

# West Africa Seasonal Monitor

2023 Season – June Update



World Food  
Programme

SAVING  
LIVES  
CHANGING  
LIVES

1- 31 May 2023, monthly update

# Highlights

- ❖ **By end of May at the early stage of the rainy season (April-May 2023)**, West Africa remains to be characterised by variable conditions. Over the western part of the region (southern Senegal, The Gambia, western Mal, most of Guinea, Guinea Bissau and western Sierra Leone), and the eastern part of the region (North-eastern Nigeria, Cameroon, Chad) as well as south-western Niger above normal rains were received. However, in the central Sahel, over southern Burkina Faso extended northern Ghana and Cote d'Ivoire, abnormal dryness was observed. Central, north-western and south coastal Nigeria, experienced below average rainfall. Further north over the Sahel remain neutral conditions.
- ❖ **Vegetation conditions** As a result of early season dryness, vegetation conditions are below average across a broader area, from south-western Chad-south –northern Cameroon across Nigeria's Central Belt. to northern Benin, Togo and southern Burkina Faso and western Mali. Vegetation deficits are particularly pronounced in northern Benin and Nigeria's Central Belt, better than normal vegetation conditions can be observed in parts of northern Burkina Faso, central Mali, eastern and south-western Senegal, northern Ghana and central Côte d'Ivoire as well as over, northern Nigeria and southern Chad. **Water resources** are at very low levels across most of the Sahel.
- ❖ **The short-term forecasts** indicate that by mid-June (20 June 2023), rainfall improvement will likely be observed across West Africa Region, in particular over the Sahel with widespread wetter conditions. This may alleviate the impacts of the early season dryness and lead to more favourable conditions for the start of the growing season.
- ❖ **According to the 2022 PRESASS seasonal forecast**, above average to average seasonal rainfall is expected in the far western Sahel ((Cap Vert, Sénégal, western Guinea and south-western Mauritania) and Central Sahel (Mali and part of northern Burkina Faso) Elsewhere conditions will likely be generally average while average to below average seasonal rainfall will be expected over coastal areas of Gulf of Guinea countries. In the sahelian Belt this likely to result in good crop prospects, but also increasing the risk of flooding in some areas. This is likely to be exacerbated by the ongoing [EL Niño events](#) which is likely to develop with 82% probability in May-July and is expected with at least 90 percent chance to continue through February 2024, resulting in the potential shift of rainfall patterns in West Africa. This associated with above-average rainfall across the Sahelian strip in July - August.
- ❖ **Flood preparedness efforts**: the underlying flood risk of admin 2 areas in river basins that are expected to experience normal to above normal river levels in 2023 *highlighted: (1) administrative areas with a **medium or high flood risk located in river basins with above average expected river levels** in the Gambia basin, the Falémé basin (tributary of the Senegal), the Inner Niger Delta in Mali, the middle Niger river basin, the Komadougou Yobé (In Nigeria), the middle Chari, the Lower Chari-Logone (in Chad and CAR. **and (2) administrative areas with a **high flood risk located in river basins with average to above average expected river levels** in the upper Niger River basin (in Guinea, Côte d'Ivoire and Mali), the upper Chari basin, the Lower Niger, the Bafing and Bakoye sub-basins (Senegal basin), the Mono (Togo and Benin) and Ouémé (Benin) basins and in the upper and western Volta basin. ([The admin2 areas to monitor](#)).***
- ❖ **Areas to be monitored** : **Average to below average** over South-Western Cameroon, the southern Nigeria, Benin, Togo, Ghana, Cote d'Ivoire and Liberia in **April-June 2023**. **Below average seasonal rainfall** over coastal areas of Gulf of Guinea countries (Sierra Leone, Liberia, Nigeria and Cameroon in **June-August 2023**.

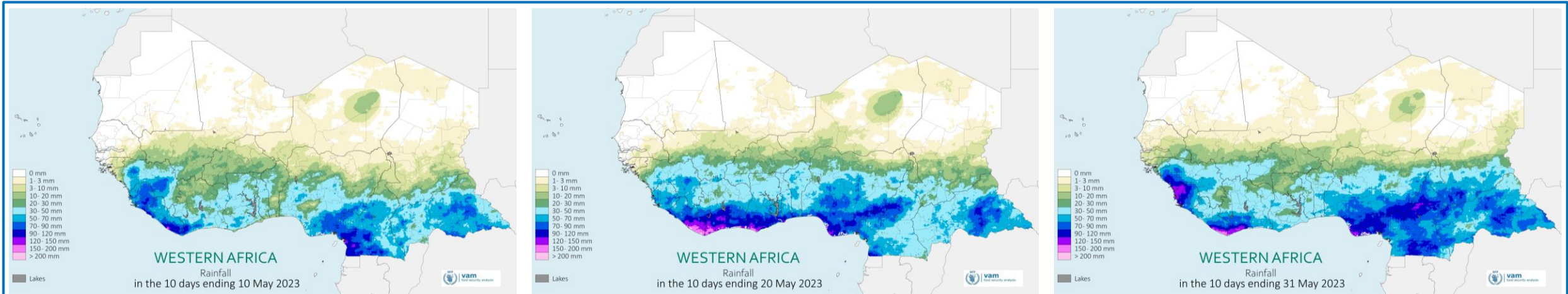
# Contents

1. Highlights.....	2
<b>SECTION 1: DEKADAL TRENDS.....</b>	<b>3</b>
2. Rainfall Patterns.....	4
<b>SECTION 2: MONTHLY TRENDS....</b>	<b>5</b>
3. Rainfall patterns: The last month.....	6
<b>SECTION 3:THE SEASON SO FAR.....</b>	<b>7</b>
4. The progression of the season so far.....	8
<b>SECTION 4: THE SHORT- AND MEDIUM-TERM OUTLOOK.....</b>	<b>10</b>
5. The short-term outlook.....	11
6. Seasonal Forecasts.....	12
<b>SECTION 5: AREAS OF CONCERN : FLOOD RISK ( PREPAREDNESS EFFORTS).....</b>	<b>13</b>
7. Heavy & Extreme rainfall: May 2023.....	14
8. Flood preparedness efforts .....	15
<b>SECTION 6: AREAS OF CONCERN : DROUGHT RISK.....</b>	<b>16</b>
9. SPI & Dry Sequences: May 2023.....	17
10. NDVI and Areas to be monitored .....	18
<b>SECTION 7: THE PLATFORM FOR REAL-TIME IMPACT AND SITUATION MONITORING (PRISM).....</b>	<b>19</b>
11. The Platform for Real-time Impact and Situation Monitoring (PRISM.....	18

