# West Africa Seasonal Monitor 2023 Season – July Update



World Food Programme

SAVING LIVES CHANGING LIVES

1-30 June 2023, monthly update

## Highlights

**By the end of June, the early stages of the rainfall season are coming to an end, as the region enters its core period from July to September.** So far, the 2023 rainy season conditions in West Africa reflect the patterns observed in late May, with overall mixed conditions across the region. While some areas over the central part of region across western Niger, eastern Burkina Faso extended northern Ghana, Cote d'Ivoire and Liberia as well as north-western Senegal, south-western Mauritania, north-western, central and south coastal Nigeria, experienced below normal rainfall, the seasonal rains were normal to above normal in the rest of West Africa. In these areas moderate rainfall deficits were recorded during this period. While especially these deficits in the Sahelian areas, are unlikely to significantly impact the agricultural season, which usually starts a bit later (planting normally occurs towards the month of July), the progression of the rains in these areas will need to be monitored closely.

- Vegetation conditions are below average across a broader area, from central Cameroon northern Nigeria across northern Benin, to Burkina Faso, western Mali and southern Senegal. Vegetation deficits are particularly pronounced over western Mali, eastern Gambia and southern Senegal. On the other hand, a markedly above average vegetation cover extends over the eastern part of the region across south-eastern Niger, NE Nigeria, far northern Cameroon and Chad. Better than normal vegetation conditions can be observed in parts of central Mali. Water resources are at good levels across most of the Sahel and are improved since late May. However, over southern Mauritania, northern Senegal, far western central Mali, pockets in eastern Burkina and south-eastern Niger, water points are dry or near dry at the end of June.
- **The short-term forecasts** indicate that by late July (20 July 2023), rainfall improvement will likely be observed in West Africa Region. While the southeastern part of region (CAR, southern Cameroon, south-eastern Nigeria) as well as the far western part of the region (in Senegal, Gambia, Guinea Bissau, Mauritania and western Mali) will likely be benefited from more favorable conditions, areas over south-western Cote d'Ivoire,, Liberia, northern Ghana, half eastern Niger, northern Mali, northern Chad, NE Nigeria and northern Cameroon could remain drier than average. This rainfall improvement 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 saisonal 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 <u>EL Niño events</u> 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 level 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 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, Nigéria and Cameroon in **June-August 2023**.

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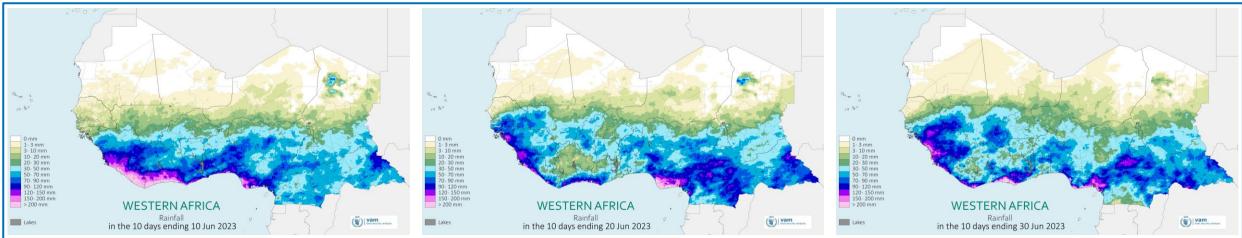
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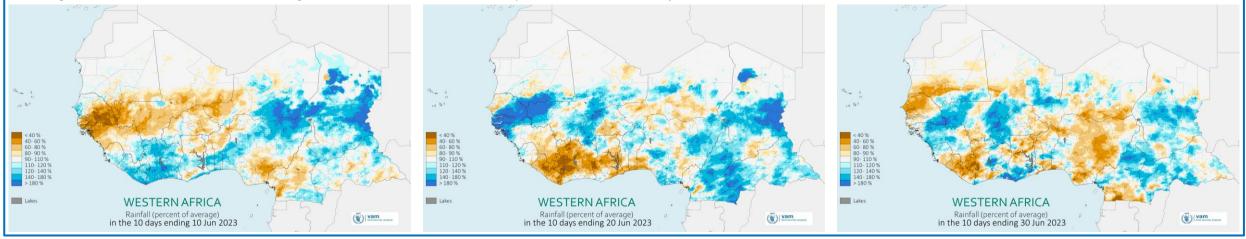
## SECTION 1: DEKADAL TRENDS

### **Dekadal rainfall patterns: June 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 June 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.

