

# SOMALIA CLIMATE OUTLOOK FOR THE 2024 GU “LONG RAINS” SEASON

Issued on 7<sup>th</sup> March 2024

**There is a moderate likelihood that above normal 2024 Gu rains will be observed over Somalia but with high week-to-week variability**

## Forecast for 2024 Gu “Long Rains” Season

Somalia’s Gu (April-May-June) is the main wet season in the country, and is critical in supporting agricultural activities and replenishing water and pasture. Traditionally, the season begins as early as the second half of March just after the end of the dry and hot Jilal season. The Gu rains intensify in April with the onset progressing northwards and eastwards almost mimicking the south-to-north movement of the Inter Tropical Convergence Zone (ITCZ) that follows the position of the overhead Sun. Gu rainfall cessation occurs in June in most parts of the country, with the north- eastern coastline receiving the least amount of rainfall during this season.

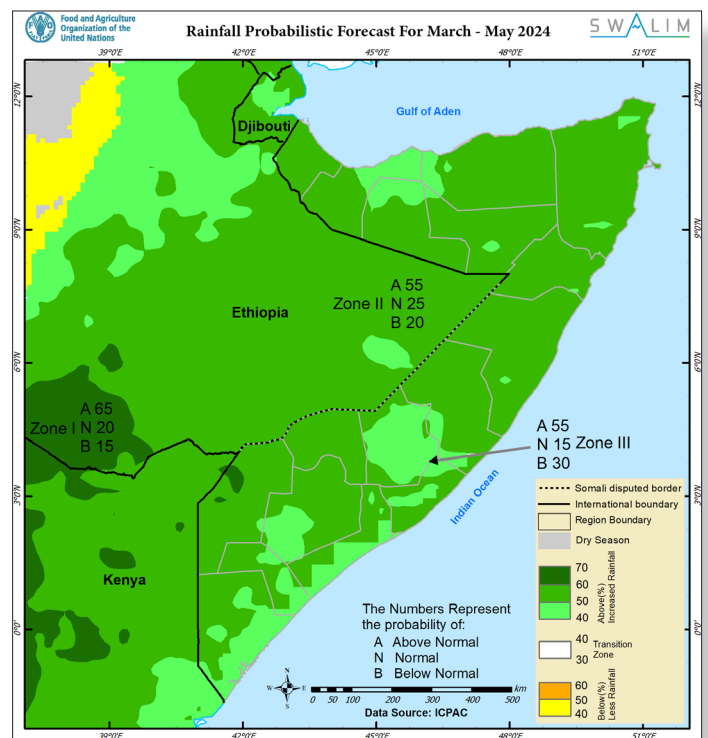
According to the Seasonal Climate Forecast issued by IGAD’s Climate Prediction and Applications Centre (ICPAC), there is a 55% likelihood that above normal rainfall (wetter than normal conditions) will be observed over most parts of Somalia as is evidenced by the green coloration shown in Map 1. In the south these above normal rains are likely over Gedo, Bay, and most parts of Bakool regions. In the north, chances of above normal Gu rains are particularly high over Bari, Nugaal, Sool, Sanaag and Awdal regions, Hargeisa district in Woqooyi Galbeed region, and the southern parts of Togdheer region. Above normal rains are also likely over Mudug and Galgaduud regions in the central parts of the country. As shown by the light green coloration in Map 1, there is 40 – 50 % likelihood above normal rains over Hiraan region and extensive coastal parts of the following regions: Lower Juba, Middle Juba, and Lower Shabelle.

## Expected Rainfall Onset Dates

Based on ICPAC’s projection using daily rainfall forecasts derived from five Global Climate Models, there is a 50 % of an early onset of Gu rains over most parts of south and western Somalia. An early onset is also likely over the northwestern Somalia particularly the northern parts of Woqooyi Galbeed.

A normal Gu rainfall onset is expected over most parts of Puntland. Generally, the Gu rains are likely to begin during the first week of April over the western parts of Gedo and Lower Juba regions and the uppermost catchments of Juba and Shabelle Rivers over Ethiopian Highlands progressing eastwards with the last onset over Bari region in the first week of May.

However, due to the poor predictability of the Gu rain season, the forecast is expected to have high spatial and temporal variability. Further, the rainfall forecasts categories vary over regions; 170 mm and 195 mm thresholds are applicable over Somalia. It is worth noting that this forecast is designed for a regional audience that addresses the rainfall totals summed over the three-month period from March to May 2024.



Map 1. The Gu 2024 rainfall outlook over Somalia

The predicted actual rainfall start dates (Map 2) are as follows: Gedo (April 1), Lower Juba (April 6), Middle Juba (April 11), Bay (April 11), Bakool (April 11), Woqooyi Galbeed (April 11), Hiraan (April 16), Lower Shabelle (April 16), Middle Shabelle (April 21), Awdal and Togdheer regions (April 21), Galmudug and Sool-Sanaag (April 26), and Bari (May 1).

It is worth noting that cloudiness and isolated moderate to heavy rains may be observed earlier than the forecast operational onset dates particularly over the south and western parts of Somalia and in the uppermost catchments of Juba and Shabelle Rivers in Ethiopian Highlands.

