AMHEWAS COORDINATION & CO-PRODUCTION MEETING

ACMAD CONTINENTAL MULTI-HAZARD ADVISORY CENTER PRODUCTS & SERVICES

Présenté par :

Mr. Godefroid NSHIMIRIMANA
THEMATIC EXPERT ClimSA
n.Godefroid@acmad.org

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

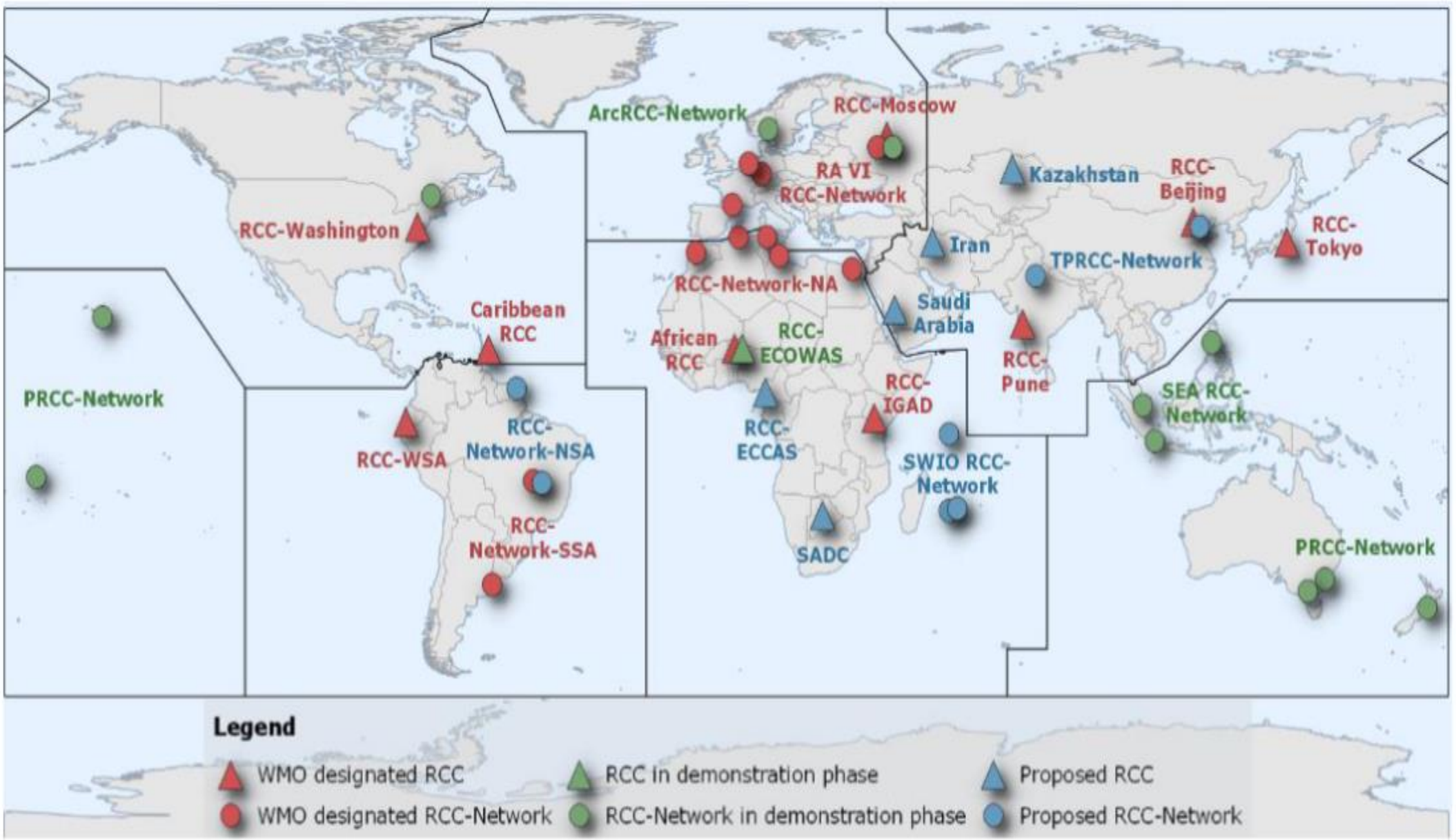
Nairobi – Kenya 12-14 March 2024

ACMAD PRESENTATION

Created trough resolution 540 of the UNECA Conference of Ministers in April 1985 following the droughts of the 70s and 80s , ACMAD is established in Niamey-Niger since October 1992 with mandate

- **Continental Weather and Climate Watch Centre for Africa with Monitoring, *forecasting* and *early warning for* droughts, floods, tropical cyclones and other extreme events as functions**
- **Institution of excellence for the Applications of meteorology for sustainable development with capacity building, methods, tools and products development, contribution to global weather and climate programs, database , research and innovation as functions**
- **The Centre is also tasked to carry out capacity development for its Member State's National Meteorological and Hydrological Services (NMHSs) in weather prediction, climate monitoring, Information technology, research and transfer of technology.**
- **Since its creation, the African Centre of Meteorological Application for Development (ACMAD) has provided weather watch, prediction, and climate information at different time scales *to support humanitarian action and decision-making throughout Africa***
- ***With the Support from UNDRR, ACMAD established the Continental Multi-Hazard Advisory Center and the contribute to AMHEWS by providing Meteorological forecast (Continental Watch) .***

COORDINATION DES CENTRES REGIONAUX CLIMATIQUES Depuis 2015



Establshed Regional Climate Centres (WMO, 2022)

CENTRE CONTINENTAL D'AVERTISSEMENT POUR LES PHENOMENES DANGEREUX OPERATIONNEL DEPUIS OCTOBRE 2022.

AMHEWAS Disaster Situation Room Addis Ababa

African Multi-Hazard Advisory Centre Niamey

ACMAD generates regular continental hazard and disaster situation reports, continental climate trends, and impact-based advisories.

AUC trains Member States and issues advisories through twice weekly “Continental Watch” bulletins and monthly disaster outlooks. Subregional situation rooms feed data to the continental level.

Disaster Operation Centre Abuja

Disaster Situation Room Douala

Humanitarian and Emergency Operations Centre Nacala

Disaster Operations Centre Nairobi

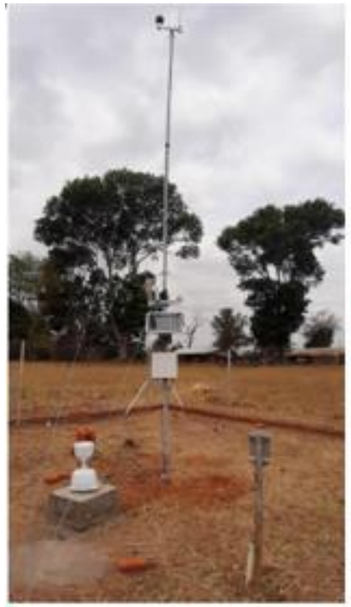
ICPAC

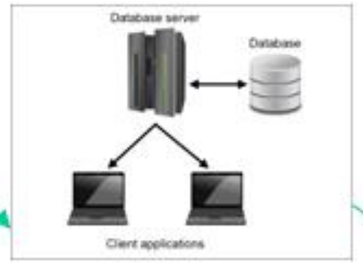
National situation rooms issue national early warnings, coordinate early and anticipatory actions, and feed data to the continental system through the sub-regional situation rooms

National Situation Rooms

Subregional situation rooms provide hazard information and bulletins as well as capacity support for early warning and anticipatory action to the national situation rooms