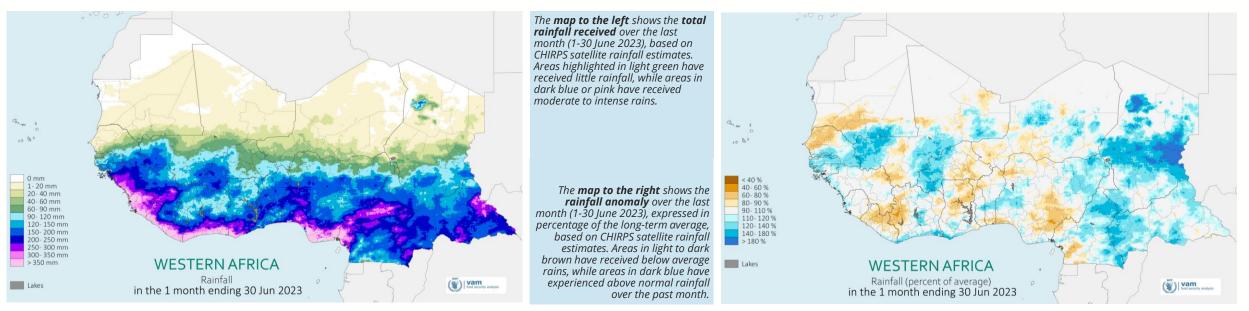
The **maps below** show the **rainfall anomalies** over the first (left), second (centre) and third (right) dekads of the month of June 2023, expressed in percentage of the long-term average, based on CHIRPS satellite rainfall estimates. Areas in light to dark brown have received below average rains,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





## SECTION 2: MONTHLY TRENDS

### **Rainfall patterns: The last month (1-30 June 2023)**



#### **Cumulative rainfall:**

- Over the course of the last month (1-30 June 2023), the seasonal rains progressed from the southern. parts of the region towards the north of the region.
- During the first dekad of June (1-10 June 2023), seasonal rainfall remained localised in the southern parts of West Africa. Heavier rains (of up to 200 mm) were recorded in Liberia, Sierra Leone, southern Guinea, southern Ghana, Cote d'Ivoire, Togo, Benin and southern Nigeria. Meanwhile, elsewhere in the southern coastal areas, light to moderate rainfall was recorded over CAR, Cameroon, Nigeria, Togo, Benin, Ghana, Cote d'Ivoire, Guinea, southern Guinea-Bissau and southern Burkina. In the Sahel seasonal rainfall remained low (below 30 mm).
- During the second dekad of June (11-20 June), seasonal rainfall moved further north, reaching the Sahel. The southern Sahel experienced light to moderate rains (up to 50 mm) while rainfall amount increased over southern Senegal (up to 120mn) in some place. In the southern coastal areas of the region, heavier rains were received (90-200 mm), particularly in Guinea, Liberia,

Sierra Leone, southern Nigeria as well as in eastern and western CAR while in Cote d'Ivoire were recorded very low seasonal rainfall. Elsewhere, rainfall remained light to moderate.

- During the last dekad of June (20-30 June), seasonal rainfall remained localised in the southern parts of the region. Significant rainfall (90-200 mm) was received in Guinea-Bissau, Guinea, Sierra Leone, southern Ghana. CAR, south-western Nigeria, central Togo and Benin, western Burkina, western Mali, southern Chad and southern Senegal, recorded moderate rainfall (50-90 mm).
- Overall, in June 2023, 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 and central Nigeria and most of Cameroon) as well as in CAR and southern Chad.
- In the southern Sahel, seasonal rains were light and scattered while over further northern areas, monsoon conditions is not yet favourable for seasonal rainfall.

