COMITE PERMANENT INTER- ETATS DE LUTTE CONTRE LA SECHERESSE DANS LE SAHEL
PERMANENT INTER-STATE COMMITTEE FOR DROUGHT CONTROL IN THE SAHEL

AGRHYMET CCR-AOS

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# Seasonal Forecast of Agro-Hydro-Climatic Characteristics of the Rainy Season for the Sudanian and Sahelian Zones of West Africa and the Sahel.

**Special Bulletin PRESASS – 04/2025**

The PRESASS 2025 was held from April 21 to 25, 2025, in Bamako (Mali), organized by AGRHYMET Regional Climate Centre for West Africa and the Sahel (AGRHYMET RCC-WAS) and Mali-Météo, in collaboration with ACMAD, the National Meteorological and Hydrological Services (NMHSs) of 17 countries in West Africa and the Sahel, river basin organizations, and with the participation of representatives from user interface platforms (from the sectors of agriculture and food security, water resources and disaster risk reduction, climate security and communicator Network).

> ***For the 2025 rainy season, normal to above-average rainfall cumulative are expected in the Sahel, with early to normal onset dates, late to average end dates, medium to long dry spells in central areas, and above-average runoff in the main river basins.***

## I. Current State and Outlook for Sea Surface Temperatures

### 1.1. State of Sea Surface Temperatures

In March 2025, negative sea surface temperature (SST) anomalies in the central-eastern equatorial Pacific (Niño 3.4 region) continued to weaken, indicating a transition toward a neutral ENSO state. This evolution marks the end of the direct influence of a potential La-Niña episode on global atmospheric circulation. The Indian Ocean Dipole (IOD) index also remains neutral, reflecting the absence of a major short-term influence of the Indian Ocean on West African climate.

In contrast, the North Atlantic Ocean maintains warm and persistent SST anomalies, particularly in its tropical region. This configuration has historically been associated with an intensification of the West African monsoon, especially in

Sahelian areas. The Atlantic warming promotes the northward shift of the Intertropical Convergence Zone (ITCZ), increasing the likelihood of early or near- to above-normal rainfall over central Sahel (Mali, Niger, Burkina Faso) in May–June.

Observations indicate that SSTs in the Gulf of Guinea (between the equator and 5°N, from 0 to 10°E) are near to slightly above normal (***Figure 1)***.

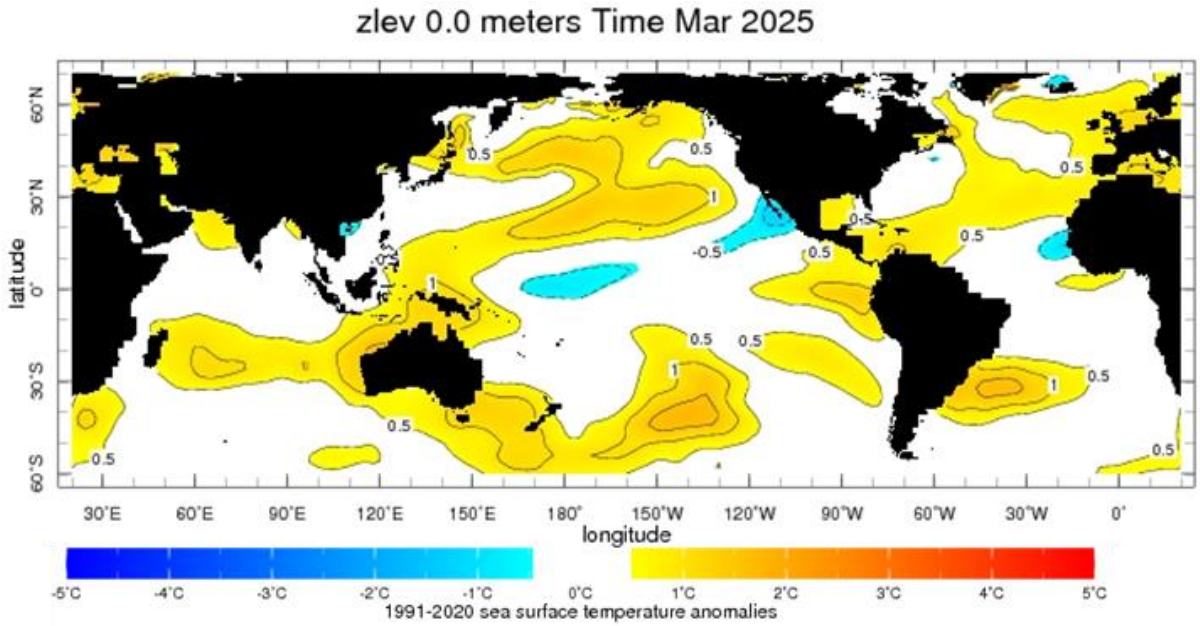


***Figure 1:*** *Sea Surface Temperature (SST) Anomalies for March 2025, Compared to the 1991–2020 Reference Period Average (Source: IRI/NOAA/NCDC/ERSST-version5).*

## 1.2. Outlook for Sea Surface Temperatures

The Indian Ocean Dipole (IOD) index, currently neutral with no clear signs of shifting toward a positive or negative phase, is not expected to have a significant influence on West African climate during the upcoming season.