SOURCE DE DONNEES

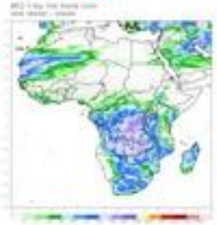




RCCs and NMHSs' Climate Product generation

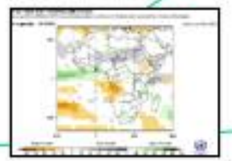
Data Centers

Online Database



Predictor data

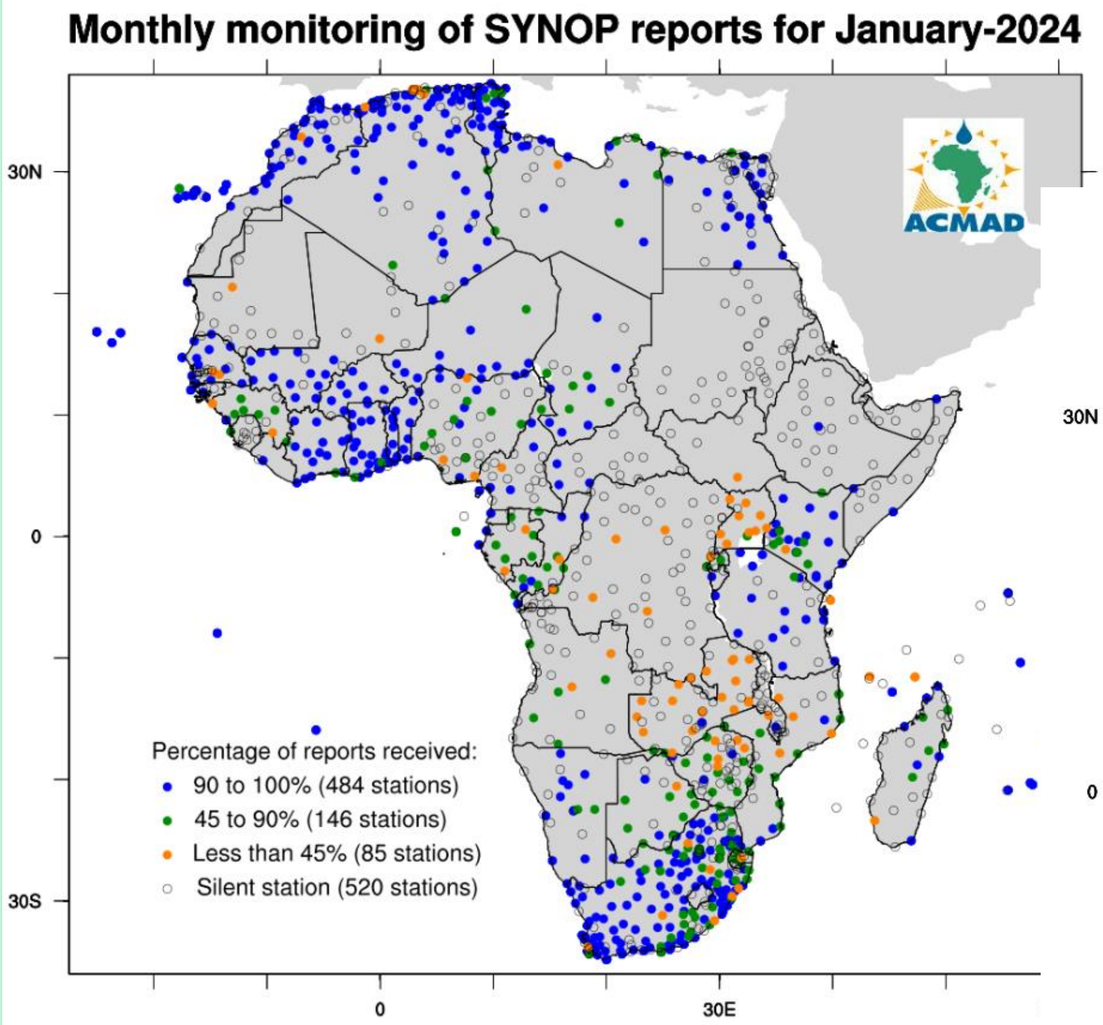
RCCs

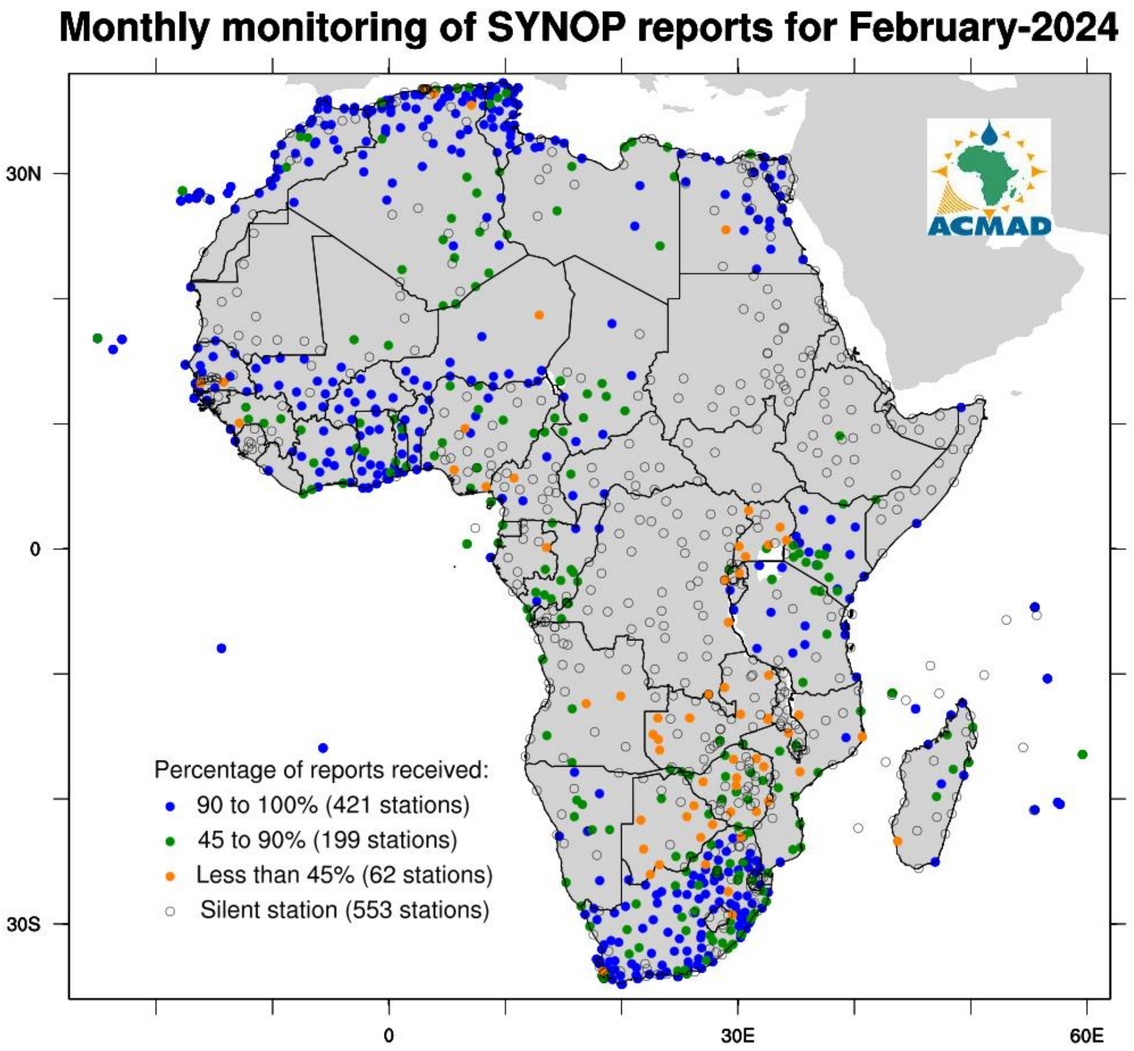


GPCs

Online Seasonal Forecast

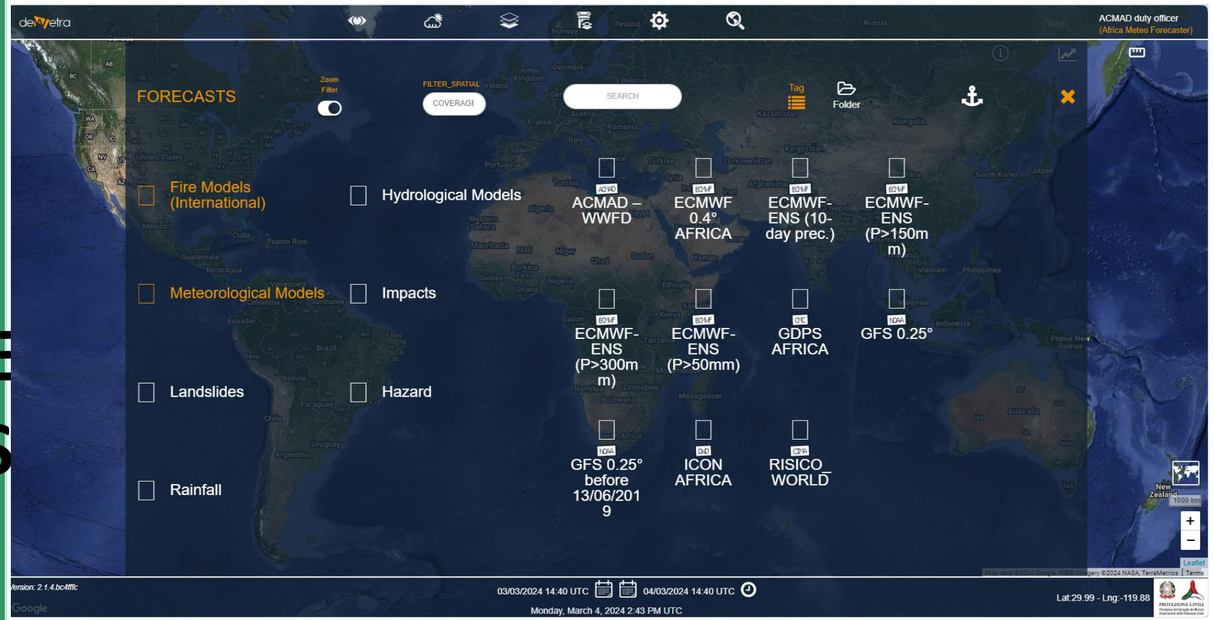
NMHSs

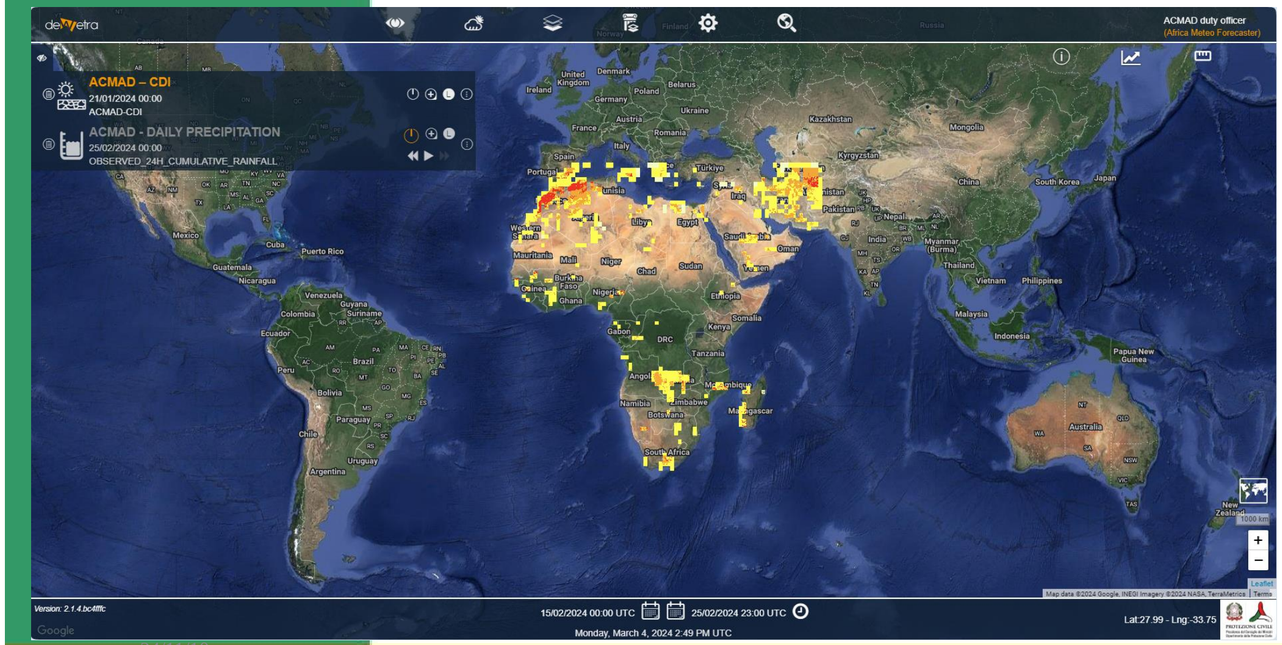

Monthly monitoring of SYNOP reports for January-2024
30N
0
30S
0
30E
ACMAD
Percentage of reports received:
90 to 100% (484 stations)
45 to 90% (146 stations)
Less than 45% (85 stations)
Silent station (520 stations)

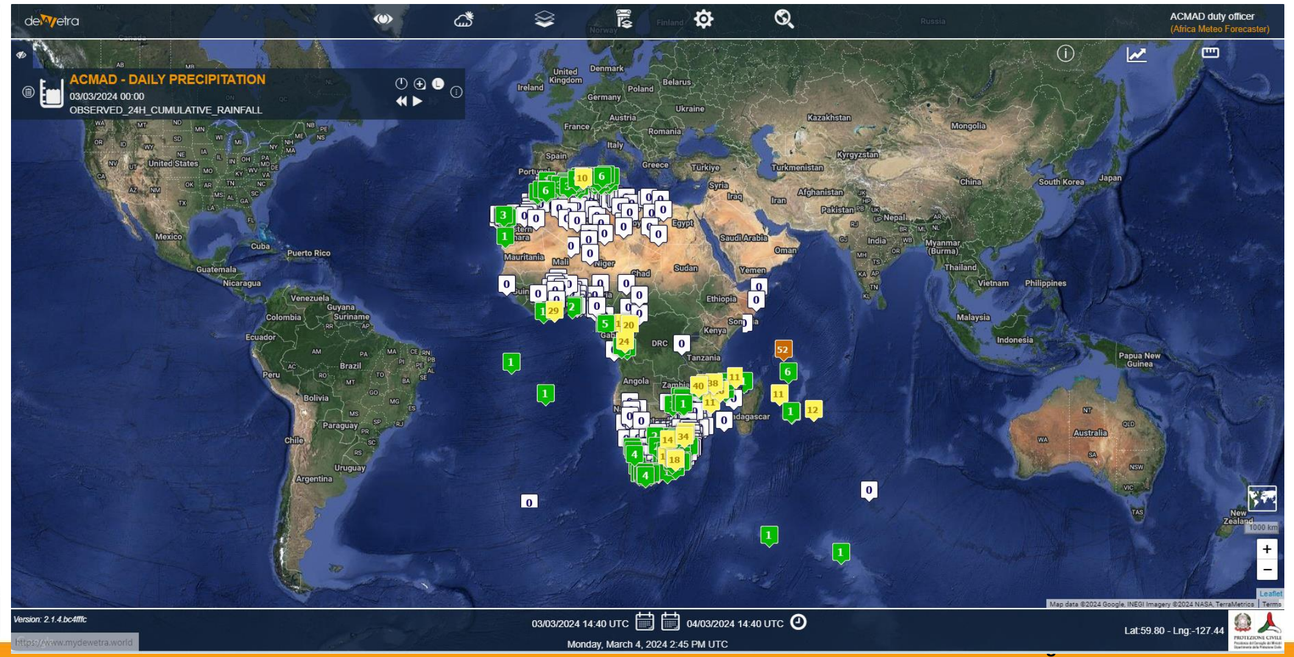

Monthly monitoring of SYNOP reports for February-2024
30N
0
30S
0
30E
60E
ACMAD
Percentage of reports received:
90 to 100% (421 stations)
45 to 90% (199 stations)
Less than 45% (62 stations)
Silent station (553 stations)