#### <u>Rainfall anomaly:</u>

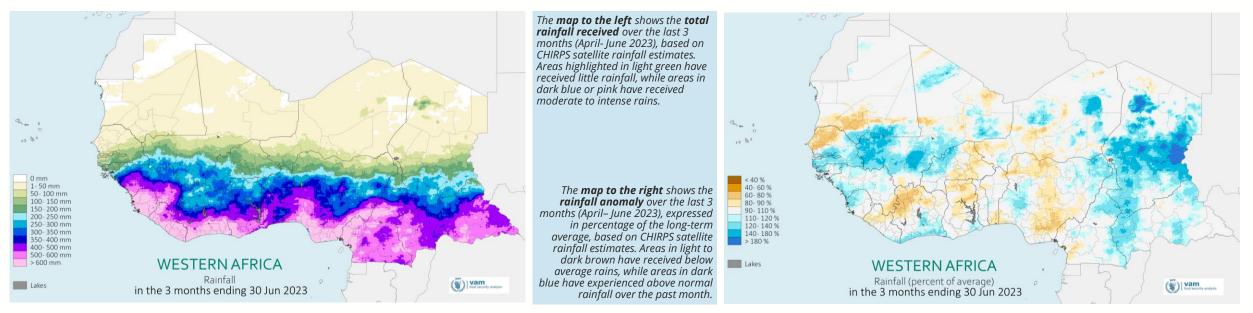
- Compared to the long-term average, drier than normal conditions were recorded in the western Sahel as well as south-eastern Nigeria and south-western Cameroon during the first dekad of June.
- During the second dekad (11-20 May) seasonal rainfall particularly remained above average in western Africa except in some coastal countries (Liberia, Cote d'Ivoire, eastern Guinea, southern Ghana, far southern Benin and Togo)) and in the Sahel (The half southern Niger, northern western Senegal and south-eastern Burkina Faso) with below average conditions.
- The last dekad of June is characterized by mixed conditions. Rainfall deficits mainly affected Senegal, south-western Mauritania, northern and south-western Mali, eastern Burkina Faso, southern Niger as well as the coastal countries (southern Sierra Leone, Liberia, western Cote d'Ivoire, half northern Ghana, southern Togo and Benin, most of Nigeria and south-eastern Cameroon. 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.

- Overall, the rains recorded during June were average to above average throughout most of the region with some pockets of drier than normal condition over north-western Senegal, south-western Mauritania, eastern Burkina Faso, south-western Mali, western Niger, north-western and south-eastern Nigeria, Liberia, western Cote d'Ivoire, northern Ghana, central Benin and Togo and south-eastern Cameroon.
- The evolution of the ITCZ as of 30 June 2023, confirms the erratic evolution of the seasonal rains over the region, and is currently characterized by variable conditions.

## SECTION 3: The season so far

### The progression of the season so far



#### Cumulative rainfall:

- By the end of June the early stages of the rainfall season are coming to an end, as the region enters its core period from July to September. So far, heavy rains (above 600 mm) have been received over most coastal areas in the south-western parts of the region (Sierra Leone, Liberia, southern Guinea), as well as over southern Nigeria, Cote d'Ivoire, Ghana, Togo, Benin, Cameroon and CAR.
- Meanwhile, moderate seasonal rainfall (up to 300 mm) was received over southern Mali, western Burkina, northern Cote d'Ivoire, northern Ghana, Togo, Benin, central Nigeria, northern Cameroon, and southern Chad.