SECTION 1:  
**DEKADAL TRENDS**

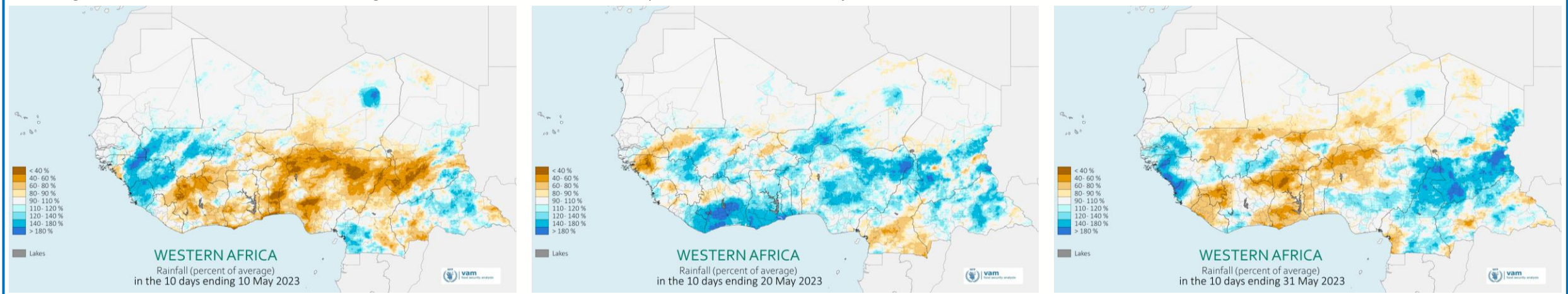


# Dekadal rainfall patterns: May 2023



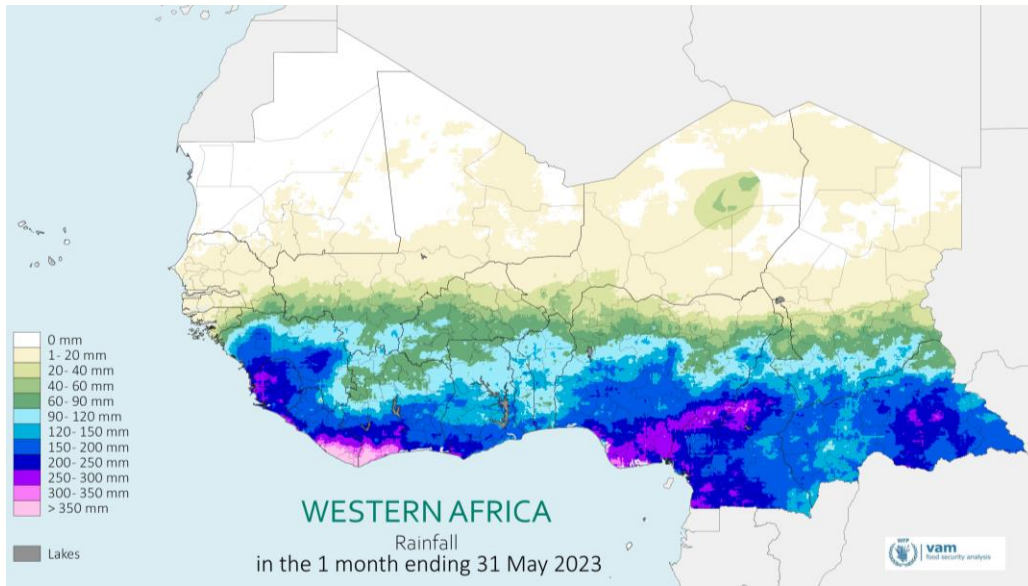
The **maps above** show the **total rainfall received** over the first (left), second (centre) and third (right) dekads (10-day period) of the month of May 2023, based on CHIRPS satellite rainfall estimates. Areas highlighted in light green have received little rainfall, while areas in dark blue or pink have received moderate to intense rains.

The **maps below** show the **rainfall anomalies** over the first (left), second (centre) and third (right) dekads of the month of May 2023, expressed in percentage of the long-term average, based on CHIRPS satellite rainfall estimates. Areas in light to dark brown have received below average rains, while areas in dark blue have experienced above normal rainfall.



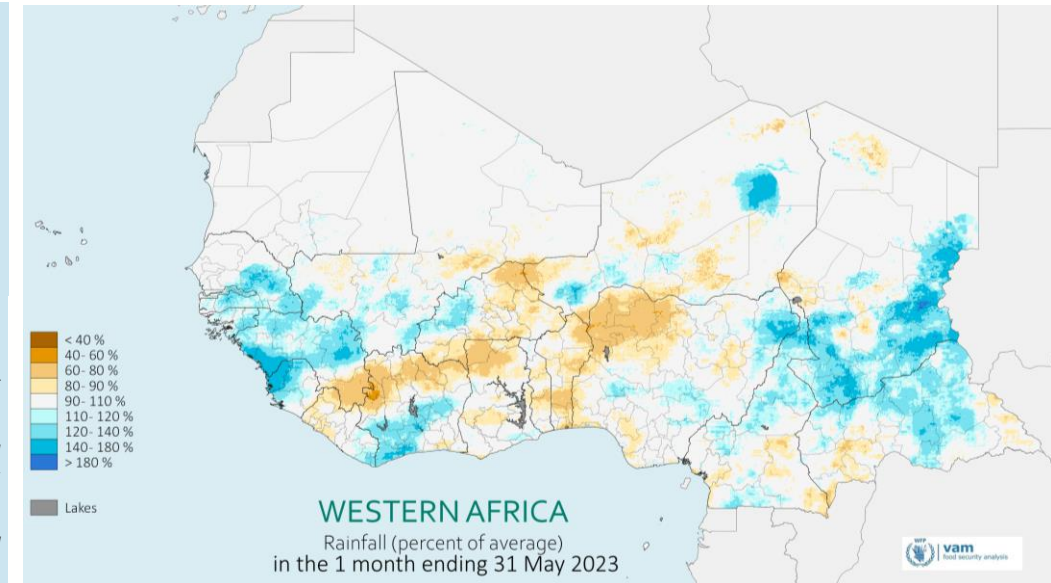
SECTION 2:  
**MONTHLY TRENDS**

# Rainfall patterns: The last month (1-31 May 2023)



The map to the left shows the **total rainfall received** over the last month (1-31 May 2023), based on CHIRPS satellite rainfall estimates. Areas highlighted in light green have received little rainfall, while areas in dark blue or pink have received moderate to intense rains.

The map to the right shows the **rainfall anomaly** over the last month (1-31 May 2023), expressed in percentage of the long-term average, based on CHIRPS satellite rainfall estimates. Areas in light to dark brown have received below average rains, while areas in dark blue have experienced above normal rainfall over the past month.



## Cumulative rainfall:

- Over the course of the last month (1-31 May 2023), the seasonal rains rainfall remain located in the southernmost parts of Western Africa Region.
- During the first two dekads, only the southernmost parts of the region across most coastal countries, in eastern CAR, south-western Cameroon, southern Nigeria, Southern Cote d'Ivoire, Sierra Leone, and South-eastern Guinea, received light to moderate rainfall (above 50 mm). Areas further north received little to no rains, including most of the Sahel.
- During the third dekad (21-31 May), seasonal rainfall amounts increased over the south-eastern parts the region over south-eastern Nigeria, Cameroon, and CAR. Important

seasonal rainfall (up to 200mm) have been recorded over the south-western areas (south-western Cote d'Ivoire, south-eastern Liberia, Sierra Leone and south-western Guinea). Further north, moderate rainfall of above 50 mm were received across most coastal countries, as well as in southern Chad.

- Overall, in May 2022, the most important seasonal rainfall was recorded in the Mano River countries (Guinea, Sierra Leone, Liberia, southern Cote d'Ivoire), in Gulf of Guinea (in southern Ghana, Togo, Benin, southern Nigeria and most of Cameroon) as well as in CAR.
- In the southern Sahel, seasonal rains were light and scattered while over further northern areas, monsoon conditions is not yet favourable for seasonal rainfall.

## Rainfall anomaly:

- Compared to the long-term average, drier than normal conditions were recorded across most of the region during the first dekad of May.
- During the second dekad (11-20 May) seasonal rainfall particularly remained above average in western Africa except some located pockets in south-eastern Cameroon, in Guinea Bissau, far north-western Guinea northern Sierra Leone and far north western Mali with below average conditions.
- The last dekad of May saw a unfavourable conditions, with below average rains in most of the region mostly affected the central Sahel as well as the Mano River's and Gulf of Guinea's countries. However, it is important to

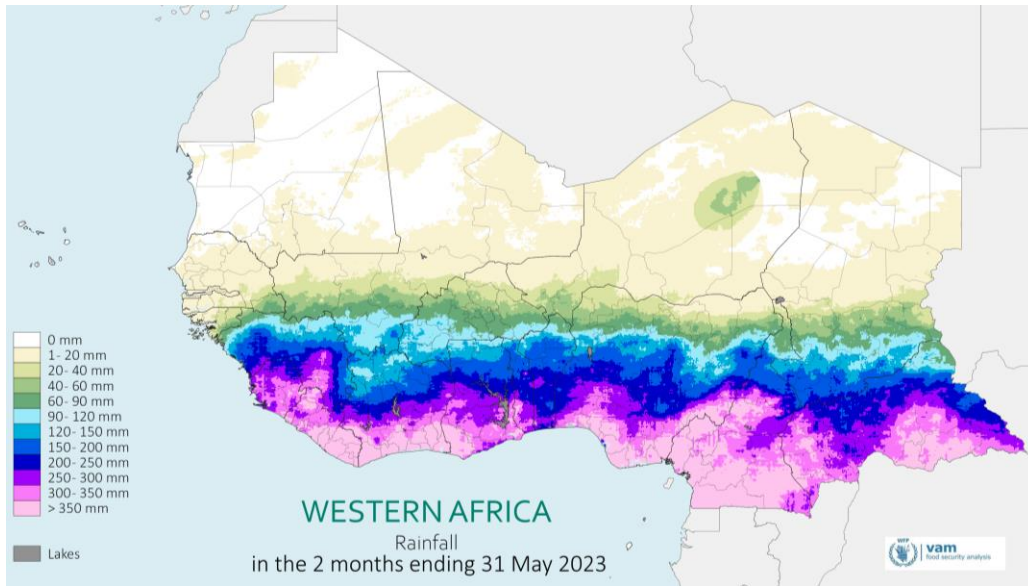
note that these early season deficits are unlikely to have a significant impact given that planting activities in these areas usually start later in the season.