DIFFERENT PRODUITS SUR MyDEWETRA avec la collaboration ACMAD - CIMA

SOURCE DE DONNEES

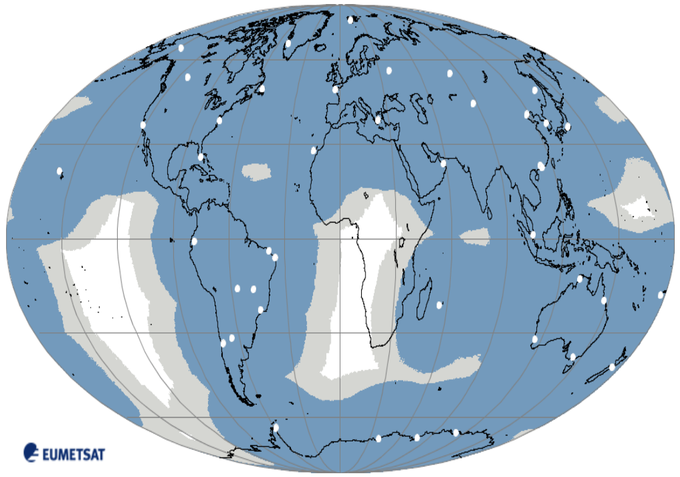




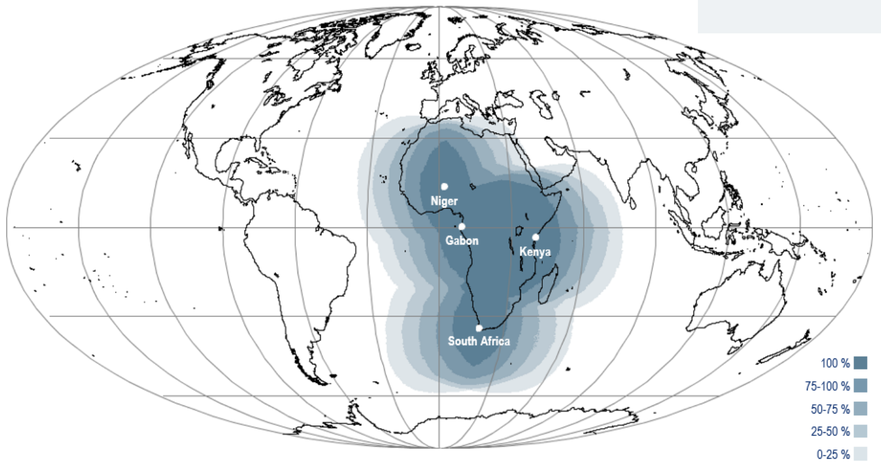


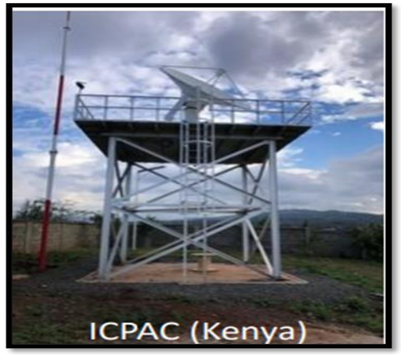
SOURCE DE DONNEES

BEFORE



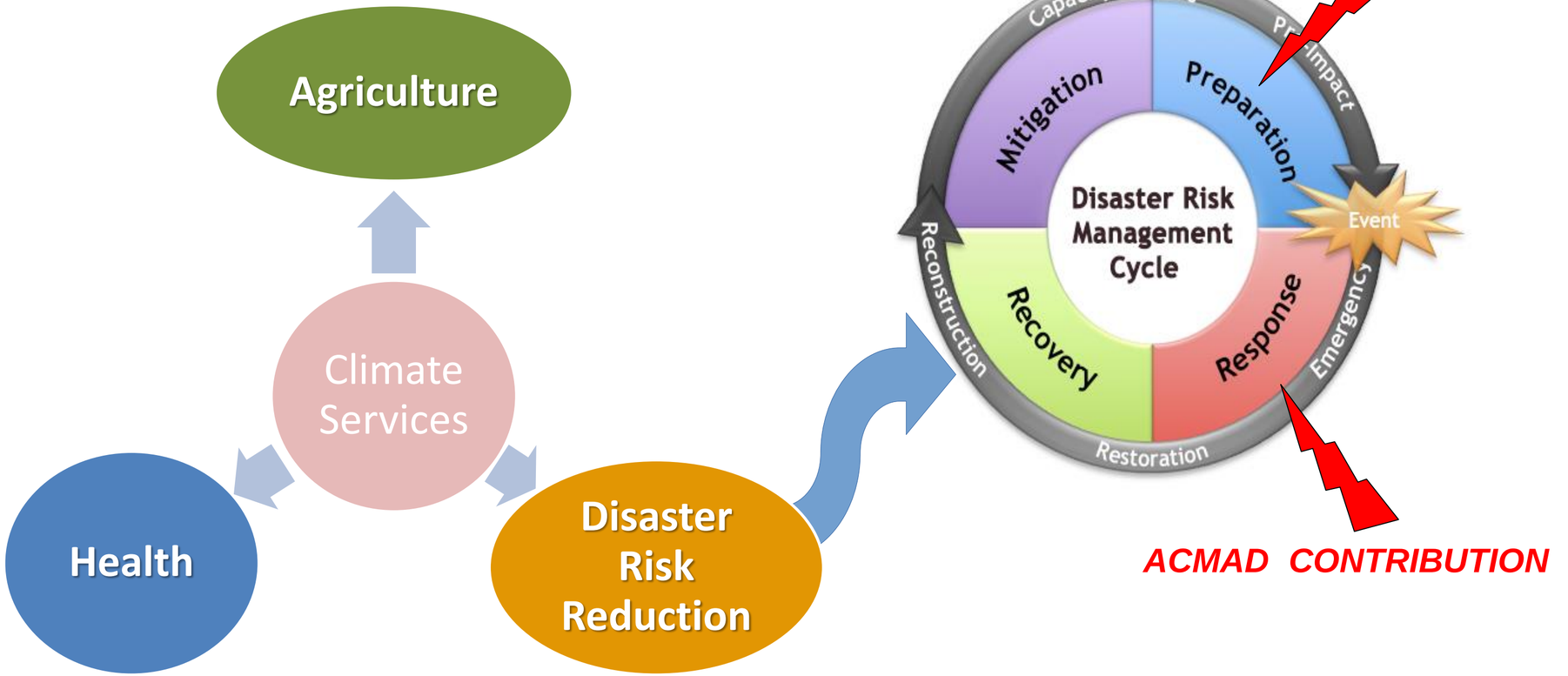
AFTER





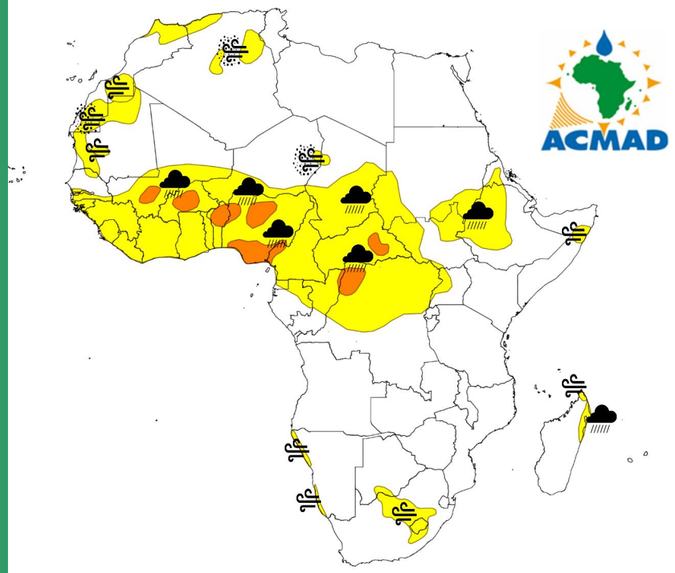
Provision of climate information

Climate Services: ACMAD Priority Areas



ACMAD provide Climate services tailored with significant weather and climate phenomena, related hazards, potentials impacts , responses measures

PRODUITS POUR ACTION ANTICIPATOIRE Cas de l'Algerie



MULTI-HAZARD OUTLOOK

Validity: 2023-09-02

issued on 2023-08-31

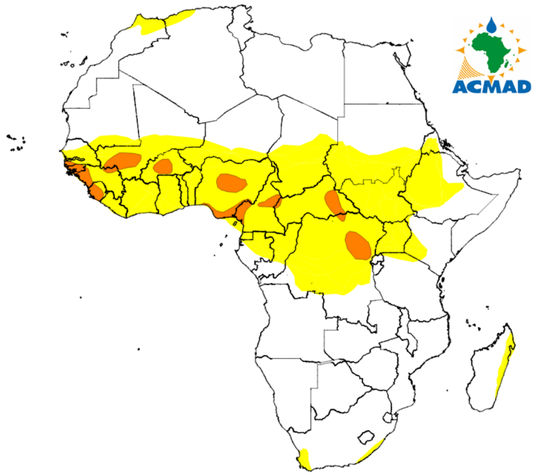
Rain	Wind	Dust	Meningitis
Very heavy >100mm	Very strong >80kmh^{-1}	Very heavy >1000µg m^{-3}	Very likely
Heavy 50-100mm	Strong >65kmh^{-1}	Heavy >600µg m^{-3}	Likely
Moderate 10 - 49mm	Moderate >50kmh^{-1}	Moderate >400µg m^{-3}	Less likely
Light 1 - 10mm	Light <50kmh^{-1}	Light <200µg m^{-3}	

VIGILANCE MAP AND POLICY BRIEF FOR HEAVY RAINFALL AND STRONG WINDS

Valid From September 1 to 5, 2023

Issued on August 31, 2023

HIGHLIGHT: Heavy rainfall is expected in Senegal, Guinea Bissau, Guinea, Sierra Leone, Mali, Burkina Faso, Nigeria, Cameroon, C.A.R and D.R.C



	Phenomenon	Hazard	Potentials Impacts	DRM Measures / Advices
	In next 5 days accumulated rainfall (50-100mm) is likely,	Moderate rainfall, flash flood, riverine flooding, landslides, soil erosion and lightning likely	Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, …)	DRM authorities to keep informed about the development of the meteorological situation and raise awareness, taking action is more likely, the situation needs to be monitored closely with NHMSs
	In next 5 days accumulated rainfall (100 – 150mm) is very likely,	Heavy rainfall, flash flood, riverine flooding, landslides, soil erosion and lightning, strong winds,	Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, …)	Update Flood contingency plans, Improve water management in reservoirs and dams, DRM authorities be ready to take adequate actions, DRM to be continuously in touch with NHMSs to be informed of the detailed expected meteorological conditions.
	In next 5 days accumulated rainfall (>150mm) is very likely,	Extreme heavy precipitation, flash flood, riverine flooding, landslides, soil erosion and lightning, strong winds, severe thunderstorms	Loss of lives, Injuries, Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, …)	Civil Protection service and DRM authorities to activate contingency plan for disaster preparedness and emergency response (awareness, assistance to victims, search & rescue operations), and be in close touch with NHMS for further accuracy at the national level.

Disclaimer: *The presentation of country boundaries on the map does not imply any opinion whatsoever on the part of ACMAD concerning the legal status of any country, territory or area, or concerning the delimitation of frontiers or boundaries.*

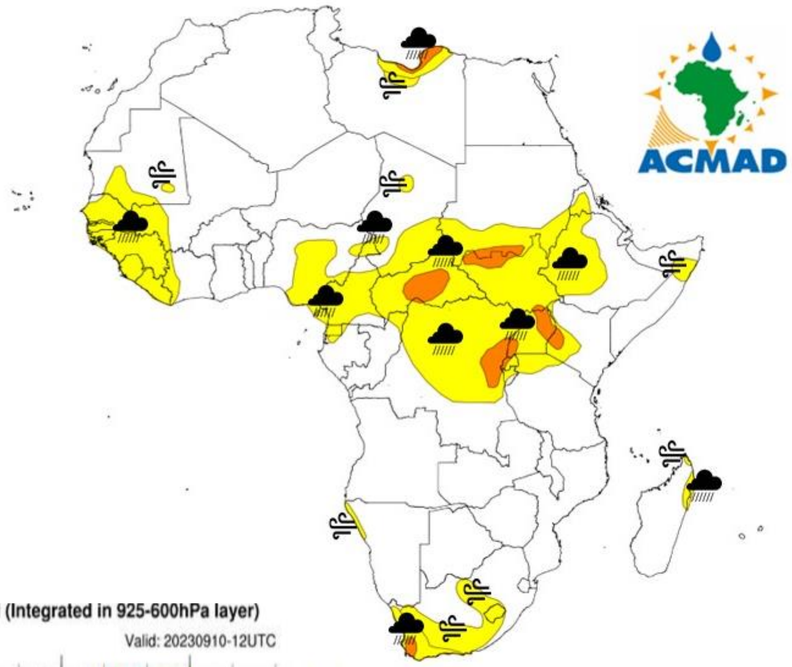
Algeria – Deadly Flash Floods Following Heavy Rain in North West

4 SEPTEMBER, 2023

Severe flash flooding swept through areas of northwester Algeria after heavy rainfall from 02 to 03 September 2023. Authorities report at least 8 people have lost their lives as a…

https://floodlist.com/africa

PRODUITS POUR ACTION ANTICIPATOIRE cas de Libya : Cyclone Daniel du 04 au 10 Septembre 2023



