be established as part of the AMSAF.

Thank you!

Questions are welcome.