- The overall rainfall anomaly for the month of May suggests normal to above average conditions with some pockets of drier than normal condition over eastern Burkina Faso, north-western Nigeria, northern Ghana, Cote d'Ivoire, far southern Guinea, and central Benin and Togo.
- The evolution of the ITCZ confirms the erratic evolution of the seasonal rains over the region, and currently remains slightly below the long-term average.

SECTION 3:  
**THE SEASON SO FAR**

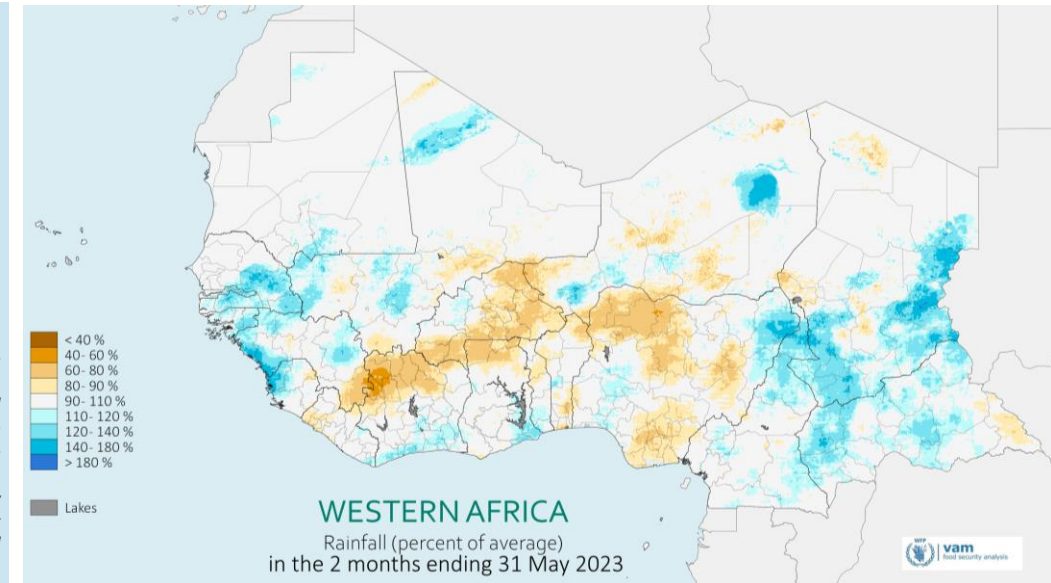


# The progression of the season so far



The map to the left shows the **total rainfall received** over the last 3 months (Avril - May 2023), based on CHIRPS satellite rainfall estimates. Areas highlighted in light green have received little rainfall, while areas in dark blue or pink have received moderate to intense rains.

The map to the right shows the **rainfall anomaly** over the last 3 months (Avril - May 2023), expressed in percentage of the long-term average, based on CHIRPS satellite rainfall estimates. Areas in light to dark brown have received below average rains, while areas in dark blue have experienced above normal rainfall over the past month.



## Cumulative rainfall:

- By the end of May in early stage of the season (April – May), heavy rains (above 350 mm) have been received over most coastal areas in the south-western parts of the region (Sierra Leone, Liberia, south-eastern Guinea), as well as over southern Nigeria, Cote d'Ivoire, Ghana, Togo, Benin, Cameroon and CAR.
- Meanwhile, moderate seasonal rainfall (up to 150 mm) was received over far southern Mali, southern Guinea, northern Cote d'Ivoire, Ghana, Togo, Benin south-western Burkina Faso, Togo, Benin, central Nigeria, northern Cameroon, far, southern Chad.
- Over the Sahelian belt, little seasonal rainfall has been received so far.

However, more intense rainfall is expected in these areas over the coming weeks and months.

## Rainfall anomaly:

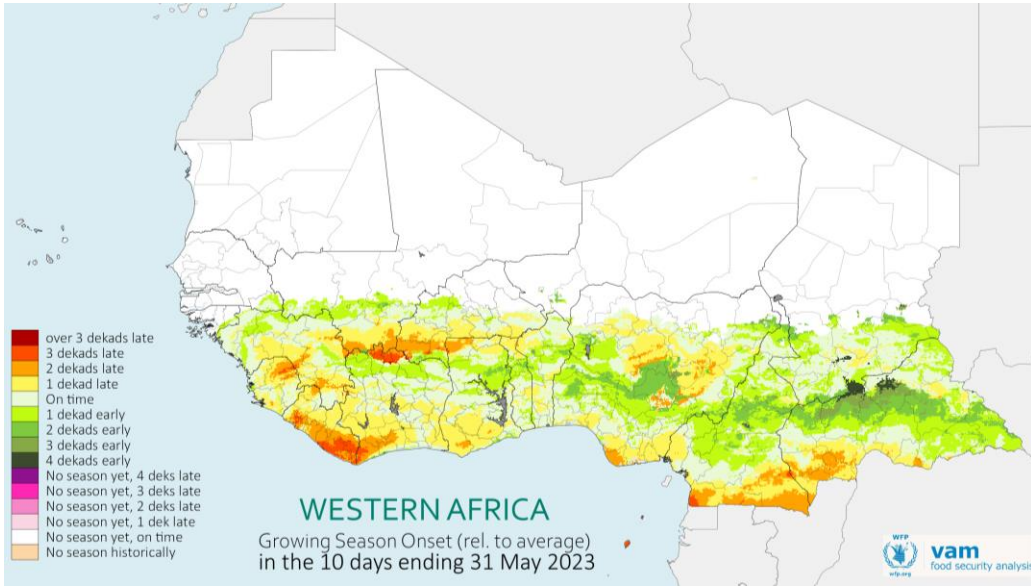
- The early stages of the 2023 rainy season (April-May 2023) were characterised by mixed conditions mostly dominated by average to above average conditions. Over the western part of the region (southern Senegal, The Gambia, western Mal, most of Guinea, Guinea Bissau and western Sierra Leone), and the eastern part of the region (North-eastern Nigeria, Cameroon, Chad) as well as south-western Niger above normal rains were received
- In central Sahel over southern Burkina Faso extended northern Ghana and Cote d'Ivoire, abnormal dryness was observed.
- Central, north-western and south coastal Nigeria, experienced below average rainfall.

## Summary:

- So far West Africa rainy season remain to be characterized by mixed conditions. Only the eastern part of the region and the western fringe coastal areas of the region benefited from wetter than average condition.
- Erratic seasonal rainfall has resulted in abnormal dryness over central part of region across southern Burkina Faso extended northern Ghana and Cote d'Ivoire as well as north-western and south coastal Nigeria.
- These deficits do not have major impacts on agricultural activities, given that planting normally occurs during the coming weeks.
- Further north over the Sahel remain neutral conditions.

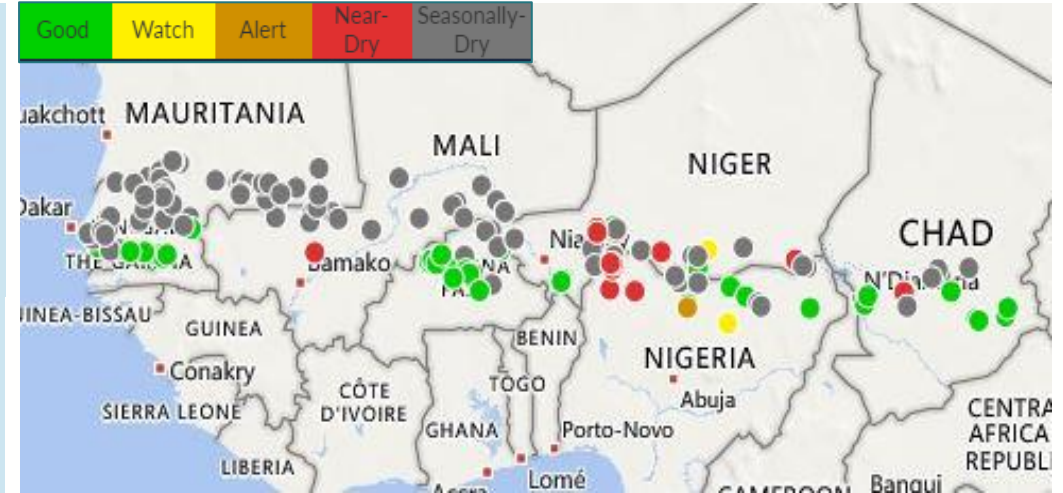


# The progression of the season so far



The map on the left shows the start of the growing season anomaly (as of 31 May 2023), using the vegetation phenological cycle to show the possible start of sowing activities. Areas with delays in the onset of growing season are highlighted in yellow and red, while areas where the season has started earlier than normal are presented in green.