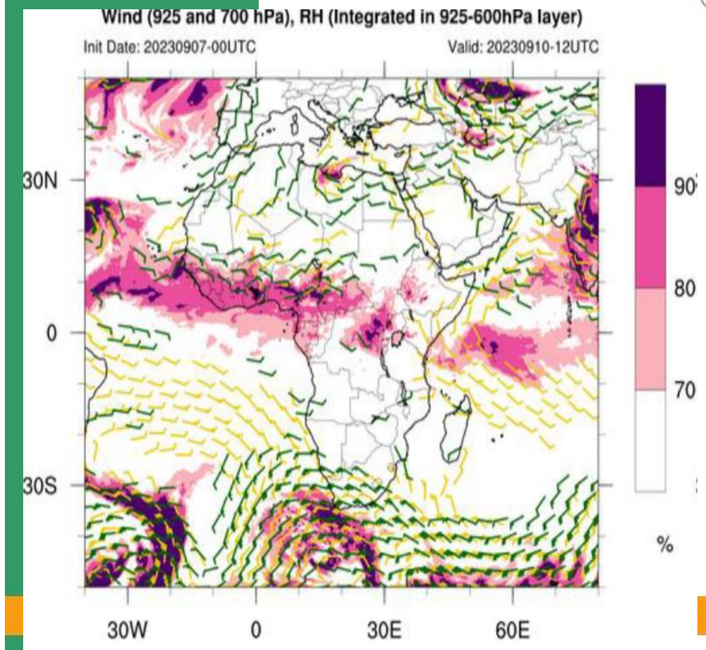
MULTI-HAZARD OUTLOOK

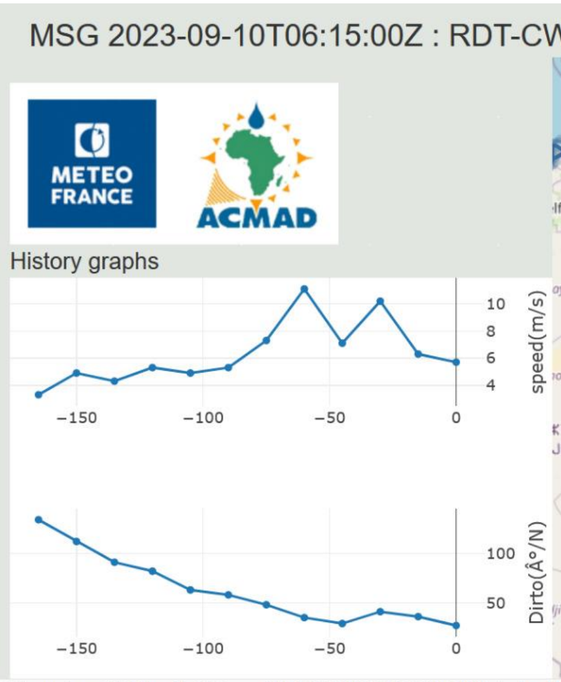
Validity: 2023-09-10

issued on 2023-09-07

Rain	Wind	Dust	Meningitis
Very heavy >100mm	Very strong >80kmh^{-1}	Very heavy >1000µg m^{-3}	Very likely
Heavy 50-100mm	Strong >65kmh^{-1}	Heavy >600µg m^{-3}	Likely
Moderate 10 - 49mm	Moderate >50kmh^{-1}	Moderate >400µg m^{-3}	Less likely
Light 1 - 10mm	Light <50kmh^{-1}	Light <200µg m^{-3}	

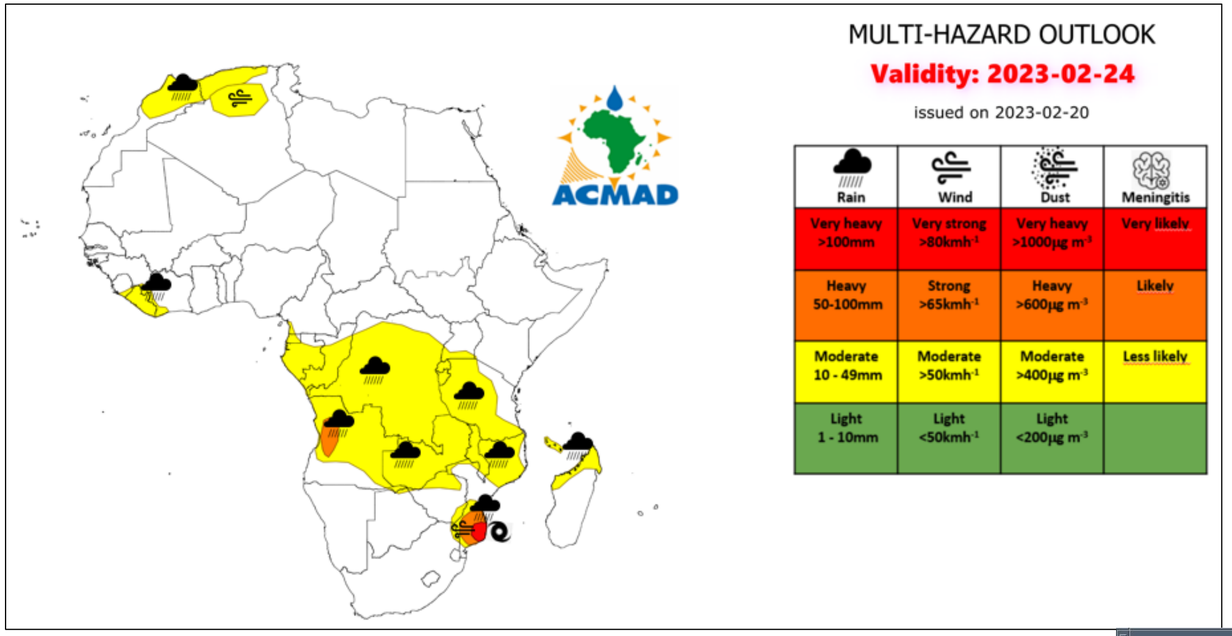
VIGILANCE FOR HEAVY PRECIPITATION AND OTHER HAZARDS UP TO 5 DAYS AHEAD SUPPORTING PREPARATION AND EARLY RESPONSE TO DISASTERS





PRODUITS POUR ACTION ANTICIPATOIRE cas du Cyclone FREDDY

ACMAD ADVISORY VERIFICATION FOR D+4 FROM 20 FEBRUARY 2023

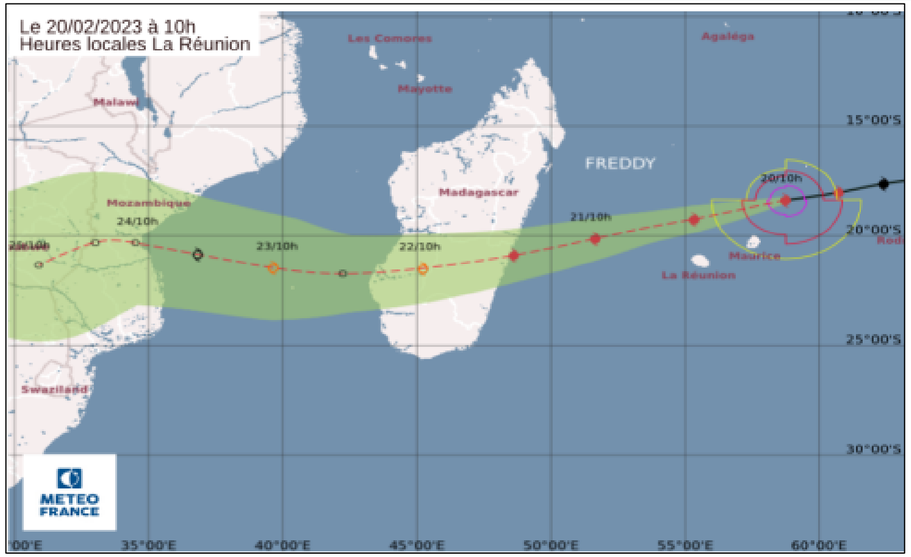


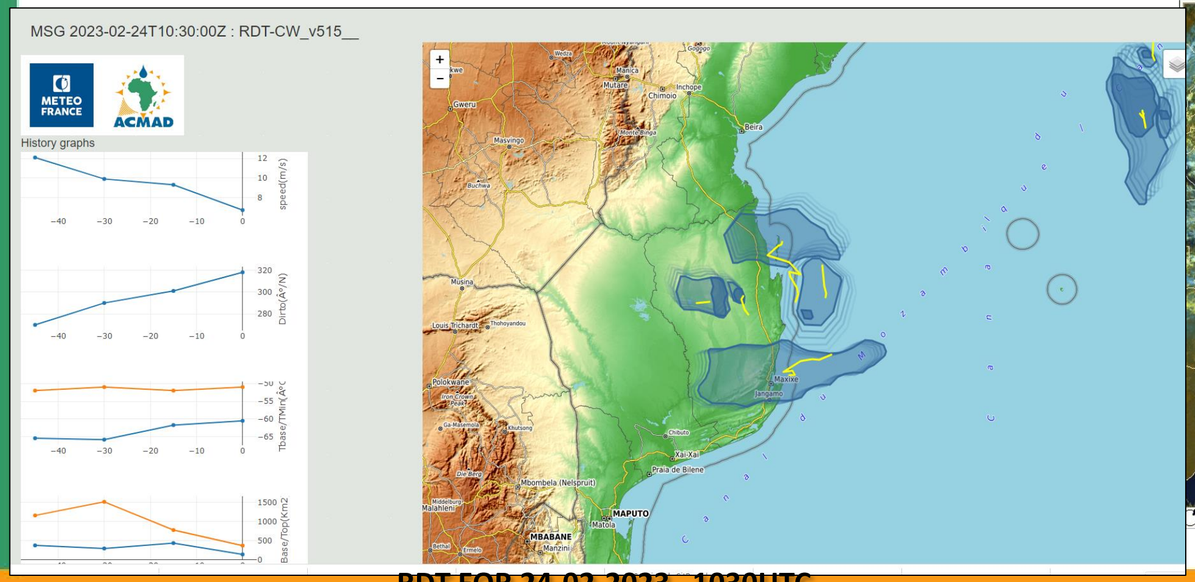
MULTI-HAZARD OUTLOOK

Validity: 2023-02-24

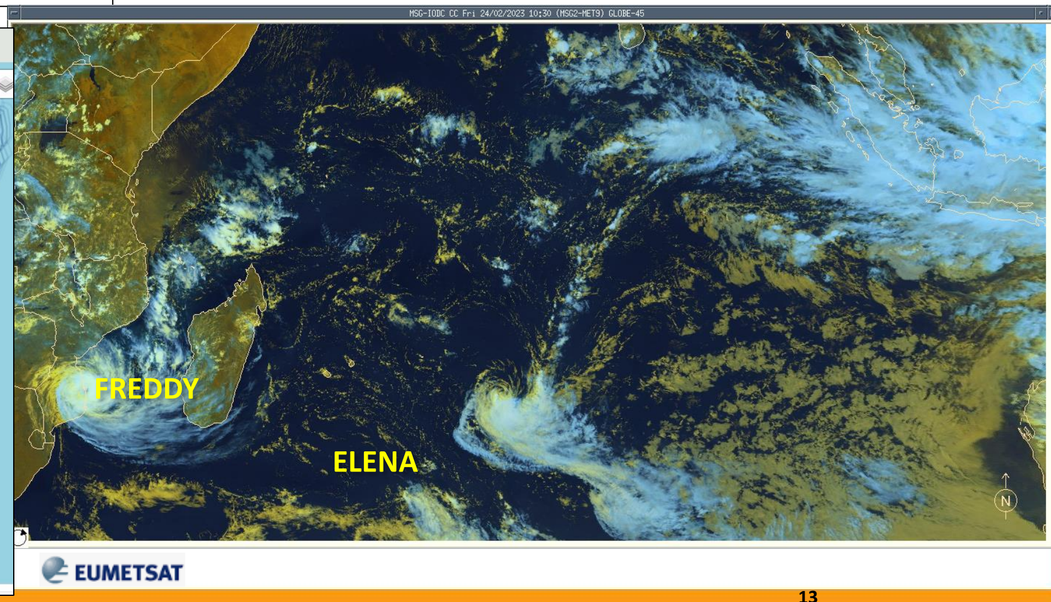
issued on 2023-02-20

Rain	Wind	Dust	Meningitis
Very heavy >100mm	Very strong >80kmh^{-1}	Very heavy >1000µg m^{-3}	Very likely
Heavy 50-100mm	Strong >65kmh^{-1}	Heavy >600µg m^{-3}	Likely
Moderate 10 - 49mm	Moderate >50kmh^{-1}	Moderate >400µg m^{-3}	Less likely
Light 1 - 10mm	Light <50kmh^{-1}	Light <200µg m^{-3}	