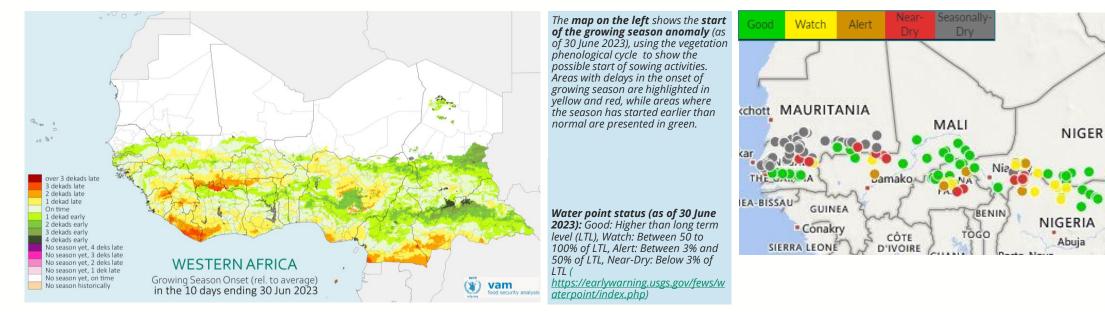
 Over the Sahelian belt, little seasonal rainfall has been received so far. However, more intense rainfall is expected in these areas over the coming weeks and months.

#### Rainfall anomaly:

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

- So far West Africa rainy season remain to be characterized by mixed conditions. Only the eastern part of the region (eastern Niger, Chad, northern Cameroon, NE Nigeria and CAR) and the western coastal areas (southern Senegal Gambia, Guinea Bissau, Guinea, northern Sierra Leone, south-eastern Mauritania) of the region benefited from wetter than average conditions.
- Erratic seasonal rainfall has resulted in abnormal dryness over central part of region across western Niger, eastern Burkina Faso extended northern Ghana, Cote d'Ivoire and Liberia as well as northwestern Senegal, south-western Mauritania, north-western, central and south coastal Nigeria.
- These deficits do not have major impacts on agricultural activities, given that given that planting normally occurs towards the month of July.
- · Further north over the Sahel remain neutral conditions.
- The developments over the coming weeks will be followed closely, particularly in the Sahel, where the period coincides with the planting window.

## The progression of the season so far



#### Start of season:

- The growing season onset map suggests that the 2023 season is characterized by mixed conditions mostly dominated by normal to early start of the season. Over the eastern part across Chad, most of Cameroon, CAR, NE and central south belt Nigeria can be observed an earlier than usual season onset of 1 to 3 dekads.
- In areas affected by a late start of the season (mapped in yellow to red above), over southern Cameroon, south-western CAR, central north belt Nigeria, southern and south-western Burkina Faso, southern Ghana, southern Cote d'Ivoire, Liberia, Sierra Leone, southern Guinea, western Mali, Guinea Bissau and south-eastern Senegal, 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:

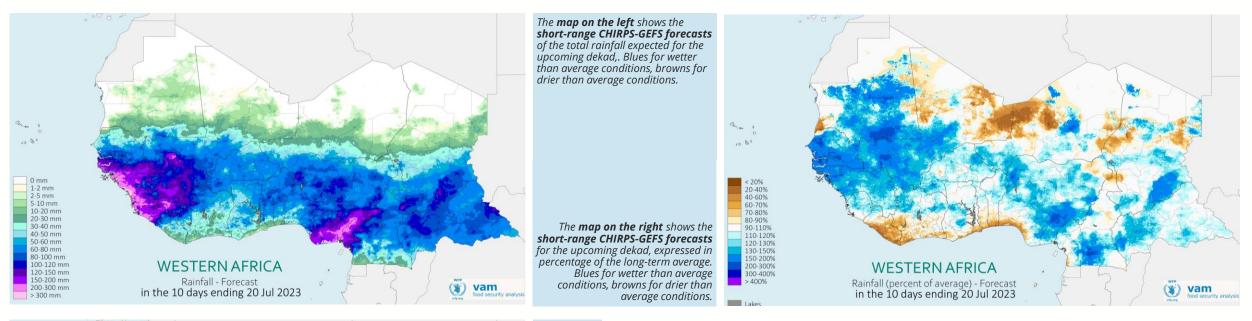
The availability of water resources is favourable in most of the Sahel and has improved since late May. However, over southern Mauritania, northern Senegal, far western central Mali, pockets in eastern Burkina and south eastern Niger, water points are dry or near dry at the end of June.