**Water point status (as of 31 May 2022):** Good: Higher than long term level (LTL), Watch: Between 50 to 100% of LTL, Alert: Between 3% and 50% of LTL, Near-Dry: Below 3% of LTL (<https://earlywarning.usgs.gov/fews/waterpoint/index.php>)



## Start of season:

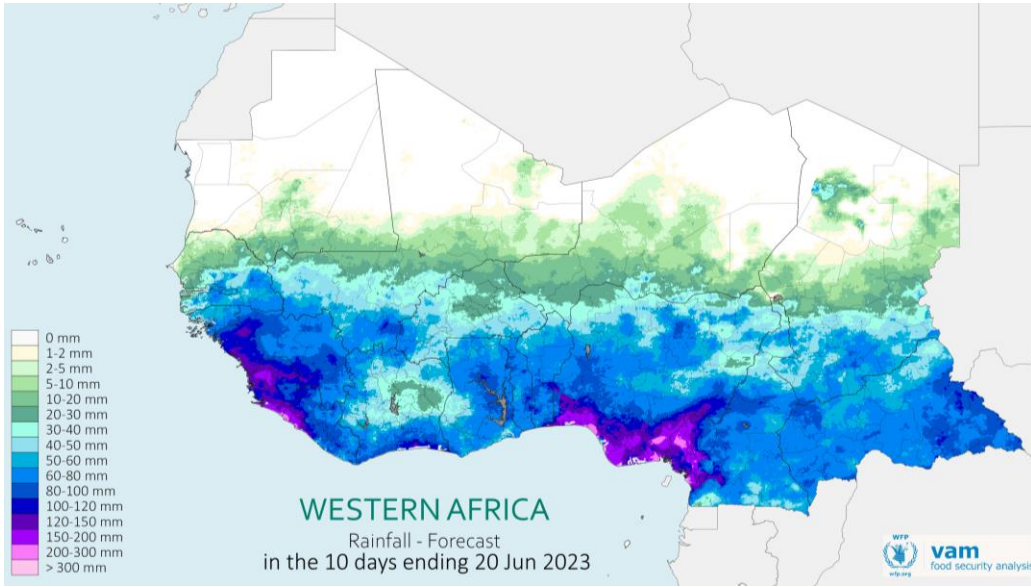
- The growing season onset map suggests that the 2023 season has started late than normal (1-3 dekads) in most of the region, except for parts of CAR, Cameroon, central Nigeria, Benin, Togo, Ghana and northern Cote d'Ivoire as well as south-western Mali, Guinea and pockets in central western Burkina Faso where the season started early.
- In areas affected by a late start of the season (mapped in yellow to red above), the delayed start of the season can be attributed to erratic and poor rains in the early stages of the season. In most of the southern Sahel, the conditions for the potential start of planting activities have not yet been met.

## Water resources:

- The availability of water resources is favourable in central Senegal, as well as in eastern Burkina, north-eastern Nigeria and Chad. However, over most of the central Sahel, Mauritania and northern Senegal, water points are dry or near dry at the end of May.

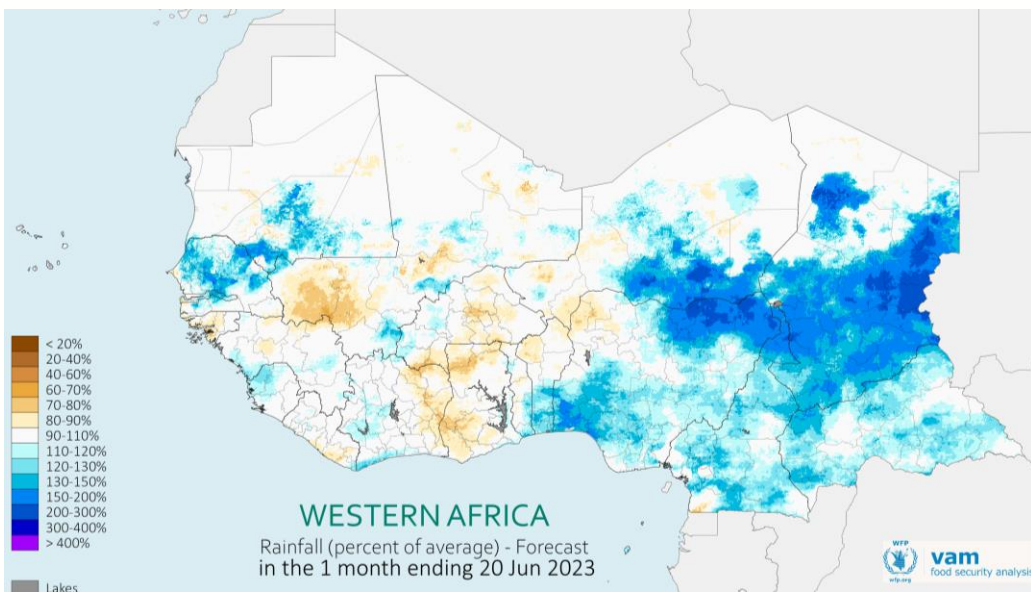
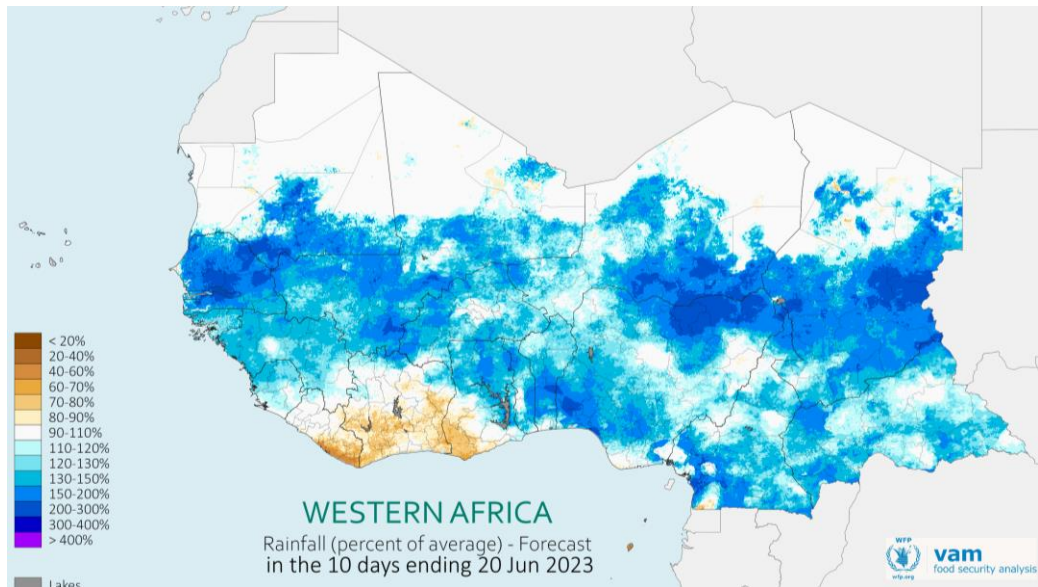
SECTION 4:  
**THE SHORT- AND MEDIUM-TERM  
OUTLOOK**

# The short-term outlook



The map on the left shows the short-range CHIRPS-GEFS forecasts of the total rainfall expected for the upcoming dekad. Blues for wetter than average conditions, browns for drier than average conditions.

The map on the right shows the short-range CHIRPS-GEFS forecasts for the upcoming dekad, expressed in percentage of the long-term average. Blues for wetter than average conditions, browns for drier than average conditions.