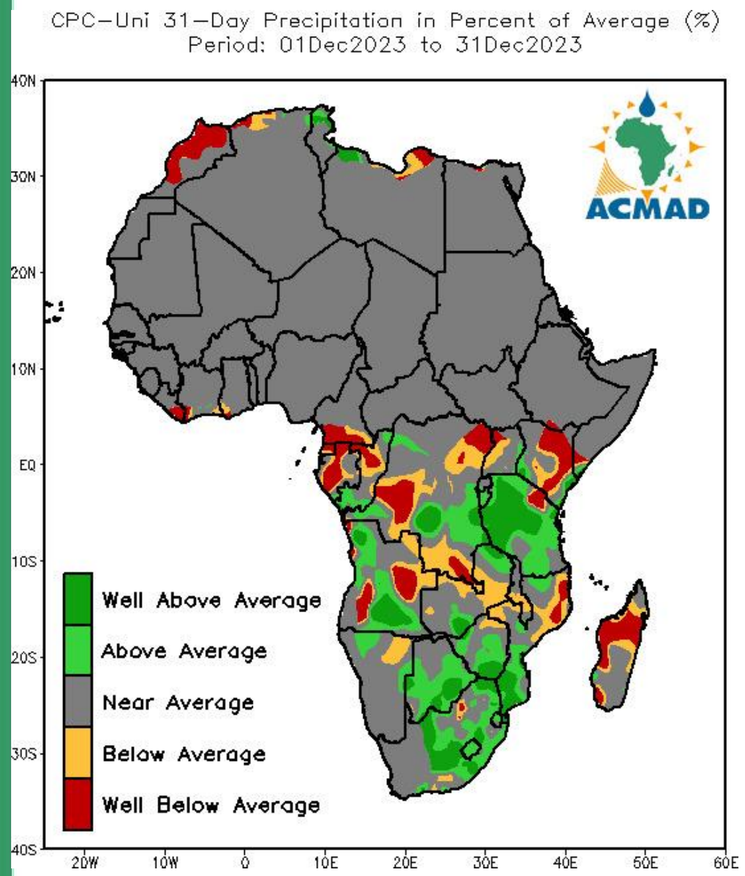


RDT FOR 24-02-2023 , 1030UTC



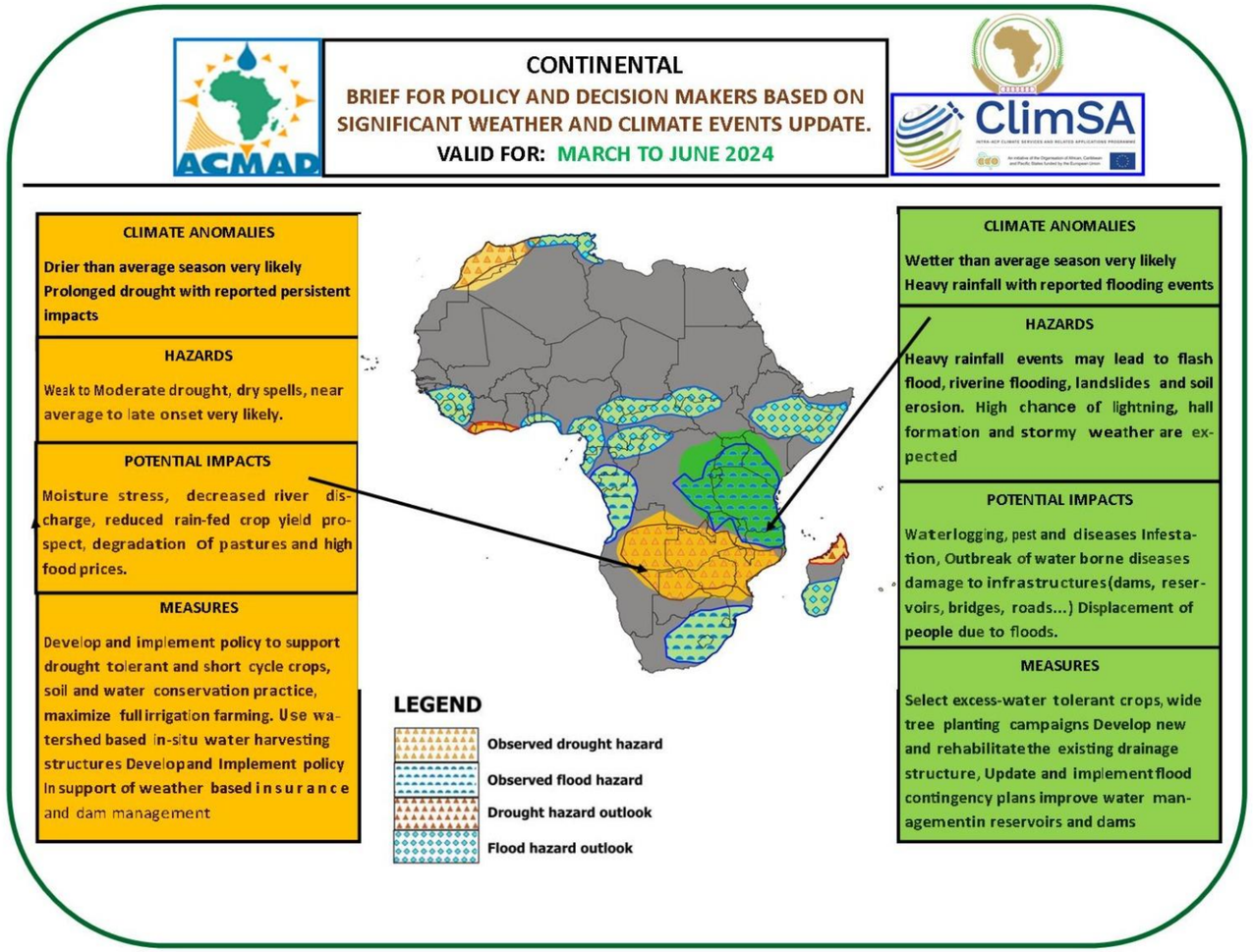
24-02-2023 , 1030UTC

PRODUITS POUR LE SUIVI CLIMATIQUE



Disponible: Chaque Mois

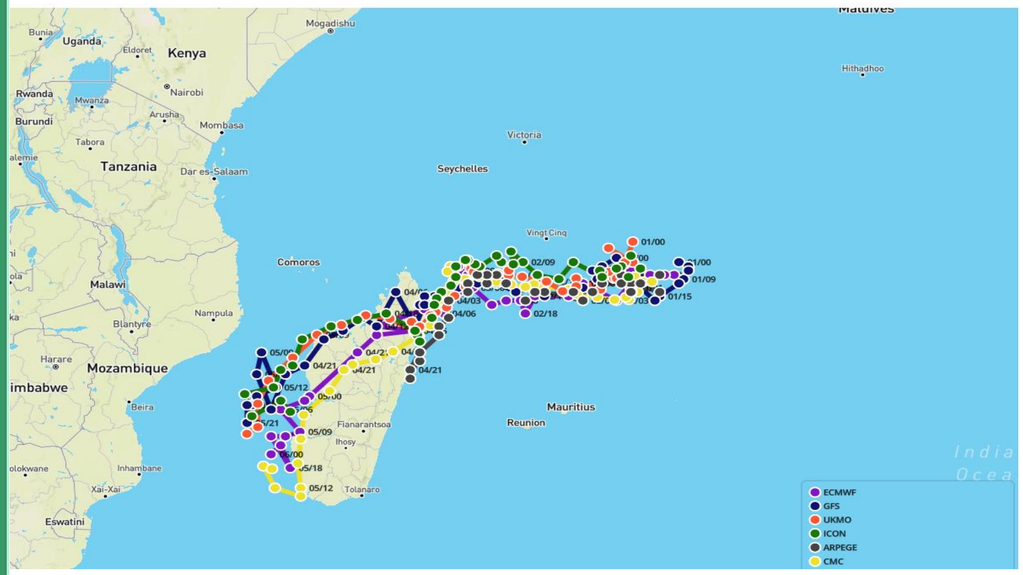
PRODUITS POUR LA PRISE DE DECISION



PRODUITS POUR le SitRoom AU DANS LE CADRE DU AMHEWAS

Tropical cyclone track forecasts from: 01-March-2024, 00UTC to 06-March-2024, 00UTC

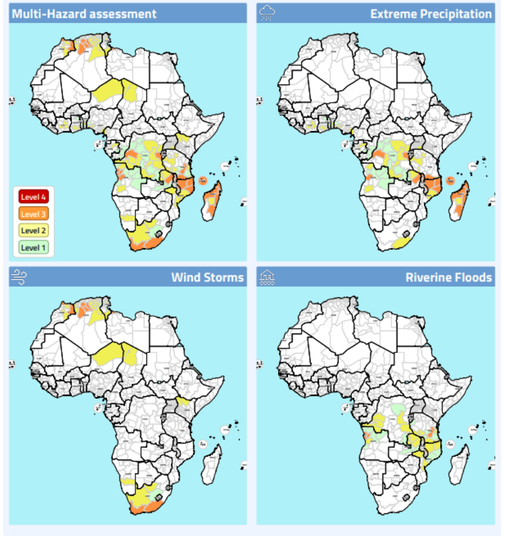
Models : ARPEGE, CMC, ECMWF, ICON, GFS and UKMO



Contribution in Continental Watch

African Union — Africa Multi-Hazard Early Warning and Action System for DRR
Continental Situation Room

2. DETAILED MULTI-HAZARD OUTLOOK FOR THE NEXT 5 DAYS
From March 1, 2024 to March 5, 2024

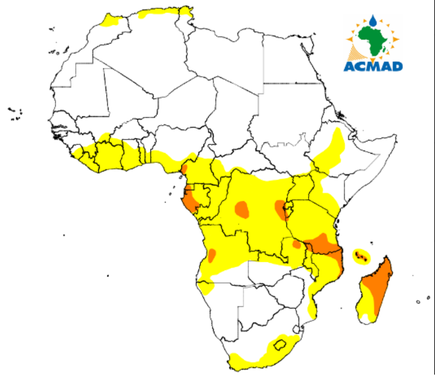


VIGILANCE MAP AND POLICY BRIEF FOR HEAVY RAINFALL AND STRONG WINDS

Valid From March 1 to 5, 2024

Issued on February 29, 2024

HIGHLIGHT: Heavy rainfall is expected in Cameroon, Equatorial Guinea, Gabon, Angola, D.R.C, Rwanda, Burundi, Zambia, Malawi, Tanzania, Mozambique, Madagascar and Comoros Islands.



	Phenomenon	Hazard	Potentials Impacts	DRM Measures / Advices
	In next 5 days accumulated rainfall (50-100mm) is likely,	Moderate rainfall, flash flood, riverine flooding, landslides, soil erosion and lightning likely	Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, ...)	DRM authorities to keep informed about the development of the meteorological situation and raise awareness, taking action is more likely, the situation needs to be monitored closely with NHMSs
	In next 5 days accumulated rainfall (100 – 150mm) is very likely,	Heavy rainfall, flash flood, riverine flooding, landslides, soil erosion and lightning, strong winds,	Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, ...)	Update Flood contingency plans, Improve water management in reservoirs and dams, DRM authorities be ready to take adequate actions, DRM to be continuously in touch with NHMSs to be informed of the detailed expected meteorological conditions.
	In next 5 days accumulated rainfall (>150mm) is very likely,	Extreme heavy precipitation, flash flood, riverine flooding, landslides, soil erosion and lightning, strong winds, severe thunderstorms	Loss of lives, Injuries, Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, ...)	Civil Protection service and DRM authorities to activate contingency plan for disaster preparedness and emergency response (awareness, assistance to victims, search & rescue operations), and be in close touch with NHMS for further accuracy at the national level.

Disclaimer: The presentation of country boundaries on the map does not imply any opinion whatsoever on the part of ACMAD concerning the legal status of any country, territory or area, or concerning the delimitation of frontiers or boundaries.

Contribution in Situation Report

African Union — Multi-hazard Early Warning and Early Action System Situation Room/ Health, Humanitarian Affairs and Social Development

SITUATIONAL OVERVIEW

- Heavy rains brought by Storm Daniel at the weekend caused two dams to burst on the usually dry Wadi Derna riverbed traversing through the city and left a trail of devastation.
- Heavy rainfall accompanied with strong winds hit north-eastern Libya on September 10th, 2023, causing severe riverine and flash floods that resulted in a big number of casualties and damage.