In the tropical North Atlantic, persistent warm anomalies could promote the gradual northward movement of the Intertropical Convergence Zone (ITCZ) toward the Sahel, creating favorable conditions for a normal to above-normal rainy season, particularly during July and August.

SSTs are expected to remain anomalously warm across the entire Mediterranean basin through summer 2025.

Furthermore, in the Gulf of Guinea, climate models predict a slow increase in SSTs. The persistence and intensity of this gradual warming should be closely monitored, as a moderate warming combined with an abnormally warm tropical North Atlantic could favor a monsoon of average to slightly above-average intensity, particularly between July and August. This would increase the likelihood of extreme rainfall events, along with a heightened risk of heavy rains and localized flooding.

## II. Forecast of Agro-Hydro-Climatic Characteristics of the Rainy Season

Seasonal forecasts are developed using a combination of approaches, including the analysis of the current situation and the likely evolution of sea surface temperatures (SSTs), forecasts from global climate centers, as well as statistical analyses of data provided by National Meteorological and Hydrological Services (NMHSs). These are complemented by the in-depth knowledge of experts regarding the specific climatic characteristics of West Africa and the Sahel.

Based on the 1991–2020 climatological reference period, the consensus resulting from the integration of these various information sources has made it possible to produce the following seasonal forecasts.

### 2.1. Onset dates of the season

This year, early to normal onset dates are expected across the Sahelian belt, including southern Mauritania, northern and eastern Senegal, central Mali, southern Niger, northernmost Burkina Faso, and central Chad.

In most of the Cape Verde Islands, western Senegal, The Gambia, Guinea-Bissau, Guinea, northern Sierra Leone, and the far south of Chad, late to normal start-of-season dates are expected.

Elsewhere, southern Guinea, northern Côte d'Ivoire, southern Sierra Leone, the northern half of Liberia, most of Burkina Faso, the southwestern part of Niger, and the northern parts of Côte d'Ivoire, Ghana, Togo, Benin, and Nigeria, normal to late start-of-season dates are forecast. (Figure 2).

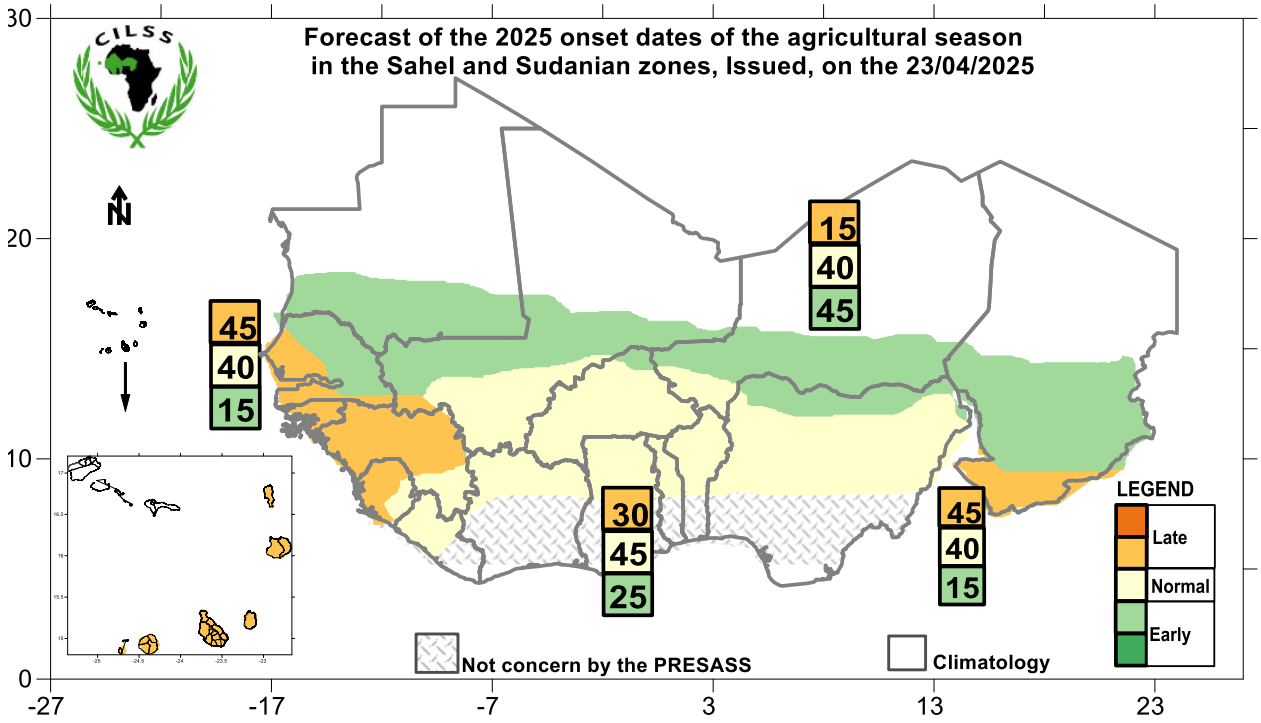


**Figure 2:** *Forecast of the onset dates for the 2025 Agricultural Season in the Sudanian and Sahelian Zones of West African and Sahel Countries*

### 2.2. Seasonal Cumulative Rainfall

Concerning the expected rainfall amounts this year, forecasts indicate that rainfall will generally be normal to above-normal during the periods May–June–July and June–July–August 2025 across nearly the entire Sahelian belt, stretching from Senegal to Chad, as well as in coastal parts of Liberia. The rainfall is expected to be below average in Cape Verde, southern Senegal, The Gambia, northern Guinea, and coastal areas of Nigeria, Benin, Togo, and Ghana (Figures 3 and 4).