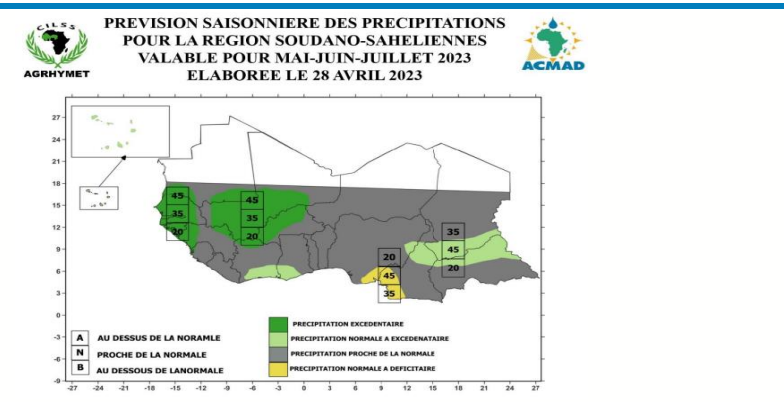
The map to the right shows the short-range CHIRPS-GEFS forecasts in one-month for the upcoming month, expressed in percentage of the long-term average. Blues for wetter than average conditions, browns for drier than average conditions.

Short range forecasts provide estimates of rainfall up to June 20. In mid-June, rainfall improvement will likely be observed across West Africa Region, in particular over the Sahel with widespread wetter conditions.

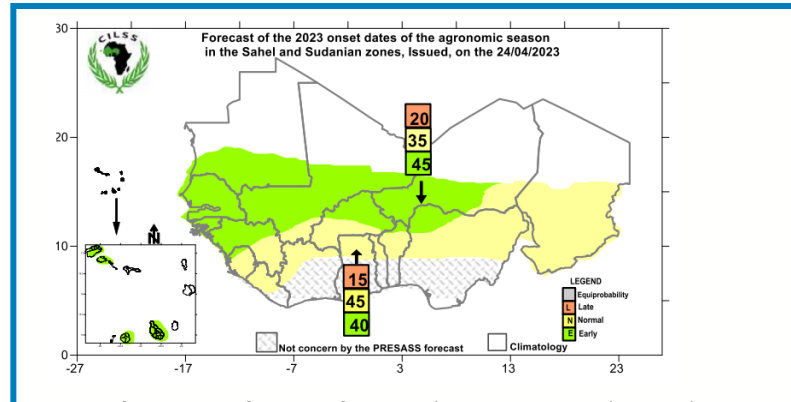
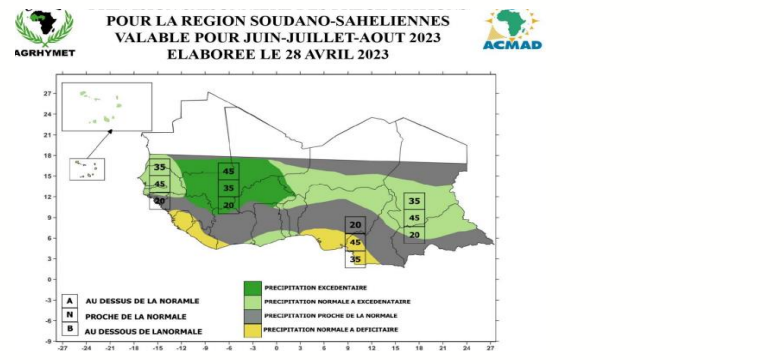
- If the forecasts are verified, we might see an alleviation of the rainfall deficits in these regions and the onset of more favorable conditions for the early stages of the growing season. However, areas over western Ghana, eastern Cote d'Ivoire, western Mali and central Burkina Faso could remain drier than average.



# The medium-term outlook: the April 2023 PRESASS seasonal forecast

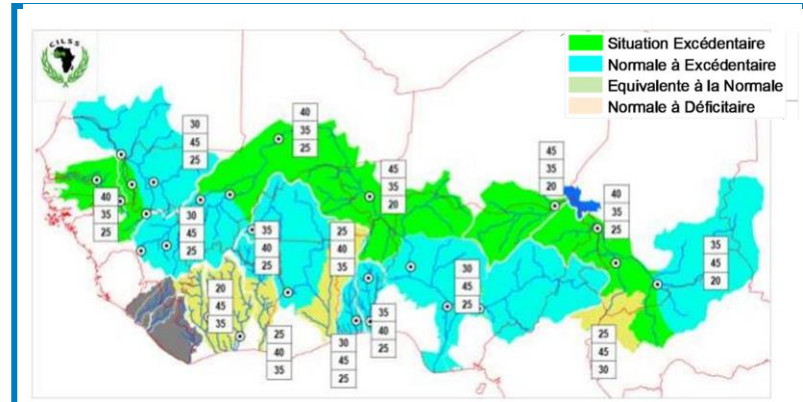
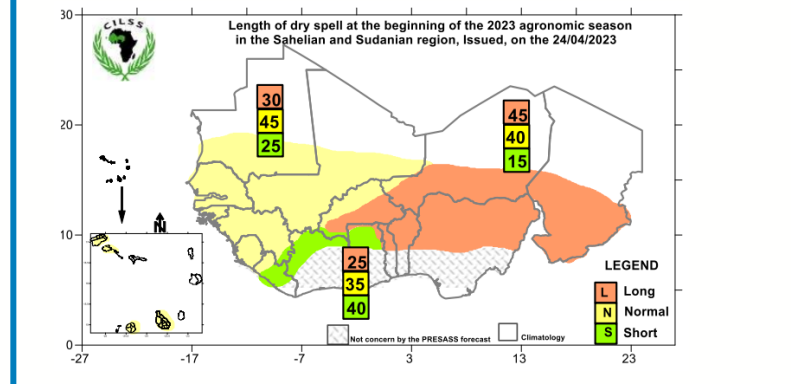


According to the April 2023 PRESASS seasonal forecast, above average to average seasonal rainfall (in May-July 2023, map above) is expected in the far western Sahel ((Cap Vert, Sénégal, western Guinea and south-western Mauritania) and Central Sahel (Mali and part of northern Burkina Faso) Elsewhere conditions will likely be generally average. During May-July and Jul-Sep. 2023, (map below), conditions will likely be more favourable over the Sahelian belt with above average rainfall while average to below average seasonal rainfall will be expected over coastal areas of Gulf of Guinea countries (along of Sierra Leone, and Liberia, coastal areas of Nigéria and Cameroon). In the Sahelian Belt this likely to result in good crop prospects, but also increasing the risk of flooding in some areas. This is likely to be exacerbated by the ongoing [EL Niño events](#) which is likely to develop with 82% probability in May-July and is expected with at least 90 percent chance to continue through February 2024, resulting in the potential shift of rainfall patterns in West Africa. This associated with above-average rainfall across the Sahelian strip in July - August.



An early to normal onset of seasonal rains is expected (map above) in the western Sahel including Cabo Verde island as well as the central Sahel. In the Sahelo-Sudanian zone and the eastern Sahel covering southern Sierra Leone, Guinea, Mali, Burkina Faso, Chad, far eastern Niger and over northern parts of Libéria, Côte d'Ivoire, Ghana, Togo, Benin and Nigéria is expected normal to an early seasonal rainfall onset.

At the beginning of the season **average to longer dry spells** are expected over the Sudanian and Sahelian belts of West Africa and Chad, with high probability to observe more longer dry spell over the half eastern of the Sudano-Sahelian belt (map below). Towards the end of the season, dry spells are expected to be longer over northern Togo, Ghana, cote d'Ivoire, north-western Benin, half southern Sierra Leone and half northern Liberia.



The map above shows the river basin levels expected in 2022. Green indicates above normal river levels, blue normal to above normal levels, grey normal levels and pink below normal river levels compared to the long-term average.