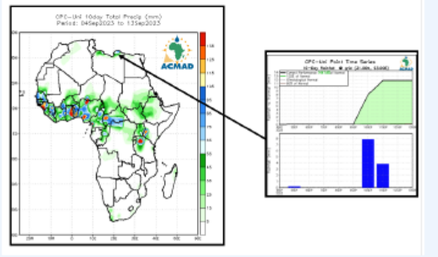
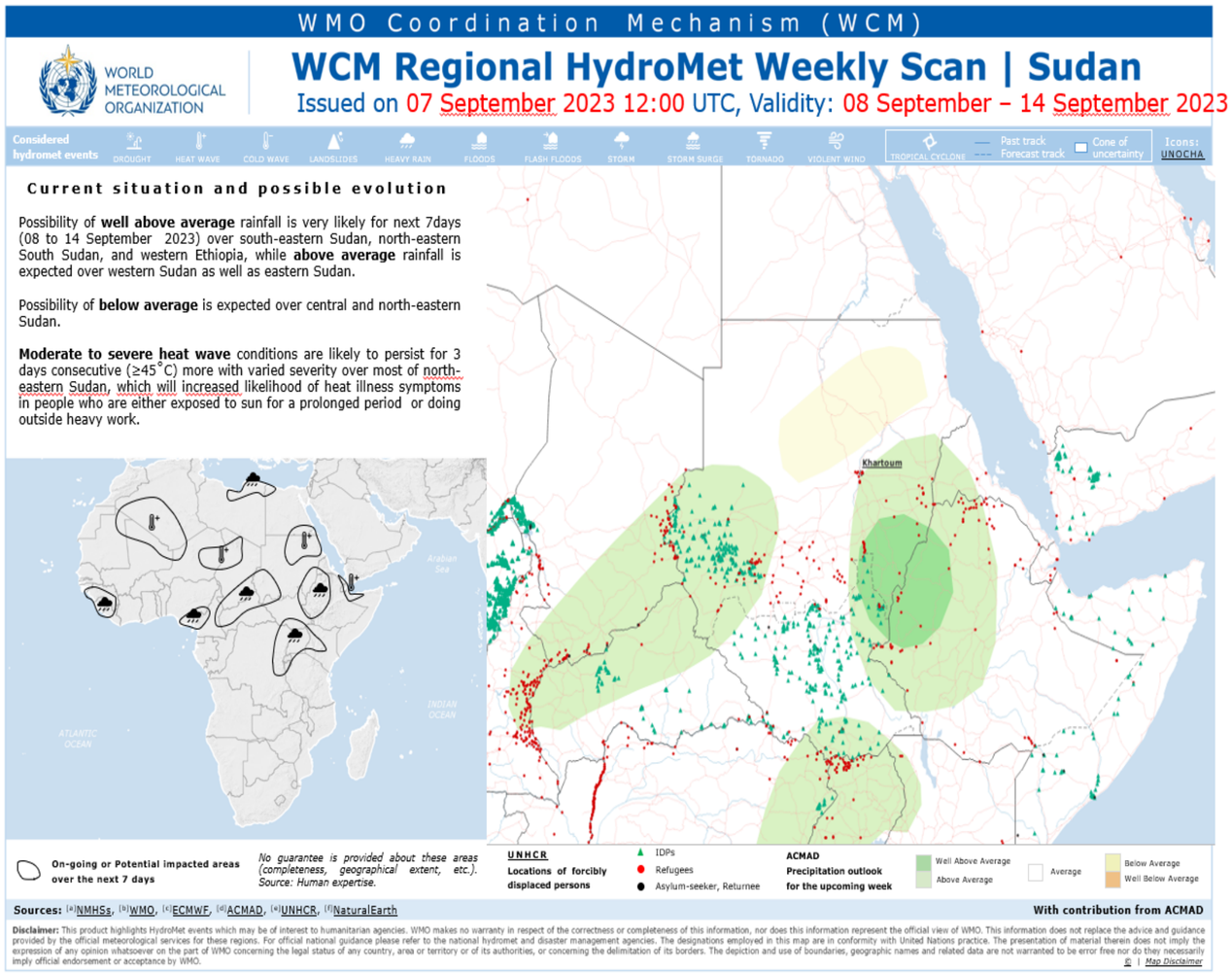
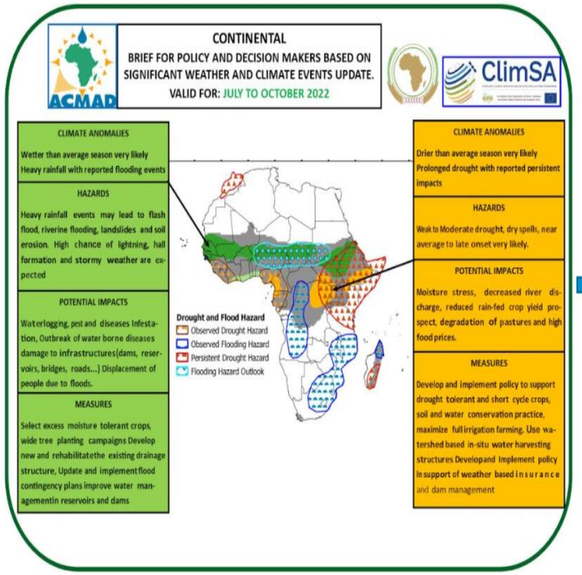


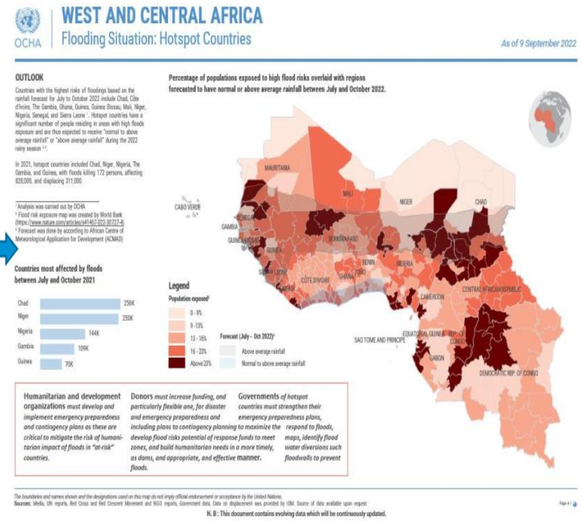
Fig 1: Total Precipitation Observed over Africa in the last 10 days

- The International Organization for Migration (IOM) reports that in Derna more than 30,000 people were displaced, 3,000 in Albayda and 1,000 in Al Mkheley. Additionally, IOM said 6,085 other people have been displaced in other storm-hit areas like Benghazi, with the number of deaths still unverified. The number of victims is expected to keep rising as recovery operations continue.
- In the nearby neighborhood of Al-Ellwa, around 96% of properties were reported to have been flooded and many properties along the river have disappeared, leaving only their foundations visible.
- Health facilities in the severely affected neighborhoods of Al-Bilad and Al-Maghar on either side of the river, home to healthcare facilities used by people from across the city were hit by floods.
- The communes in the affected areas have limited or no access to water, electricity and petrol among others because of damages to life saving services.
- There's a wave of displacement as people are trying to flee Derna but many are stuck because a lot of the roads are blocked. Unfortunately, most of the people have no shelter forcing some of them to return to their inhabitable homes and some families have been taking shelter in schools, underlining the urgent need for shelter.
- The images and map below are showing the scale of destruction before and after the floods with

OPERATIONAL SERVICE CO-DESINGED AND CO-DEVELOPED WITH UN and HUMANITARIAN AGENCIES







Provision of information's on expected impacts and risk, anticipatory action preventing implementation of risk reduction measures

DROUGHT SERVICE AND SEASONAL CLIMATE FORECAST

DROUGHT SERVICE AND SEASONAL CLIMATE FORECAST

BULLETIN No.10, 2023

Chair Editorial Board:
Dr. André KAMGA. F. (Director General)

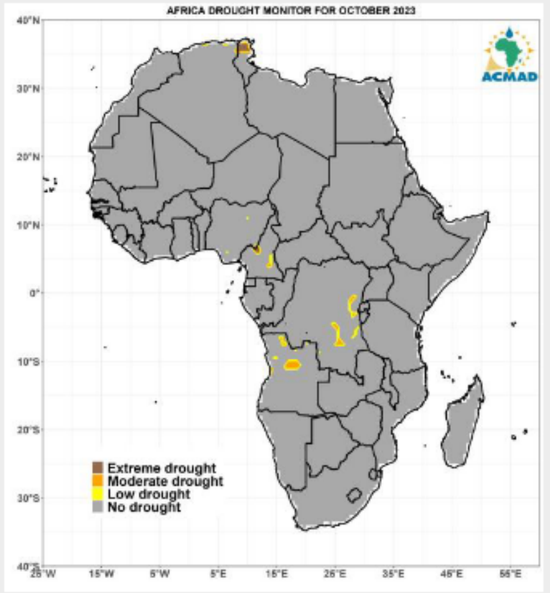
Editorial Board:
DG. André KAMGA. F. (Chair)
Dr. Romeo Nkurunziza (Climate Monitoring)
Dr. Pierre KAMSU
Mr Mduduzi Gamedze
Mr.Hubert KABENGELA (Climate Monitoring)
Mr. Godefroy Nshimirimana
Dr. Kamoru Abiodun Lawal

Mrs. Wendlasida Sandrine COMBERE

Contents

Africa Drought Monitor Intensity:

- RR < [50] % or RR [50; 75] % ; SPI[-3;-2] or SPI<[-3], SM<[-60] & NDVI<[-0.20] **Severe drought**
- RR [50; 75] %; SPI [-2; -1]; SM [-60; -10]mm & NDVI [-0.20; -0.1] **Moderate intensity drought**
- RR [75; 100] %; SPI [-1; -0.5]; SM [-30; -10]mm & NDVI [-0.1; 0.05] **Low intensity drought**
- No drought signals.



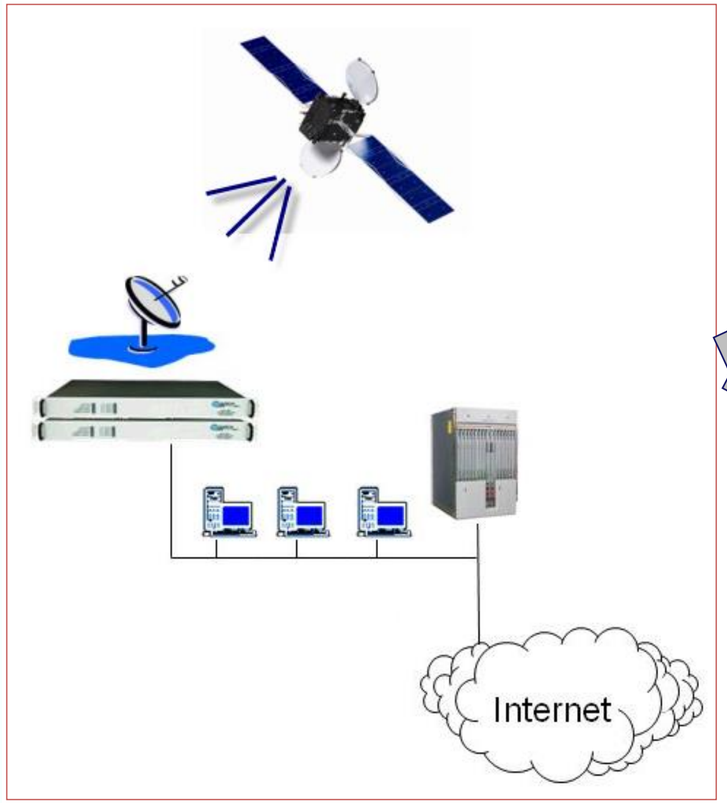
Considering the cumulative precipitation deficits during the past months of June and July, SPI and soil moisture deficits, the adjacent map characterizes the drought situation in Africa during October 2023.