Above-average rainfall totals compared to the reference period are expected for July–August–September 2025 in Burkina Faso, The Gambia, Guinea-Bissau, the agricultural zones of Chad, Niger, Mali, and Mauritania, as well as in northern parts of Guinea, Côte d'Ivoire, Ghana, Togo, Benin, and Nigeria.

However, rainfall totals for this period are expected to be near or below-average in Senegal and in the coastal areas of Ghana, Togo, Benin, and Nigeria (Figure 5).

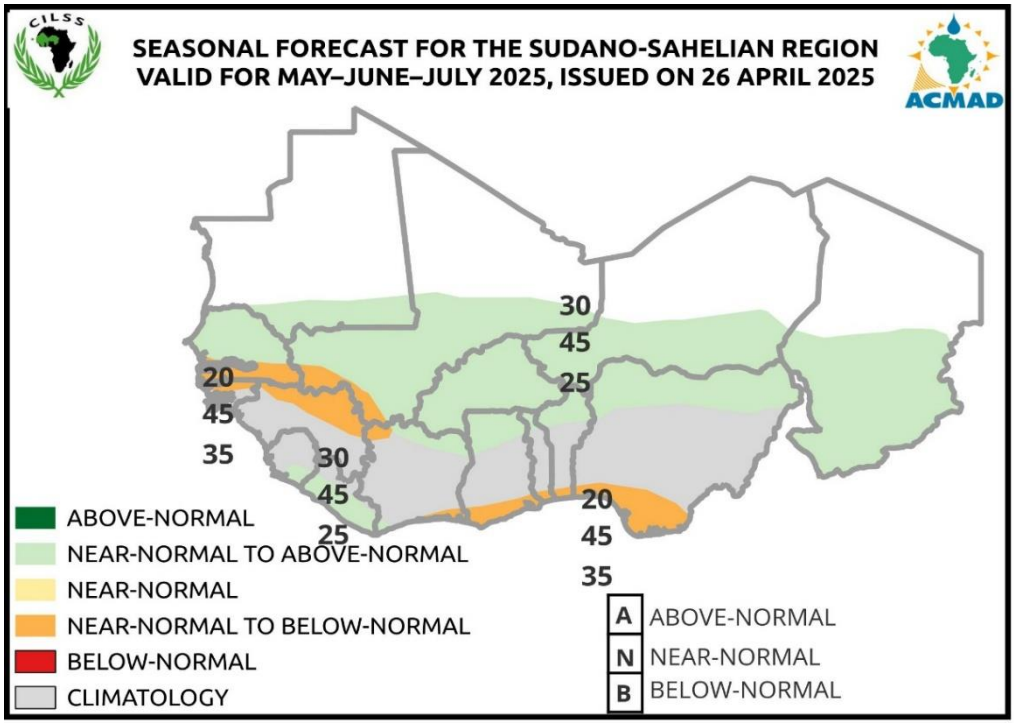


***Figure 3*** *: Forecast of Rainfall Totals for the May–June–July 2025 Period in West Africa and the Sahel*

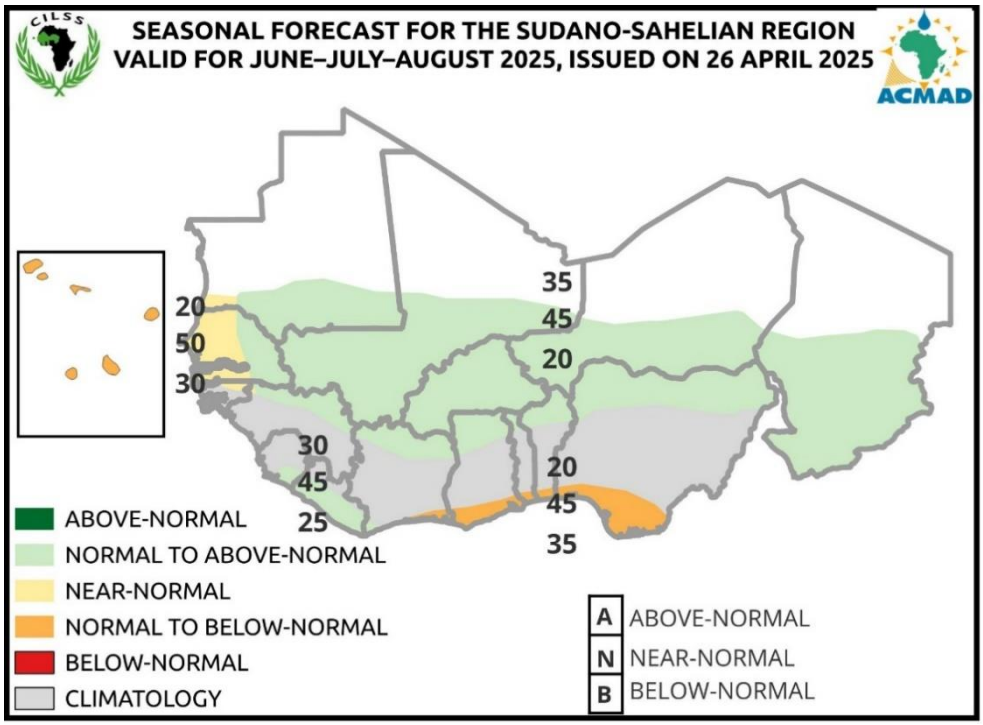


***Figure 4:*** *Forecast of Rainfall Totals for the June–July-August 2025 Period in West Africa and the Sahel.*

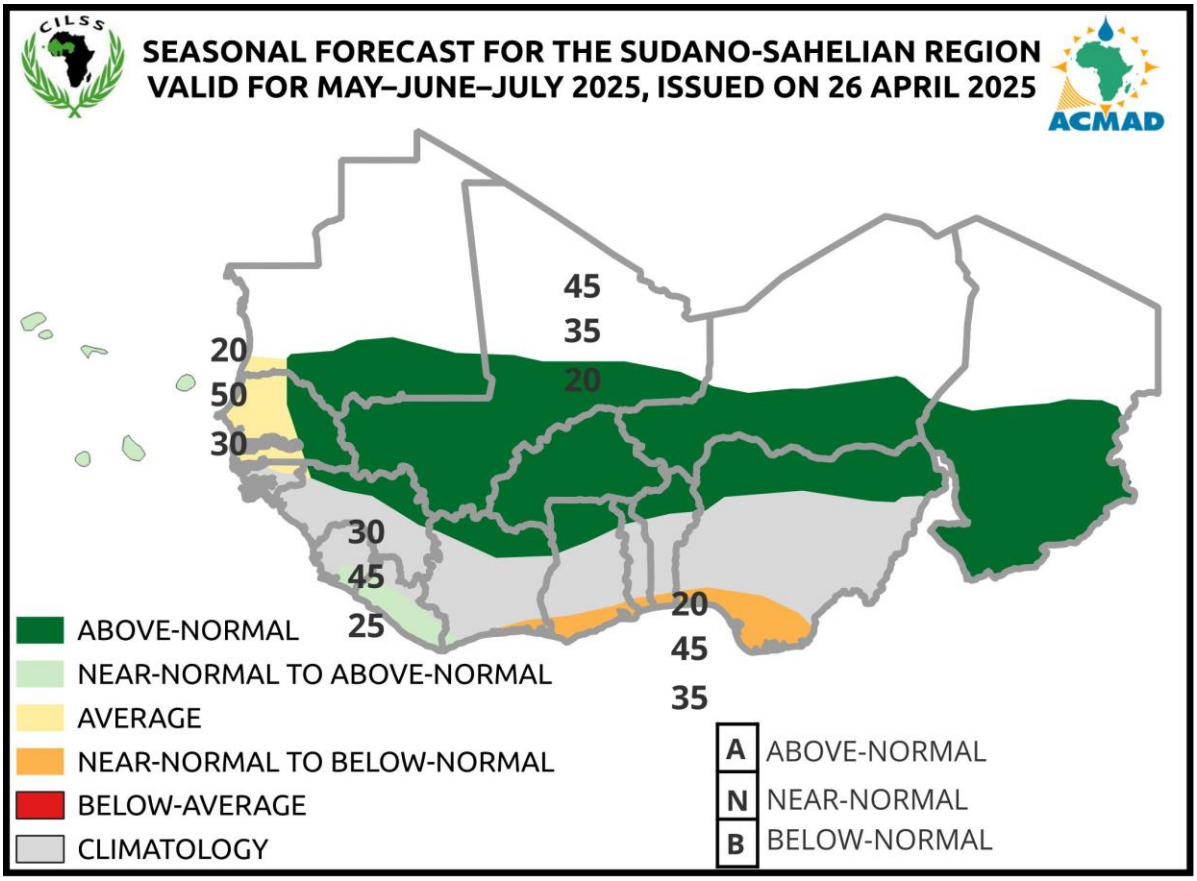


***Figure 5:*** *Forecast of Rainfall Totals for the July-August-September 2025 Period in West Africa and the Sahel.*

### 2.3. Majors Rivers Basin Runoff

Runoffs in the main rivers are expected to be generally normal to above the reference period means in most river basins across West Africa and the Sahel (Figure 6).

More specifically, runoffs in the river's basins are projected as follows:

- Above-average (excessive) in the upper Senegal River basin (in Guinea, Mali, and Senegal), the upper Niger River basin (in Guinea, Côte d'Ivoire, and Mali), the Niger River Inland Delta (in Mali), the middle Niger River (in Niger, Burkina Faso, Benin, and Nigeria), the Komadougou-Yobe River (in Niger), the Chari and lower Logone Rivers (in Chad), the upper Volta River basin (in Mali, Burkina Faso, Benin, Togo, Ghana, and Côte d'Ivoire), the Ouémé River basin (in Benin), and the upper Comoé River basin (in Burkina Faso and Côte d'Ivoire);
- Average to above average flows in the Gambia River basin (in The Gambia and Senegal), the lower Senegal River basin (in Senegal and Mauritania), the Malian section of the middle Niger

River basin, the southern part of the middle Niger River (in Nigeria), and the upper Logone River basin (in Chad).