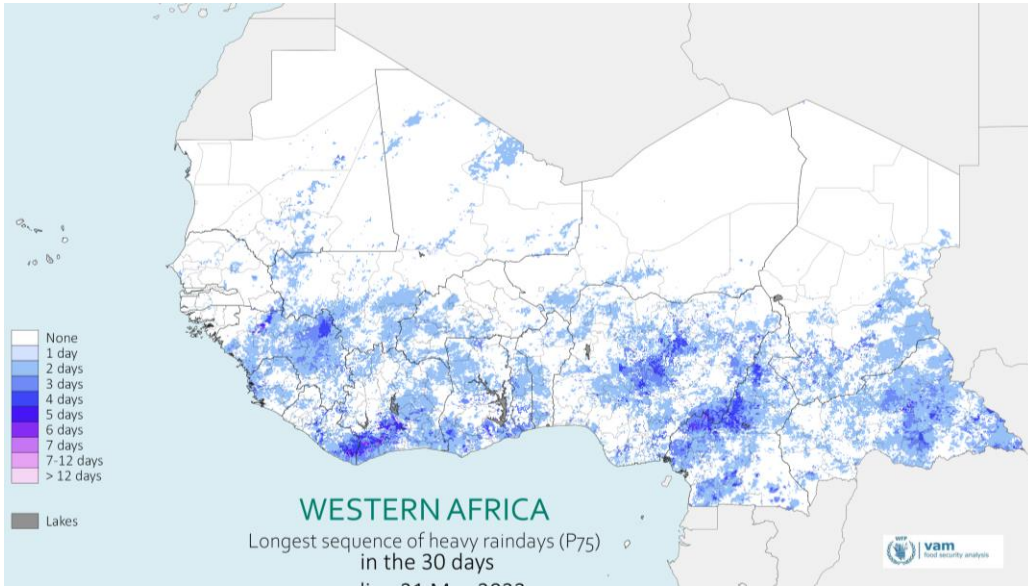
In terms of the **hydrological situation**, globally equivalent to above the average river levels are expected in the upper basins of the Sahel and equivalent to below average are expected in the lower parts of these basins:

- **Above average** are specifically expected in the Gambia basin, the Falémé basin (tributary of the Senegal), the Inner Niger Delta in Mali, the middle Niger river basin, the Komadougou Yobé, the middle Chari, the Lower Chari-Logone.
- **Average to above average** are expected in the upper Niger River basin (in Guinea, Côte d'Ivoire and Mali), the upper Chari basin, the Lower Niger, the Bafing and Bakoye sub-basins (Senegal basin), the Mono (Togo and Benin) and Ouémé (Benin) basins and in the upper and western Volta basin.
- And **below average** are expected in the Sassandra and Bandama basins (in Côte d'Ivoire), the lower Comoé, the upper Logone basin and in the eastern part of the Volta (Benin, Burkina Faso, Togo and Ghana).

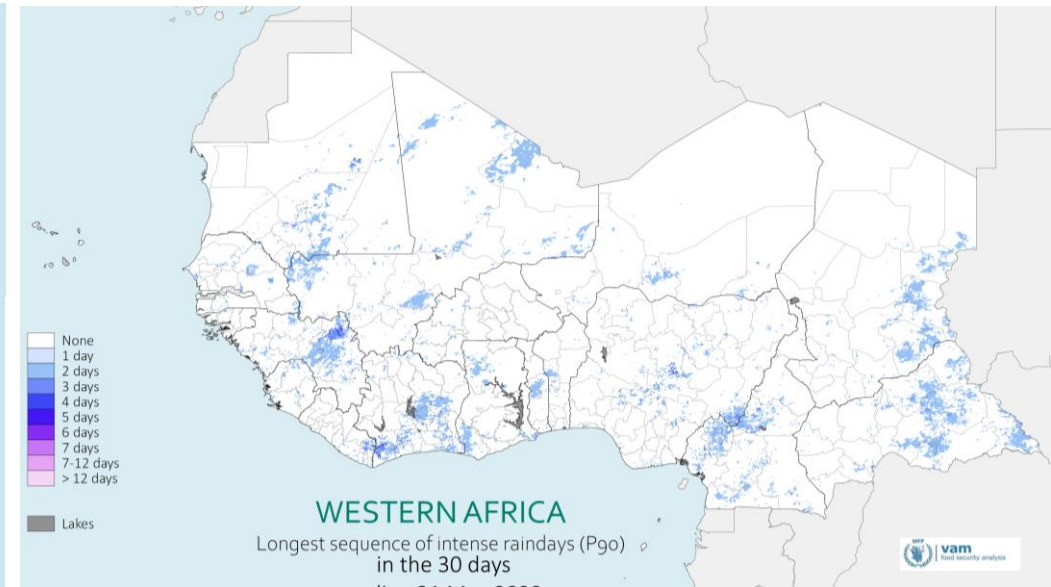
SECTION 5:

**AREAS OF CONCERN : FLOOD RISK ( PREPAREDNESS EFFORTS)**

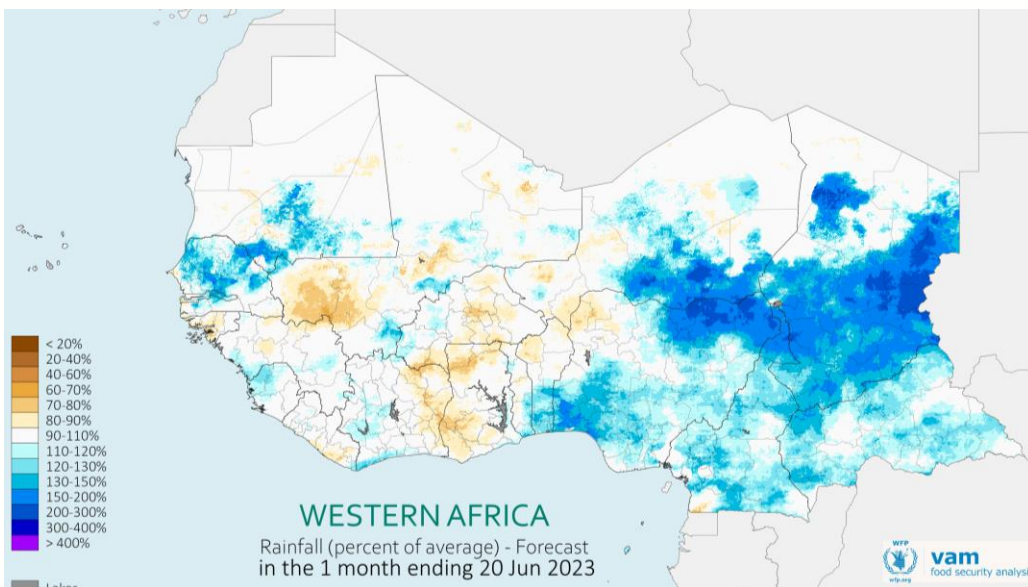
# Heavy & Extreme rainfall: May 2023



The map to the left shows the longest sequence of heavy raindays over the past month (1-31 May 2021), based on CHIRPS satellite rainfall estimates. Areas highlighted in dark blue and purple have experienced longer sequences of intense raindays (defined as days with a 75<sup>th</sup> percentile of rain received) over the last 30 days.



The map to the right shows the longest sequence of extreme raindays over the past month (1-31 May 2021), based on CHIRPS satellite rainfall estimates. Areas highlighted in dark blue and purple have experienced longer sequences of intense raindays (defined as days with a 95<sup>th</sup> percentile of rain received) over the last 30 days.



The map to the right shows the short-range CHIRPS-GEFS forecasts in one-month for the upcoming month, expressed in percentage of the long-term average. Blues for wetter than average conditions, browns for drier than average conditions.

## Heavy raindays:

- Overall, the region experienced short to moderate sequences of heavy raindays (defined as days with a 75<sup>th</sup> percentile of rain received) during the month of May.
- The longest sequences of heavy raindays were observed over parts of central Guinea, along the border between Liberia and Cote d'Ivoire, as well as along the border between Nigeria and Cameroon and in eastern CAR.

In most other parts of the region, the sequences of heavy raindays remained relatively short (0-3 consecutive days). It is important to note that over the northern parts of the region, the rainy season has not yet started.