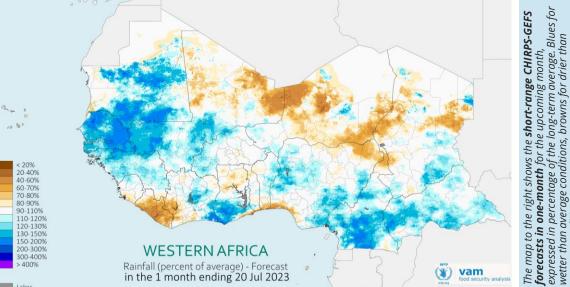
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## SECTION 4: The short- and medium-term Outlook

### **The short-term outlook**

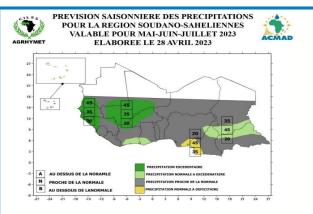




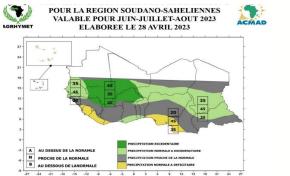
Short range forecasts provide estimates of rainfall up to July 20. In mid-July, rainfall improvement will likely be observed across West Africa Region, in particular over the Sahel with widespread wetter conditions.

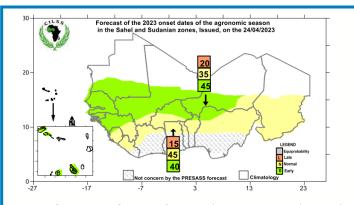
- If the forecasts are verified, we might see an alleviation of the rainfall deficits in these regions and the onset of more favorable conditions for the early stages of the growing season. However, areas over south-western Cote d'Ivoire,, Liberia, northern Ghana, half eastern Niger, northern Mali, northern Chad, NE Nigeria and northern Cameroon could remain drier than average.

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



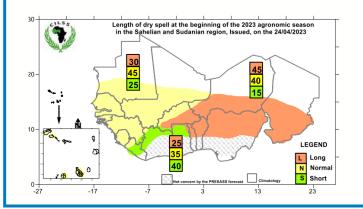
According to the April 2023 PRESASS seasonal forecast, above average to average seasonal rainfall (in May-July 2023, map above) is expected in the far western Sahel ((Cap Vert, Sénégal, western Guinea and sout-western Mauritania) and Central Sahel (Mali and part of northern Burkina Faso) Elsewhere conditions 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 saisonal 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.

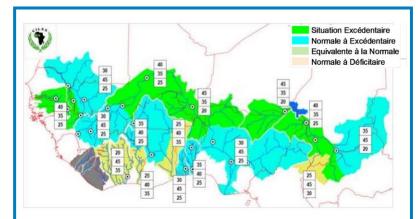




**An early to normal onset** of seasonal rains is expected (map above) in the western Sahel including Cabo Verde island as well as the central Sahel. In the Sahelo-Sudanian zone and the eastern Sahel covering southern Sierra Leone, Guinea, Mali, Burkina Faso, Chad, far eastern Niger and over northern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

At the beginning of the season **average to longger dry spells** are expected over the Sudanian and Sahelian belts of West Africa and Chad, with hight probability to observe more longger dry speel 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.