- Average to below average in the Bandama and Sassandra basins (in Côte d'Ivoire), the Mono basin (in Togo and Benin), the Benue basin (in Nigeria and Chad), the lower Niger Delta (in Nigeria), the lower Comoé basin (in Côte d'Ivoire), and the lower Volta basin (in Ghana).
- Below average in the Cavally River basin (in Côte d'Ivoire)..

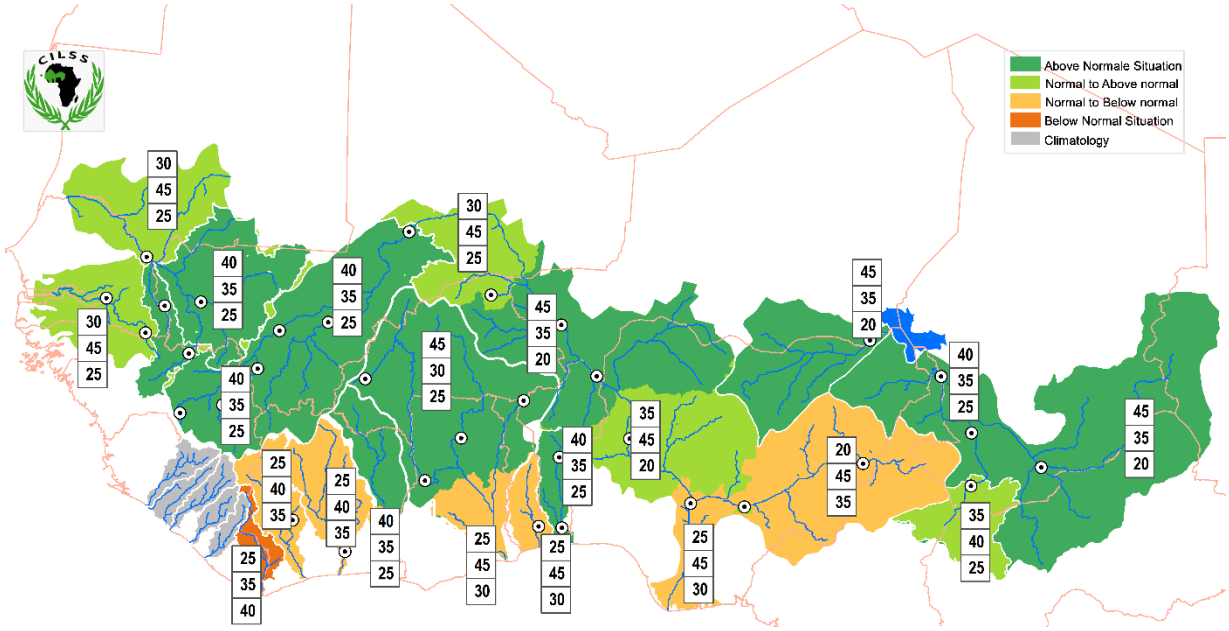


***Figure 6:*** *2025 Runoff Forecast in River Basins of West Africa and the Sahel*

## 2.4. Duration of Dry Spells at the Start of the Season

Forecasts indicate that at the beginning of the season, short to regular dry spell durations are expected in the western and eastern parts of the Sahelian belt, including southern Mauritania, Senegal, The Gambia, Guinea, Guinea-Bissau, Sierra Leone, northern Liberia, southwestern and central Mali, as well as southern Chad. In contrast, short to medium dry spell durations are expected in the extreme south of Mali, northern Côte d'Ivoire, central and southern Burkina Faso, and the far north of Ghana, Togo, and Benin. Elsewhere, in southern Niger, the extreme north of Burkina Faso, northeastern Côte d'Ivoire, and the north-central regions of Ghana, Togo, Benin, and northern Nigeria, long to near-normal dry spell durations are expected (Figure 7).