## Extreme raindays:

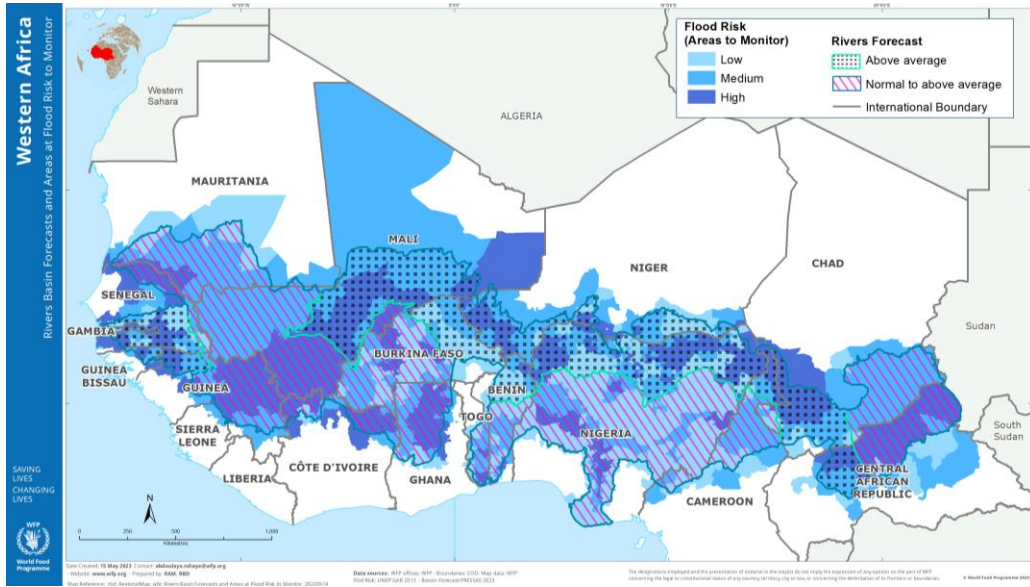
- The occurrence of extreme raindays (defined as days with a 95<sup>th</sup> percentile of rain received) was relatively limited in May 2023.
- It is expected that the likelihood of extreme rainfall events, which can potentially lead to river floods and flash floods, increases as the rainy season progresses in the region.

## One month Forecast:

- In one month ending 20 June, forecasts suggest more favorable conditions over the region. The eastern part of region benefited from more favorable conditions as well as over the far western part of the region in Senegal and eastern Mauritania..



# Flood preparedness efforts



The map highlights river basins where **above normal** river levels are expected (black dots), as well as river basins that are likely to experience **normal to above normal** river levels (purple outline).

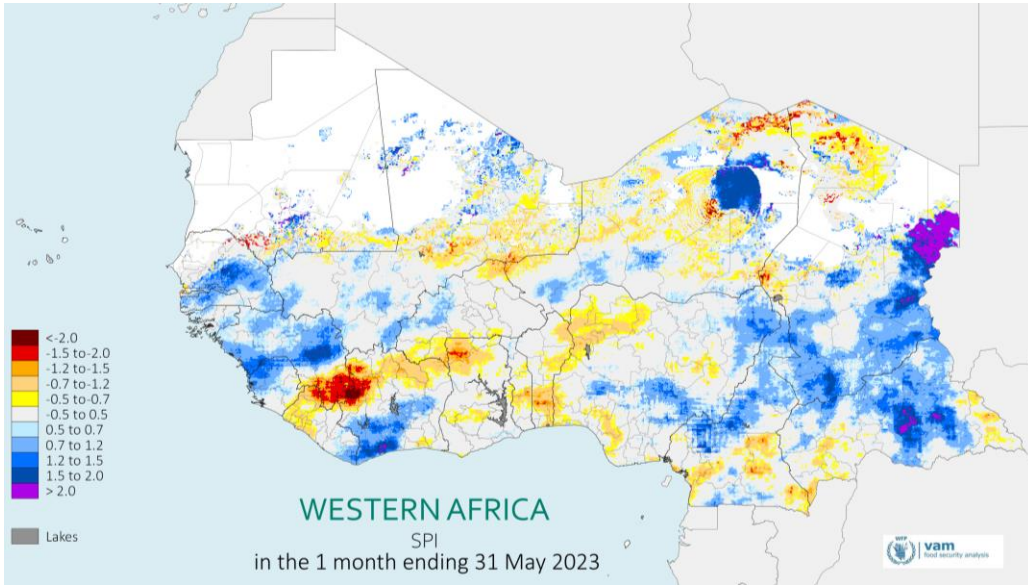
The map to the shows the underlying flood risk of admin 2 areas in river basins that are expected to experience normal to above normal river levels in 2023. Administrative areas within river basins that are projected to experience normal or below normal river levels are excluded from this map (see above slide). It's recommended focusing flood preparedness efforts in the following areas:

1. Administrative areas with a **medium or high flood risk located in river basins with above average expected river levels. These areas are located** in the Gambia basin, the Falémé basin (tributary of the Senegal), the Inner Niger Delta in Mali, the middle Niger river basin, the Komadougou Yobé (In Nigeria), the middle Chari, the Lower Chari-Logone (in Chad and CAR).
2. Administrative areas with a **high flood risk located in river basins with average to above average expected river levels in** in the upper Niger River basin (in Guinea, Côte d'Ivoire and Mali), the upper Chari basin, the Lower Niger, the Bafing and Bakoye sub-basins (Senegal basin), the Mono (Togo and Benin) and Ouémé (Benin) basins and in the upper and western Volta basin. ([The admin2 areas to monitor](#))

SECTION 6:

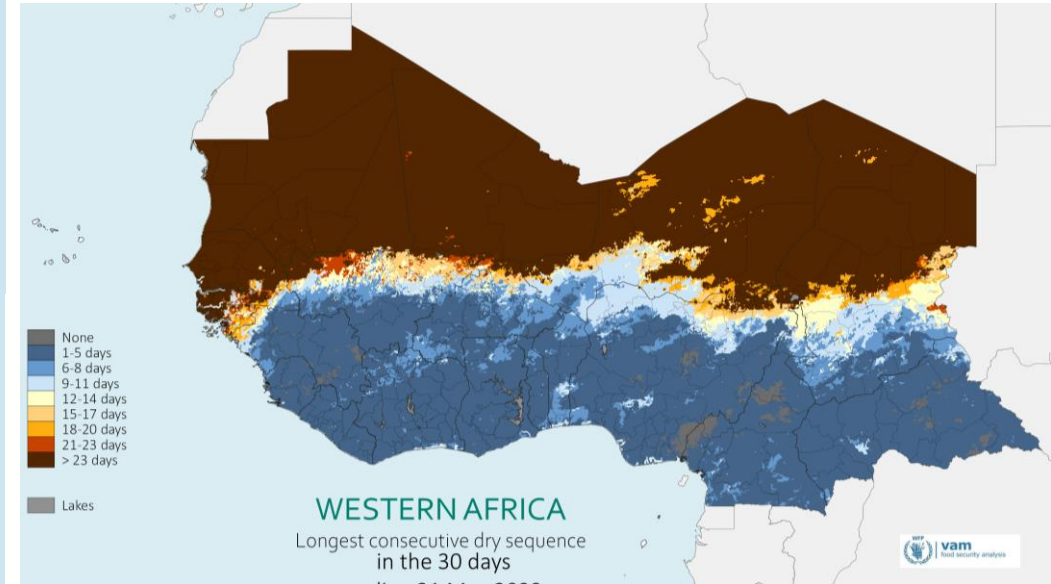
**AREAS OF CONCERN : DROUGHT  
RISK**

# SPI & Dry Sequences: May 2023



The map to the left shows the **Standard Precipitation Index (SPI)** for the last month (1-31 May 2023), based on CHIRPS satellite rainfall estimates. This simultaneously shows the experience of wet conditions on one or more time scales, and dry conditions on other time scales. Blues - dark purple for wetter conditions, Yellow - Browns for drier conditions.

The map to the right shows the **longest consecutive dry sequence** over the past month (1-31 May 2023), based on CHIRPS satellite rainfall estimates. Areas in blue have experienced shorter dry sequences, while areas in brown have experienced longer ones. Note that in some areas, this is linked to the fact that the season has not started yet.