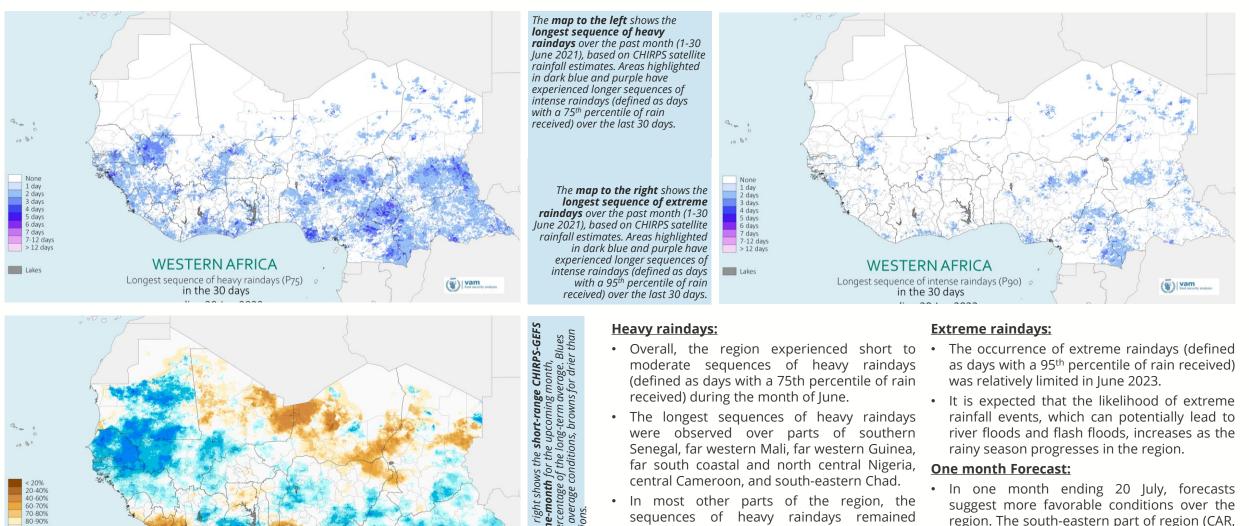
The **map above** shows the **river basin levels** expected in 2022. Green indicates above normal river levels, blue normal to above normal levels, grey normal levels and pink below normal river levels compared to the long-term average.

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 ( PREPAREDESS EFFORTS)

### Heavy & Extreme rainfall: June 2023



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relatively short (0-3 consecutive days). It is

important to note that over the northern

parts of the region, the rainy season has not

southern Cameroon, south-eastern Nigeria

benefited from more favorable condition as

well as over the far western part of the region

Bissau.

in Senegal, Gambia, Guinea

Mauritania and western Mali.

Lak

90-110%

110-120% 120-130%

130-150% 150-200%

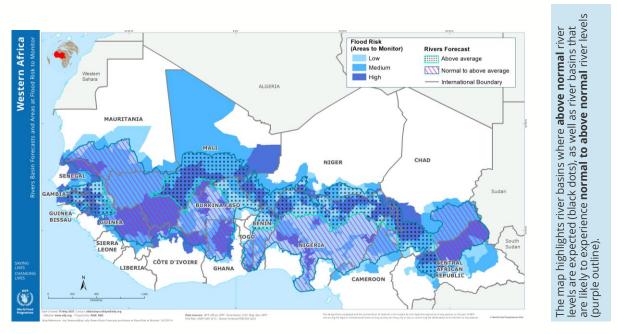
200-300%

WESTERN AFRICA

Rainfall (percent of average) - Forecast

in the 1 month ending 20 Jul 2023

## **Flood preparedness efforts**

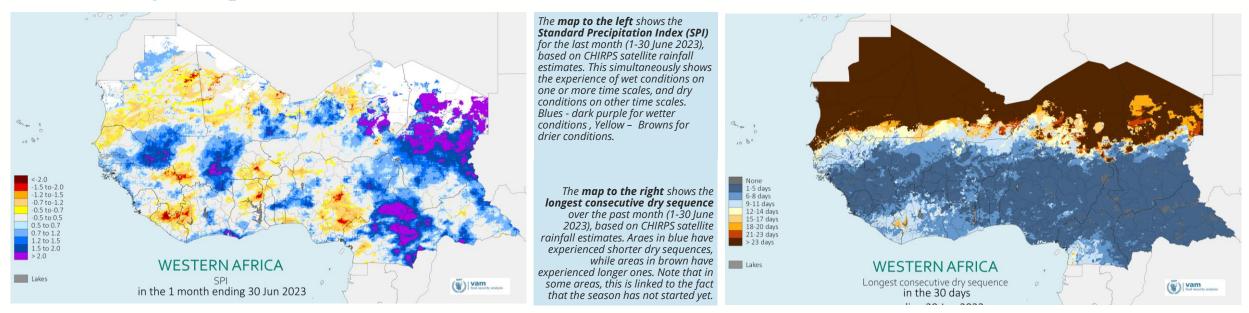


The map to the shows the underlying flood risk of admin level 2 areas in river basins that are expected to experience normal to above normal river levels in 2023. Administrative areas within river basins that are projected to experience normal or below normal river levels are excluded from this map (see 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.
- 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: June 2023