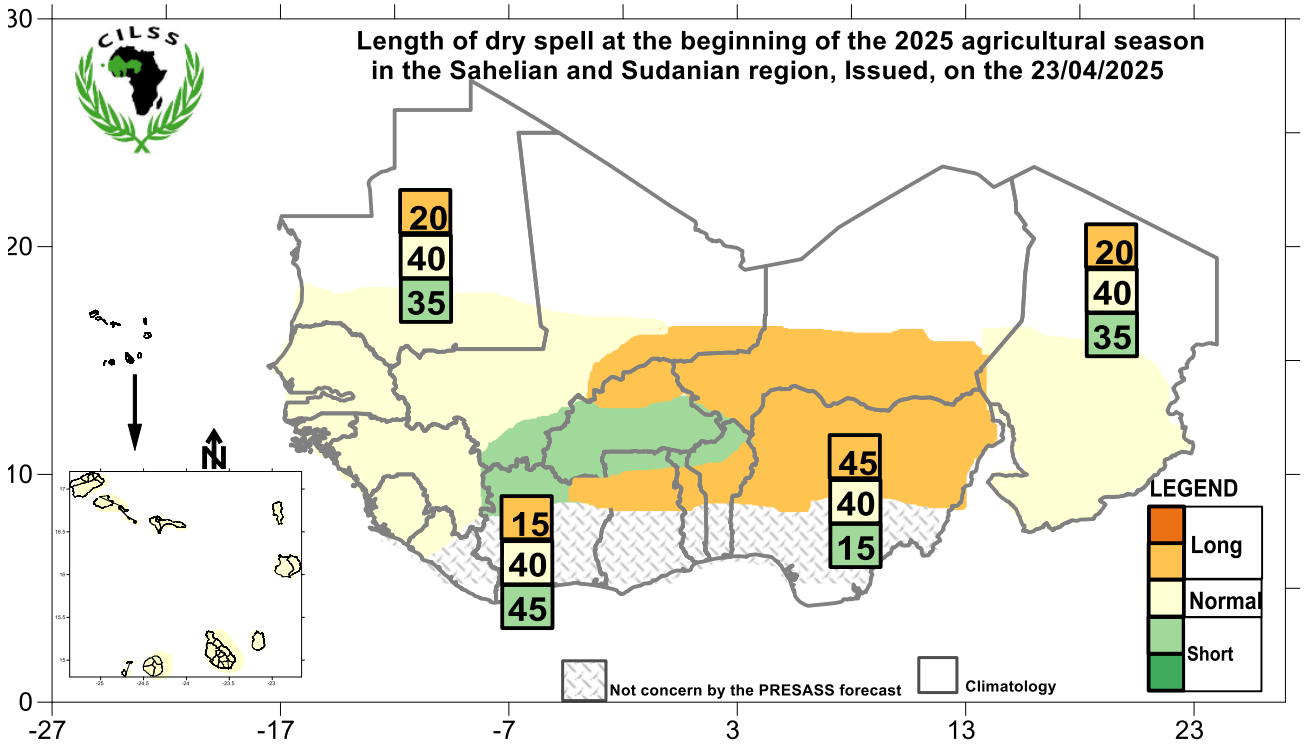


***Figure 7:*** *Forecast of Dry Spell Durations at the start of the season in the Sahelian and Sudanian Zones of West African and Sahel Countries.*

## 2.5. Duration of Toward the End of the Season

Toward the end of the season, short to normal dry spell durations are expected along the western Atlantic coast, particularly in southern Senegal, The Gambia, Guinea-Bissau, Guinea, Sierra Leone, and northern Liberia. However, in the central and eastern Sahel, as well as in the northern parts of the Gulf of Guinea countries, long to medium dry spells are highly likely. Elsewhere, in the extreme south of Chad, medium to short dry spells are expected, while in southern Mauritania, there is an equal probability across categories, indicating no clear dominance of one scenario over another (Figure 8).

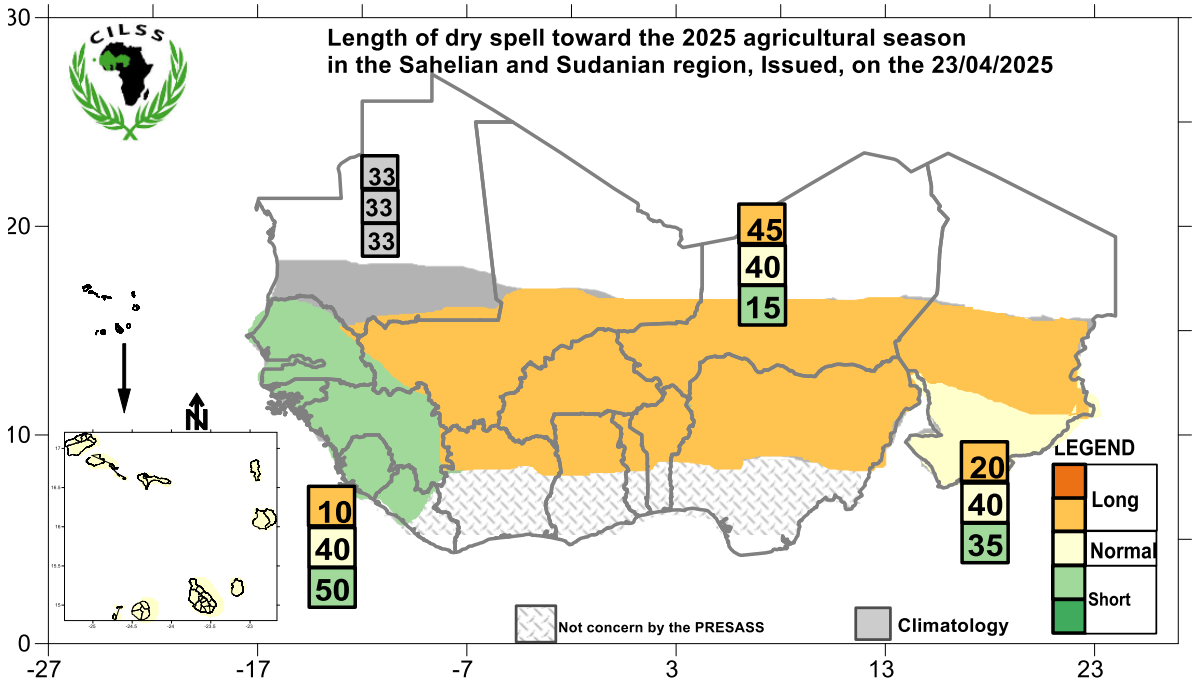


***Figure 8:*** *Forecast of Dry Spell Durations Toward the End of the Season in the Sahelian and Sudanian Zones of West Africa and the Sahel*

## 2.6. Cessation Dates of the season

This year, the end-of-season dates are generally expected to be late to equivalent of the reference period dates (Figure 9).