## Standard Precipitation Index (SPI):

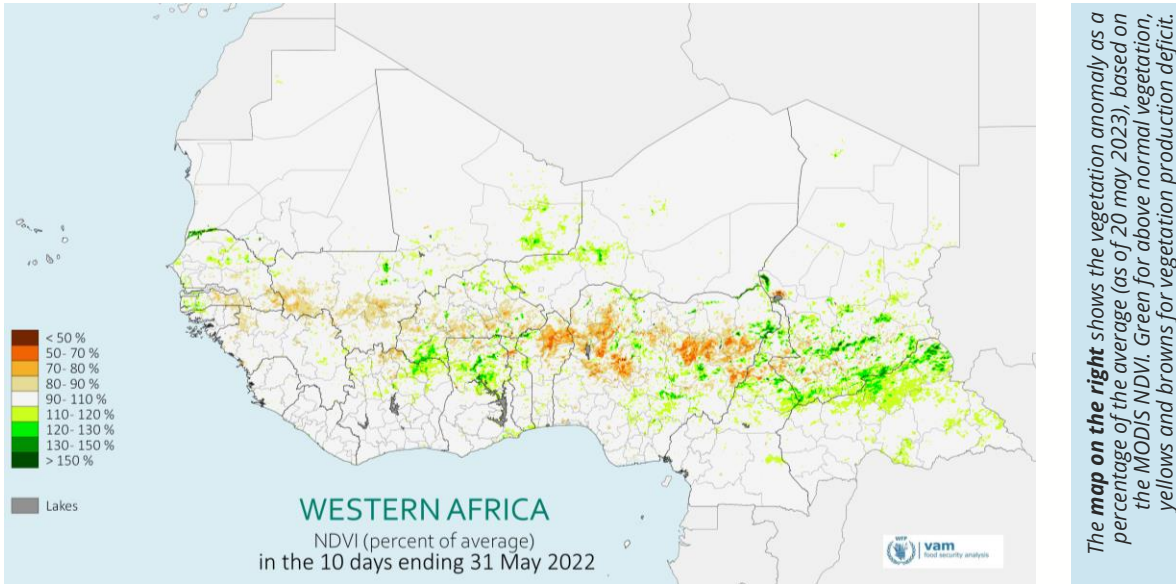
- As mentioned above, the SPI is less accurate or relevant at this stage of the season, when many areas normally experience dry conditions in West Africa and received very little seasonal rainfall.
- This explains the somewhat contradictory picture given by the dekadal SPI for the three dekads of May 2023 compared to the rainfall anomaly maps. The accuracy and relevance of the monthly SPI is higher, and the indicator will become more accurate once the season progresses. For further information on the SPI, see [this factsheet](#).
- The monthly SPI for May 2023 suggests that mostly normal to wet conditions prevailed across the region.
- On the other hand, eastern Burkina Faso, north-western Nigeria, northern Ghana, Cote d'Ivoire, far southern Guinea, and central Benin and Togo experienced drier than normal condition over

## Dry Sequences:

- Over the month of May, the northern part of the season experienced long dry spells, which is due to the fact that the rainy season has not started yet.
- In the southern parts of the region, dry-spells were generally short (1-5 days). However, the southernmost areas of the Sahel experienced slightly longer dry sequences of up to 11 days.
- While it is unlikely that these moderate dry spells had any significant impact on agricultural activities at this very early stage of the season in the region, the progression of the rains, and particularly their spatial and temporal distribution should be monitored closely, as erratic rainfall at the start of the season could negatively impact sowing activities



# NDVI and Areas to be monitored



## Areas to be monitored

**Average to below average seasonal rainfall** over South-Western Cameroon, the southern Nigeria, Benin, Togo, Ghana, Cote d'Ivoire and Liberia ( **April-June 2023**)

**Below average seasonal rainfall** over coastal areas of Gulf of Guinea countries (Sierra Leone, Liberia, Nigéria and Cameroon during **June-August 2023**)

### Vegetation:

- As a result of early season dryness, vegetation conditions are below average across a broader area , from south-western Chad-south -north Cameroon across Nigeria's Central Belt. to northern Benin, Togo and southern Burkina Faso and western Mali. Vegetation deficits are particularly pronounced in northern Benin and Nigeria's Central Belt.
- On the other hand, better than normal vegetation conditions can be observed in parts of northern Burkina Faso, central Mali, eastern and south-western Senegal, northern Ghana and central Côte d'Ivoire as well as over, northern Nigeria and southern Chad.

SECTION 7:

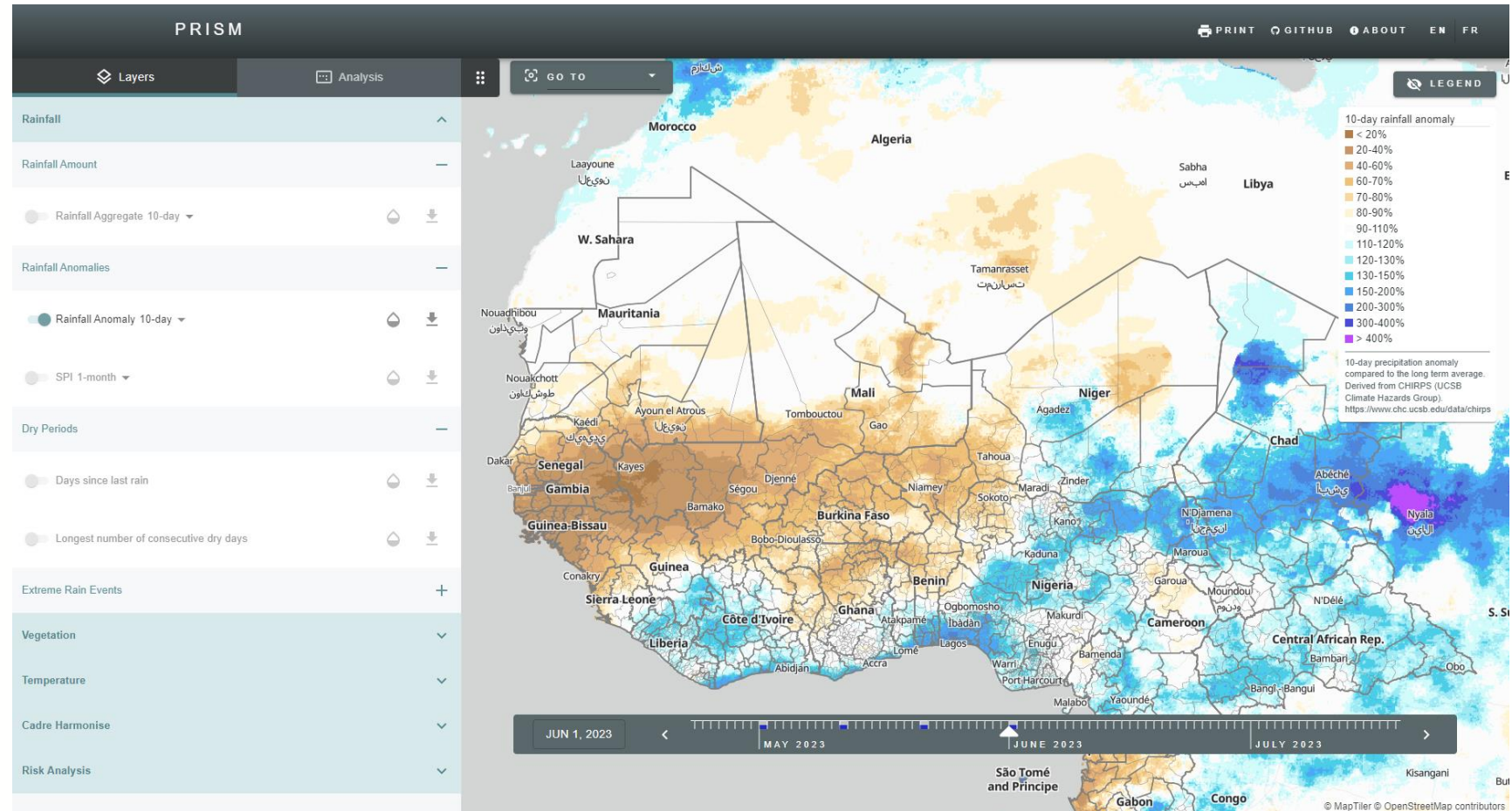
**THE PLATFORM FOR REAL-TIME  
IMPACT AND SITUATION  
MONITORING (PRISM)**

# The Platform for Real-time Impact and Situation Monitoring (PRISM)

RBD RAM is pleased to announce the launch of the **PRISM platform for West Africa**. PRISM allows users to **follow climate and hazard indicators in near-real time** and to conduct **analyses that combine hazard data with risk layers** – for instance, you can use the analysis feature to identify acutely food insecure areas that are experiencing drought conditions.

PRISM currently includes a series of **hazard layers** including data on rainfall amounts and anomalies, dry periods and extreme rain events, vegetation and land surface temperatures. In addition, the platform includes historical **Cadre Harmonisé (CH) results from 2018 onwards**, as well as other **risk analyses** such as WFP's Integrated Context Analysis (ICA) and the Multi-Dimensional Risk Analysis. WFP is working with regional and national partners to expand the datasets included in PRISM.

You can **access the RBD PRISM Platform** (internally and externally) by clicking on the map above, or through the following link: <https://prism.dakar.wfp.org/>.







**Data sources:**

Rainfall: CHIRPS, Climate Hazards Group, UCSB

Vegetation: MODIS NDVI, ESODIS-NASA

**Data Processing:**

RAM software components, ArcGIS, QGIS

**For further information:**

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