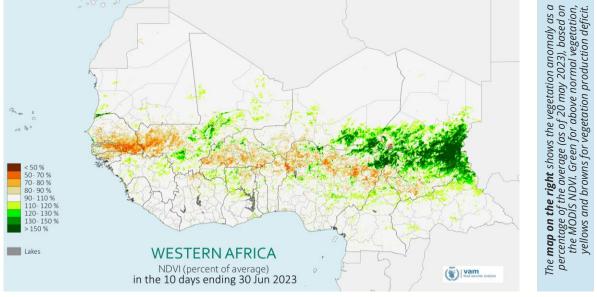
#### **Standard Precipitation Index (SPI):**

- 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 June 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 <u>this factsheet</u>.
- The monthly SPI for June 2023 suggests mixed conditions mostly dominated by normal to wet conditions across the region.
- On the other hand the central Sahel across western Niger, eastern Burkina Faso extended northern Ghana, Cote d'Ivoire and Liberia as well as north-western, central and south coastal Nigeria experienced drier than normal conditions.

#### **Dry Sequences:**

- Over 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.
- However, some areas including most of Cote d'Ivoire, most of Liberia, central Ghana and far south-eastern Cameroon 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**



#### **Vegetation:**

- As a As a result of early season dryness, vegetation conditions are below average across a broader area, from central Cameroon - northern Nigeria across northern Benin, to Burkina Faso, western Mali and southern Senegal. Vegetation deficits are particularly pronounced over western Mali, eastern Gambia and southern Senegal.
- On the other hand, a markedly above average vegetation cover extends over the eastern part of the region across south-eastern Niger, NE Nigeria, far northern Cameroon and Chad. Better than normal vegetation conditions can be observed in parts of central Mali.

#### 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** 



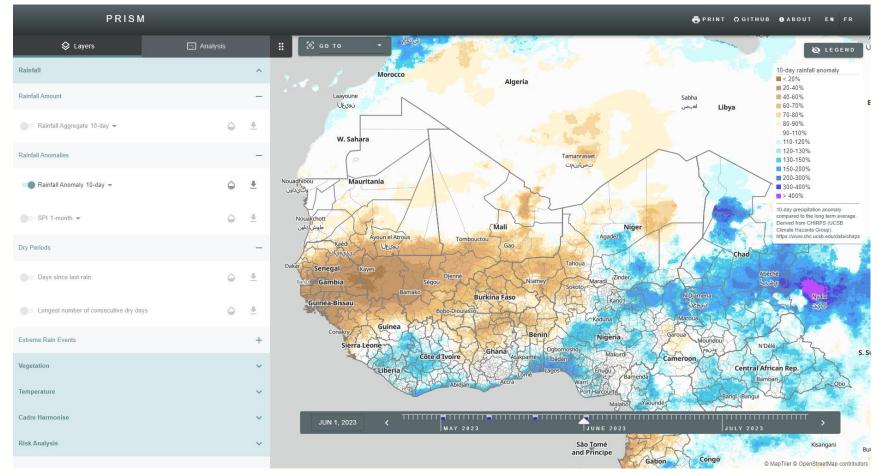
# SECTION 7: THE PLATFORM FOR REAL-TIME IMPACT AND SITUATION MONITORING (PRISM)

### 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 Ca**dre 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 Platfom** (internally and externally) by clicking on the map above, or through the following link: <u>https://prism.dakar.wfp.org/</u>.





**Data sources:** Rainfall: CHIRPS, Climate Hazards Group, UCSB Vegetation: MODIS NDVI, ESODIS-NASA

**Data Processing:** RAM software components, ArcGIS, QGIS



For further information: RBD RAM Unit WFP Regional Bureau for Western Africa (RBD) Dakar, Senegal <u>rbd.ram@wfp.org</u>