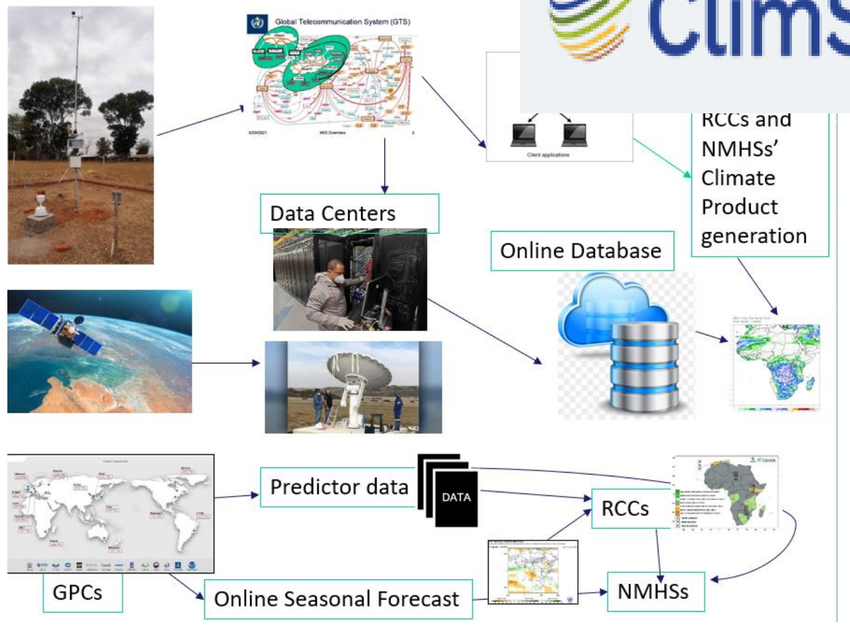
Figure 6: African Drought Monitor, expressed as a composite of Precipitation, SPI, Soil Moisture deficit, and water level, valid for October 2023.

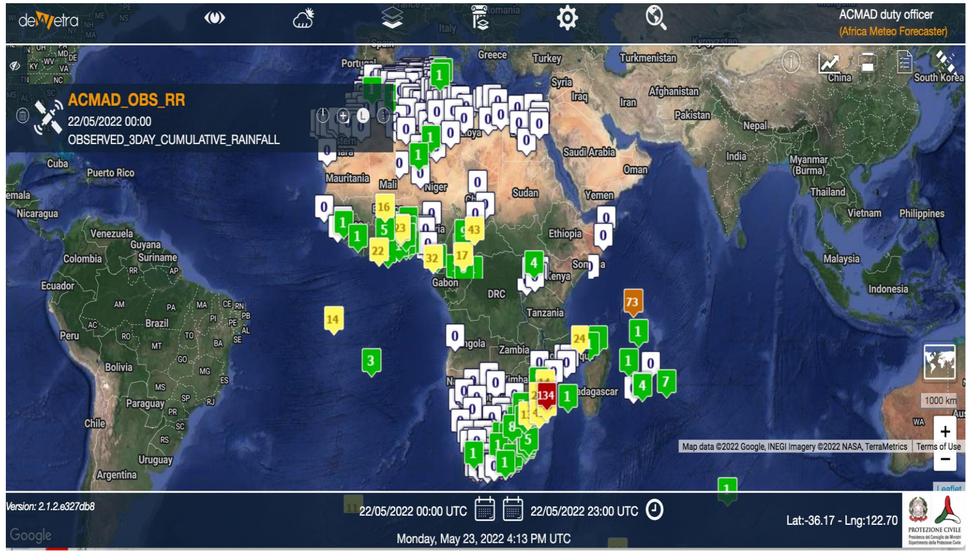
http://sgbd.acmad.org:8080/thredds/fileServer/ACMAD/CDD/DroughtMonitoringService/Drought_and_Seasonal_Climate_Forecast_Bulletin_10_October_2023.pdf

ACMAD PRODUCTION PROCESS

1. ACCESS TO DATA AND PROCESSING





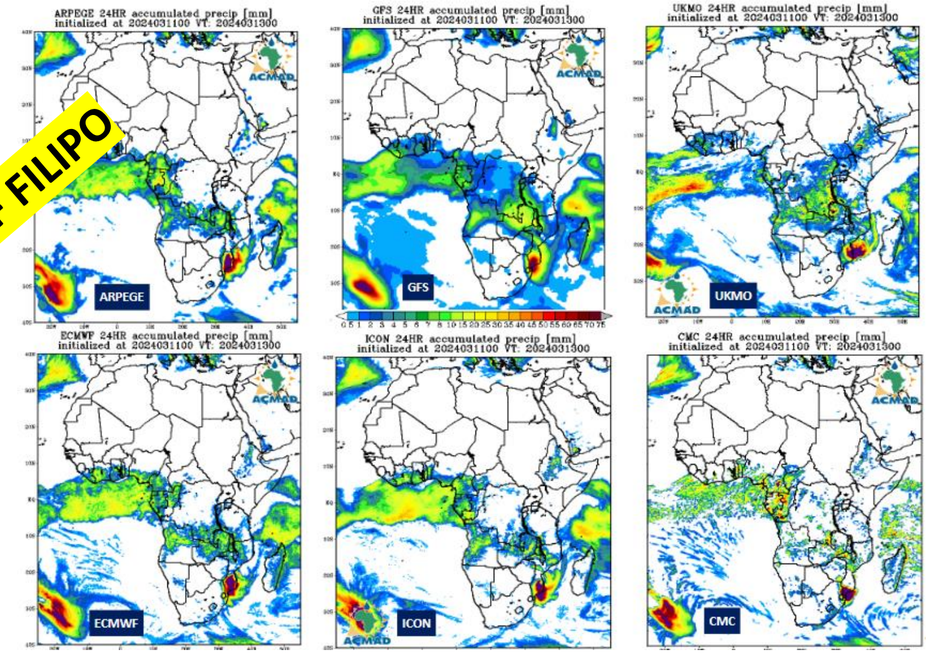


ACMAD PRODUCTION PROCESS

3. APPROACH

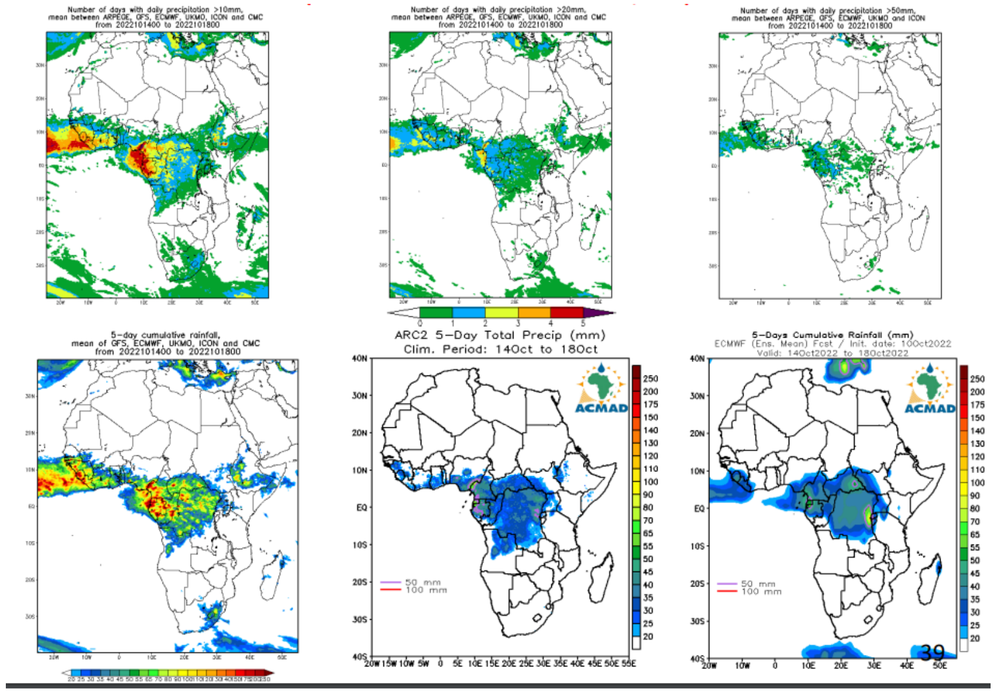
Daily Forecast by Model (ARPG,GFS,UKMO,ECMWF,ICON,CMC)

CASE OF FILIPO



http://sgbd.acmad.org:8080/thredds/fileServer/FIT/BRIEFING/technote.pdf

Nbre Of Days Computed with Operational Model Ensemble



Poor's Man Ensemble" approach:

A poor man's ensemble is a set of independent numerichttp://sgbd.acmad.org:8080/thredds/fileServer/FIT/BRIEFING/technote.pdfal weather prediction (NWP) model forecasts from multiple operational centers.

Because it samples uncertainties in both the initial conditions and the model formulation through variation in the input data, analysis, and forecasting methodologies of its component members, it is less prone to the systematic biases and errors that cause under-dispersive behavior in single-model ensemble prediction systems (PSEs).

ACMAD PRODUCTION PROCESS

2. METHODOLOGY

Théorie
lois physiques

Observations
(satellites, radars, in situ…)

Modèles

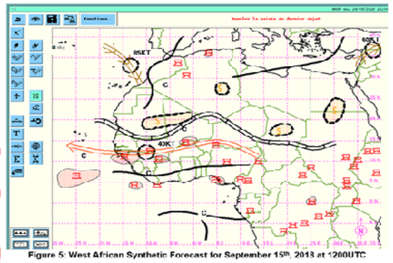
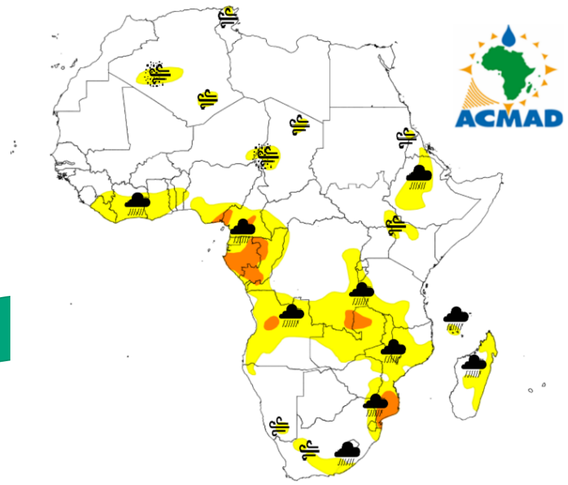


Figure 5: West African Synthetic Forecast for September 15th, 2018 at 1200UTC

Expertise

Analyse de la situation
Prévision
Incertitudes

D1 to D5

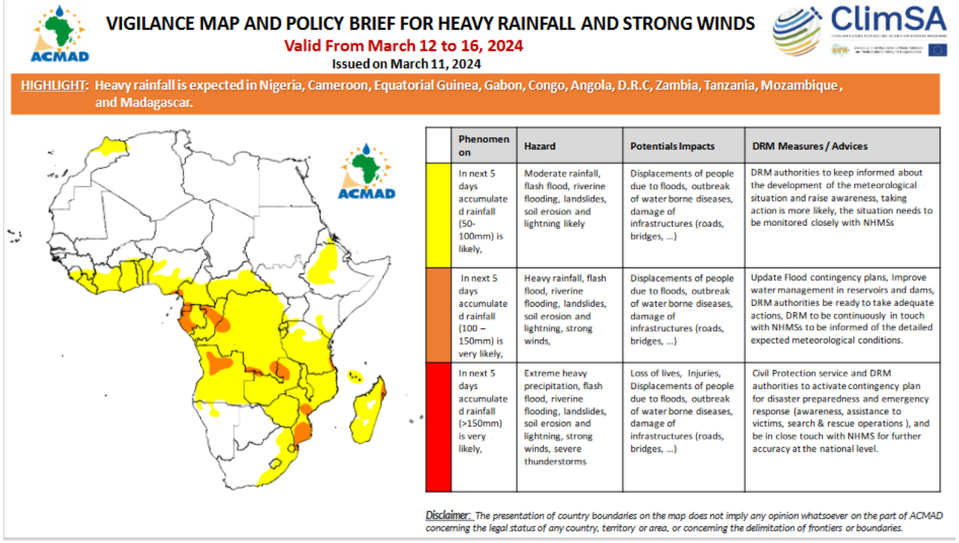


MULTI-HAZARD OUTLOOK

Validity: 2024-03-12

issued on 2024-03-11

Rain	Wind	Dust	Meningitis
Very heavy >100mm	Very strong >80kmh^{-1}	Very heavy >1000µg m^{-3}	Very likely
Heavy 50-100mm	Strong >65kmh^{-1}	Heavy >600µg m^{-3}	Likely
Moderate 10 - 49mm	Moderate >50kmh^{-1}	Moderate >400µg m^{-3}	Less likely
Light 1 - 10mm	Light <50kmh^{-1}	Light <200µg m^{-3}	



VIGILANCE MAP AND POLICY BRIEF FOR HEAVY RAINFALL AND STRONG WINDS

Valid From March 12 to 16, 2024

Issued on March 11, 2024

HIGHLIGHT: Heavy rainfall is expected in Nigeria, Cameroon, Equatorial Guinea, Gabon, Congo, Angola, D.R.C, Zambia, Tanzania, Mozambique, and Madagascar.