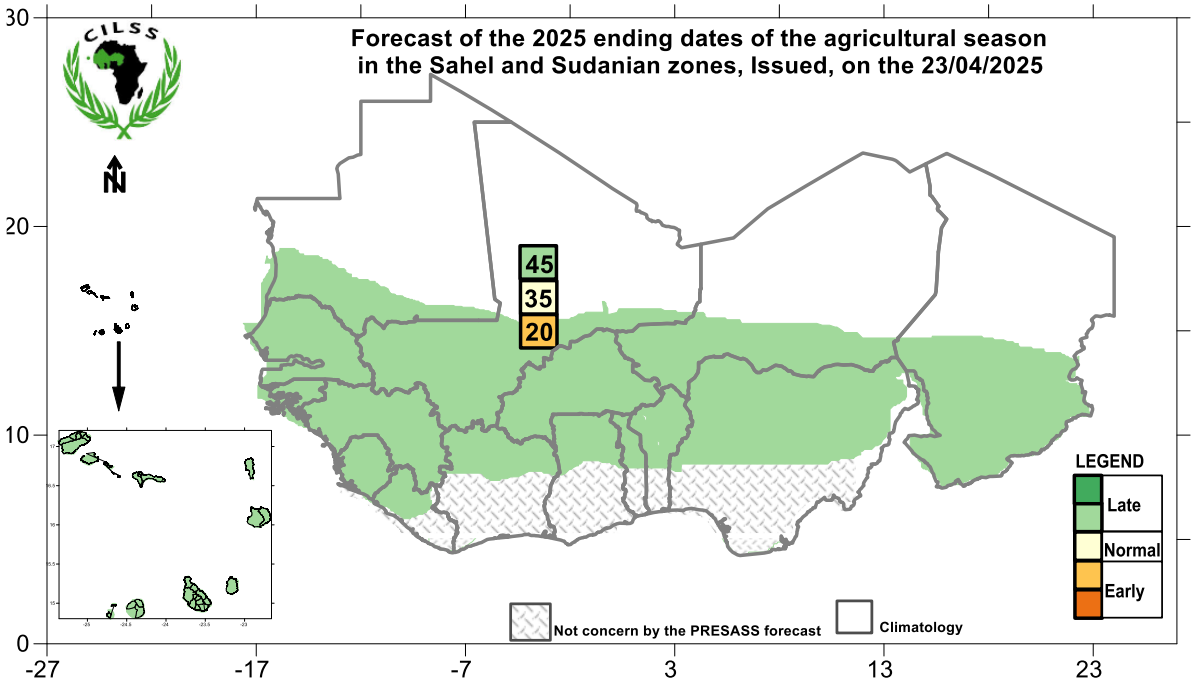

***Figure 9:*** *Forecast of End-of-Season Dates for the 2025 Rainy Season in the Sahelian and Sudanian Zones of West Africa and the Sahel*

# III. Likely Impacts of Seasonal Forecasts for the Sahelian and Sudanian Zones

The agro-hydro-climatic forecasts issued as part of PRESASS 2025 indicate, for several areas of the Sahel and West Africa, general favorable conditions for agro-pastoral production with above-normal to normal rainfall totals, early to normal start of the season, above-average water runoff, and short dry spells. However, these trends pose significant risks, both to the livelihoods of rural populations and to infrastructure, public health, and social cohesion.

## 3.1. Areas with Excess Rainfall, Early Start-of-Season Dates, and Significant Runoff:

- **Environmental and Agricultural Risks:**
  - Excess soil moisture disrupting crop growth.
  - Erosive runoff leading to degradation of arable land.
  - Localized or widespread flooding in low-lying areas.
  - Submersion of agricultural plots and loss of seedlings.
  - Proliferation of weeds and crop pests, increasing the risk of post-harvest losses.
- **Socio-Economic Risks:**
  - Difficult access to health centers, markets, and schools due to road disruptions.
  - Destruction of infrastructure (bridges, power networks, and social facilities).
  - Population displacement, particularly in areas affected by civil insecurity.
  - Outbreak or resurgence of waterborne diseases (cholera, diarrhea, etc.).

## 3.2. Areas with Late Start-of-Season Dates and Long Dry Spells:

- **Risks for Agriculture and Livestock Herders:**
  - Disruption of planting calendars and water stress on crops, affecting growth and yields.
  - Poor regeneration of vegetation cover and pastures, reducing fodder availability.
  - Prolongation of the lean season for farming and pastoral households, increasing food insecurity.

- Difficulties in transhumance, leading to conflicts over access to water and natural resources.

- **Economic and Social Consequences:**
  - Delays and losses in planting, leading to reduced agricultural yields.
  - Rising food prices, contributing to a food and nutritional crisis.
  - Decline in livestock prices, resulting in loss of purchasing power for herders.
  - Rural exodus of young people and desertion of agricultural land

The combination of these climatic impacts with persistent civil insecurity, structural poverty in rural households, and weak basic social services can exacerbate social tensions, including land disputes and conflicts between farmers and herders, as well as the marginalization of youth, fueling migration, begging, recruitment into armed groups, rural banditry, and violent extremism.

# IV. Recommendations

## 4.1. In Response to Drought Risk

In areas where long dry spells are expected, potentially leading to water deficits and affecting the growth of crops and forage plants, the following measures are recommended:

- Promote irrigation and market gardening to reduce the risk of decreased production;
- Select crop species and varieties that are tolerant to water stress;
- Adopt climate-smart agricultural practices;
- Prevent the spread of millet head miner caterpillar;
- Ensure the rational management of surface water resources to meet various needs and prevent conflicts;
- Engage with experts from national and regional Meteorology, Hydrology, and Agriculture services for specific information and appropriate guidance.

### 4.2. In Response to Flood Risk

The generally wet conditions expected in the Sahelian zone of West Africa and the Sahel, along with above-average runoff in most river basins, indicate a high risk of flooding.

- To address this risk, the following actions are recommended:
- Strengthen communication of seasonal forecasts to inform and raise awareness among communities about flood risks, by supporting the efforts of the media, disaster risk reduction platforms, NGOs, and Early Warning Systems (EWS);
- Build the capacity of vulnerable communities to reduce disaster risks;
- Enhance operational monitoring and response capacities of agencies responsible for flood surveillance and humanitarian aid;
- Avoid the unplanned occupation of flood-prone areas by homes, crops, or livestock;
- Reinforce protective dikes and ensure maintenance of roads and dams, with a focus on forecast-based management;
- Clear drainage channels to facilitate the flow of rainwater;
- Strengthen collaboration between hydrological and meteorological services to enable anticipatory flood management;
- Limit large-scale transhumance and avoid unsupervised movement of livestock;
- Encourage cultivation of crops adapted to persistent soil moisture conditions;
- Ensure the protection of vulnerable people, especially children, the elderly, and those with limited mobility.

### 4.3. In Response to Disease Risk

Wet and flooded areas can create favorable conditions for the development of disease-causing pathogens (e.g. cholera, malaria, dengue, schistosomiasis, etc.). Likewise, late season onset and prolonged dry spells could lead to persistent high temperatures and dust-laden winds, which support the spread of other epidemic-prone diseases.

- To address these risks, it is recommended to:
- Strengthen the dissemination of health alerts and public awareness campaigns on climate-sensitive diseases, in collaboration with meteorological, hydrological, and health services;

- Enhance the capacity of national health systems and disaster risk reduction platforms;
- Improve sanitation in urban areas, avoid contact with contaminated water, and carry out drainage and cleaning of gutters;
- Promote disease prevention through vaccination of both people and animals;
- Prevent epizootics (animal epidemics) caused by pathogens that thrive in humid conditions;
- Increase surveillance of plant diseases and crop pests.
- Given the wet conditions expected in the Sahel, particularly in gregarious zones, it is imperative to intensify monitoring of desert locusts, whose presence has already been reported in Maghreb countries.

### 4.4. In Response to Conflict Risks

In areas where prolonged dry spells are expected, potentially leading to deficits in agricultural and forage production, the following actions are recommended:

- Strengthen local production capacity by promoting appropriate adaptation strategies, increasing yields, and enhancing the resilience of agro-sylvo-pastoral production systems;
- Create and maintain inclusive, non-discriminatory, and equitable management of public infrastructure and productive, environmental, and socio-economic resources;
- Encourage job creation, private entrepreneurship, and income-generating activities, particularly for women and youth, to reduce idleness. This will help strengthen people's ties to their communities and reduce migration and mass rural exodus;
- Develop basic infrastructure, improve community livelihoods, and ensure the safety of agricultural, livestock, and fishing activities, to help populations better manage the upcoming agricultural season, especially in areas affected by civil insecurity.

### 4.5. Leveraging Opportunities

Given the overall rainy outlook for the season in the Sahel, it is recommended that farmers, herders, water resource managers, development projects, NGOs, and authorities take advantage of the favorable conditions by:

- Capitalizing on excess water by developing irrigation systems, especially in floodplains;
- Investing more in high-yield crops suited to wet conditions (e.g. rice, sugarcane, tubers, etc.);
- Establishing systems for rainwater harvesting and storage for agricultural and domestic use during the dry season;
- Supporting the adoption of climate-smart techniques to increase crop and forage productivity;
- Strengthening agro-hydro-meteorological information, training, and support services for producers;
- Facilitating access to improved seeds and suitable agricultural inputs to maximize the benefits of the rainy season;
- Securing and encouraging cultivation of arable land, including in areas affected by civil insecurity;
- Protecting farmers' incomes through the promotion of and subscription to index-based agricultural insurance schemes.

**Finally, users across all sectors are advised to closely follow updates of the agro-hydro-climatic seasonal forecasts, which will be provided throughout the rainy season by AGRHYMET RCC-WAS, ACMAD, and the National Meteorological and Hydrological Services.**