	Phenomenon	Hazard	Potentials Impacts	DRM Measures / Advices
	In next 5 days accumulated rainfall (50-100mm) is likely,	Moderate rainfall, flash flood, riverine flooding, landslides, soil erosion and lightning likely	Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, ...)	DRM authorities to keep informed about the development of the meteorological situation and raise awareness, taking action is more likely, the situation needs to be monitored closely with NHMSs
	In next 5 days accumulated rainfall (100 – 150mm) is very likely,	Heavy rainfall, flash flood, riverine flooding, landslides, soil erosion and lightning, strong winds,	Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, ...)	Update Flood contingency plans, Improve water management in reservoirs and dams, DRM authorities be ready to take adequate actions, DRM to be continuously in touch with NHMSs to be informed of the detailed expected meteorological conditions.
	In next 5 days accumulated rainfall (>150mm) is very likely,	Extreme heavy precipitation, flash flood, riverine flooding, landslides, soil erosion and lightning, strong winds, severe thunderstorms	Loss of lives, Injuries, Displacements of people due to floods, outbreak of water borne diseases, damage of infrastructures (roads, bridges, ...)	Civil Protection service and DRM authorities to activate contingency plan for disaster preparedness and emergency response (awareness, assistance to victims, search & rescue operations), and be in close touch with NHMS for further accuracy at the national level.

Disclaimer: The presentation of country boundaries on the map does not imply any opinion whatsoever on the part of ACMAD concerning the legal status of any country, territory or area, or concerning the delimitation of frontiers or boundaries.

@ACMAD Weather forecasting is developed in three basic steps: Observation, Simulation of the evolution of the atmosphere using numerical models and Analysis of the results by forecasters

DROUGHT SERVICE AND SEASONAL CLIMATE FORECAST

DROUGHT SERVICE AND SEASONAL CLIMATE FORECAST

BULLETIN No.10, 2023

Chair Editorial Board:
Dr. André KAMGA. F. (Director General)

Editorial Board:
DG. André KAMGA. F. (Chair)
Dr. Romeo Nkurunziza (Climate Monitoring)
Dr. Pierre KAMSU
Mr Mduduzi Gamedze
Mr.Hubert KABENGELA (Climate Monitoring)
Mr. Godefroy Nshimirimana
Dr. Kamoru Abiodun Lawal

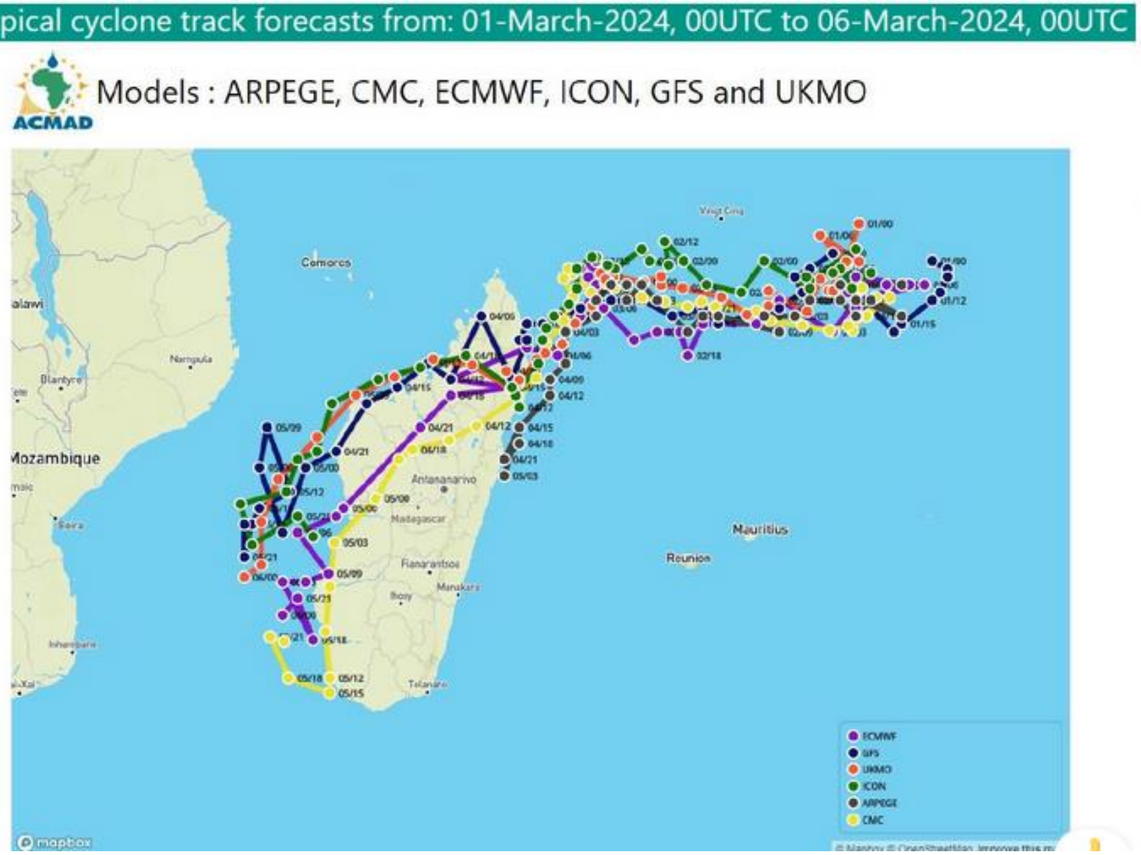
Mrs. Wendlasida Sandrine COMBERE

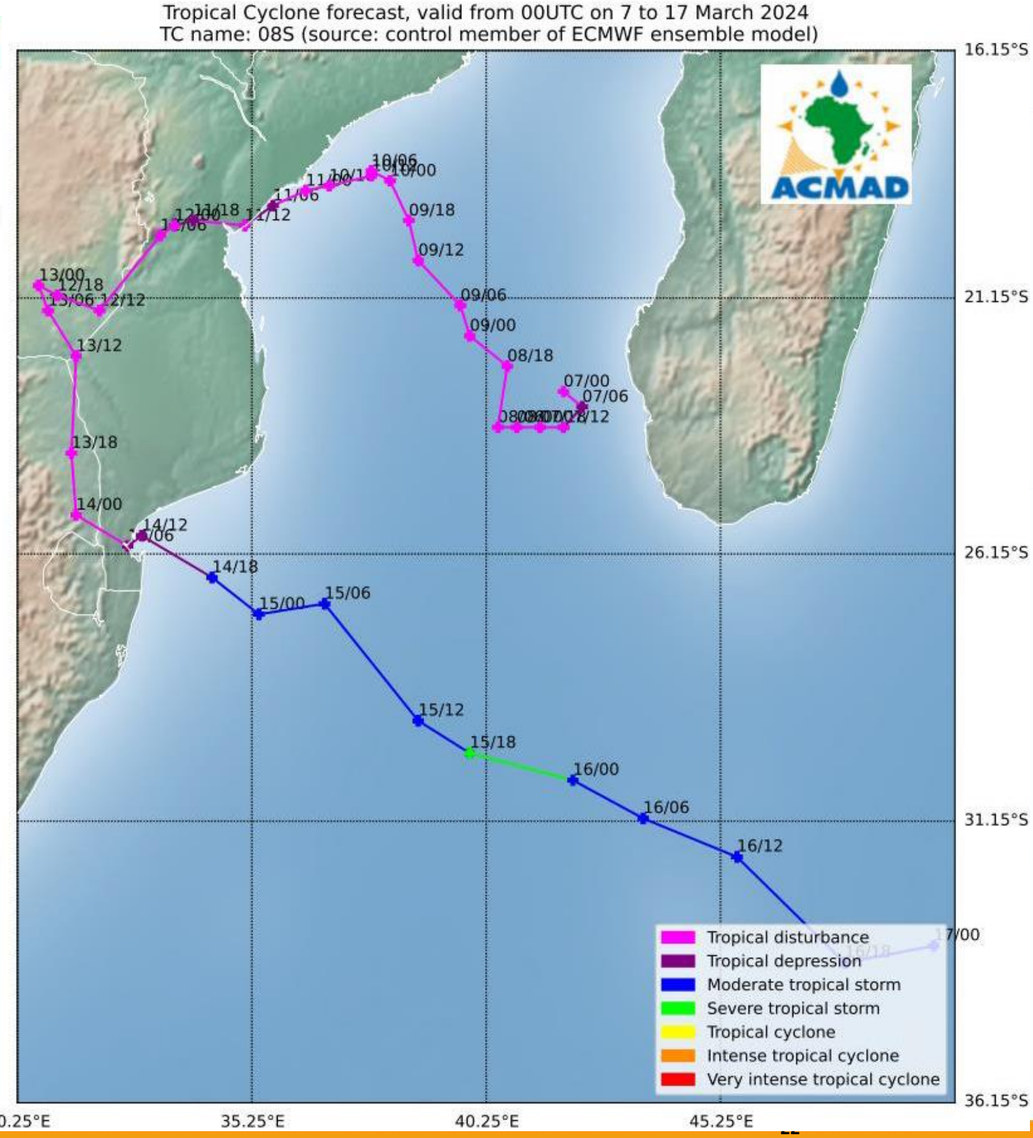
Contents

To Be integrated in new Drought Continental Bulletin

http://sgbd.acmad.org:8080/thredds/fileServer/ACMAD/CDD/DroughtMonitoringService/Drought_and_Seasonal_Climate_Forecast_Bulletin_10_October_2023.pdf

CYCLONE TRAJECTORY OUTLOOK





To Be integrated in MyDEWETRA

CHALLENGES AND OPPORTUNITIES

1. *Limited expertise to cover all types of Hazards (e.g land and mud slides) in different sectors (e.g Health, agriculture, infrastructure)*
2. *Address the huge capacity and capability gaps (e.g establishing and operating situation rooms to generate and share information on hazards, impacts, preparation, anticipatory actions and response)*
3. *EW4ALL*
4. *Assessment and management of compounding and cascading disasters*
5. *Routine exchange of local impact data between communities, national, regional and continental stakeholders to accelerate impact forecasting and improve the production of the State of Climate for Africa supporting African Climate Negotiators on Loss and damage*
6. *System change to update crop yields forecasts as soon as the disruptions on the start of the agriculture season is observed (e. g Burkina Faso)*
7. *Raising Awareness for policy makers to invest more and better in hazards and impact forecasts modernization, budgeting and financing Anticipatory action*
8. *Building capacity of DMAs to mainstream preparation and Anticipatory action in National budget*

LESSONS LEARNT

1. *Useful Predictability up to five days ahead for heavy rain events , tropical cyclones and storm tracks, disruptions on the start of season and spells*
2. *Assessment and management of Compounding and cascading disasters*
3. *Routine exchange of local impact data between communities, national, regional and continental stakeholders to accelerate impact forecasting and improve the production of the State of Climate for Africa supporting African Climate Negotiators on Loss and damage*
4. *Operate the MultiHazards Advosiy Centre considering that Observation, data management , research, modelling and prediction/forecasting are funded components*
5. *Capacity development with testbed and forecast demonstrations, ad hoc and regular briefings and debriefings at the situation room including with humanitarian and DRR communities*
6. *Partner with ClimSA, AMSAF, HYDROMET …. For coordination*
7. *Prioritize training and operation of impact forecasting, warning, decision making and action as well as benefits assessments*

WAY FORWARD

- Provide ***multimodel ensemble and deterministic high resolution*** Analysis and forecasts supporting briefings preparation by countries
- ***Nowcasting and synoptic technical notes*** supporting operational forecaster's briefings at National level to facilitate anticipation and response to national emergencies
- ***Train forecasters and DRR experts on tools and products***
- Support countries ***establish and operate national early warning Information system/centress*** and DRR or humanitarian platform for emergency planning and implementation
- ***Support disaster managers*** from continental to local levels to receive and give feedbacks on ***impact information*** for strong winds, heavy rains, dust storm, high temperatures outlooks, drought ...
- Support measures to ***reduce risks or exploit opportunity*** trough forecast based *integrated* emergency **planning** , **budgeting,** **financing** and **implementation**

THANK YOU

www.acmad.org

Follow us on X:
@ACMAD_org

Follow us on Facebook:
https://www.facebook.com/ACMAD-470332183044388