## Temperature Forecast

There is above 50 % chance that projected above rainfall conditions are likely to be accompanied by warmer than normal surface temperatures over Lower Juba, Middle Juba, Gedo regions and southern parts of Bay region (Map 3). There is increased probability (about 75%) warmer than normal surface temperatures over the entire Somaliland, and Bakool, Hiraan, Middle Shabelle, Galgaduud, Mudug, and Nugaal regions. The likelihood of warmer than normal surface temperature is even higher (about 85 %) over Bari region in the northeastern part of the country.

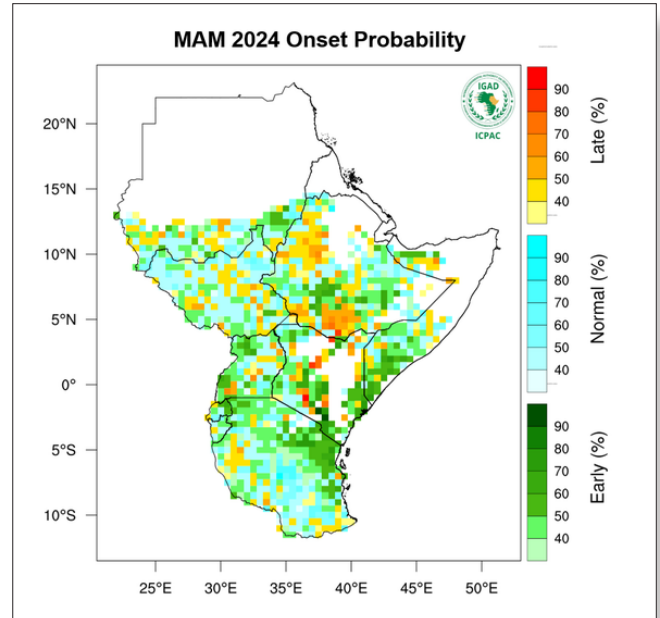
## Drivers and Sub-seasonal Forecasting

Climate forecasters have found out that Gu rainfall forecasts are associated with a higher degree of uncertainty. Unlike the Deyr rains which have a strong statistical relation to global drivers like El Nino Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD), the Gu rains are mainly driven by the northward movement of the convergence zone (ITCZ) as the overhead Sun shifts from the southern hemisphere. This driver (ITCZ) however delivers the climatologically normal rains. The projected above normal Gu rains are therefore driven by less-statistically-understood drivers that have been parameterized by numerical weather prediction (MWP) models. Climate forecasters have also reported that the above normal Gu 2024 rains seem to be driven by factors that are similar to those that dictated the Gu rains of 2016 and 2010 (analogue years). Although the Gu 2024 rains may be comparable in performance to those observed in these two years, they are likely to be accompanied by high temporal (week-to-week) variation across the country. This therefore necessitates the further monitoring and reliance on the evolution of sub-seasonal drivers particularly the Madden Julian Oscillation (MJO).

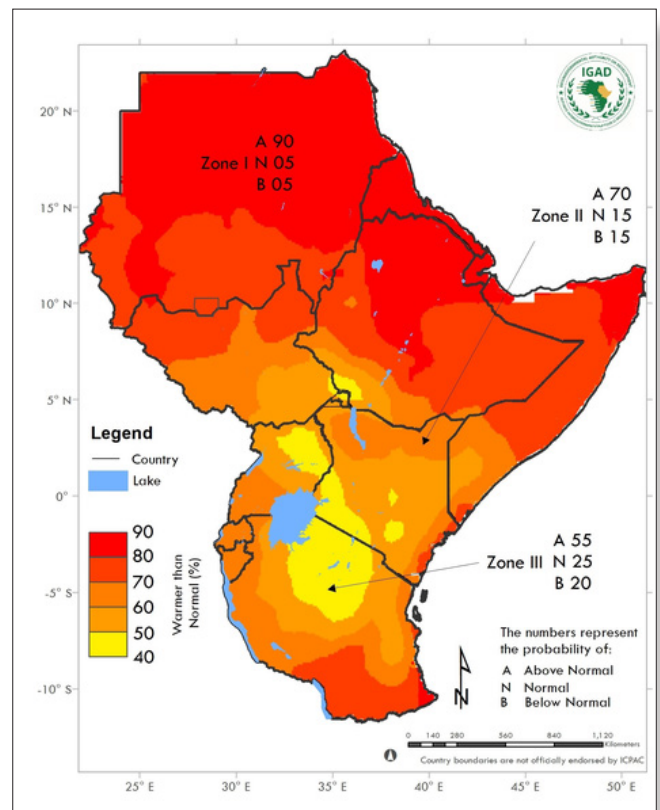
## Drought Analysis:

ICPAC's drought analysis using Standardized Precipitation Index (SPI) of observed and predicted precipitation indicates potential for normal conditions between March and May 2024 across most parts of the country. In the long term (March 2023 – March 2024), the SPI analysis depicts severely wet conditions over Gedo region and surrounding areas in the southwest and moderately wet conditions over some parts of Hirshabelle, Lower Juba, Middle Juba, Togdheer regions and Sool-Sanaag border areas.

The normal to severely wet conditions are as result of the substantially above normal Deyr 2023 rain and improved Gu 2023 rain seasons, coupled with the increased (55 %) chances of above normal Gu 2024 rainfall.



Map 2. The March April May 2024 Probabilistic Onset (ICPAC)



Map 3. Seasonal Temperature outlook (ICPAC)

SWALIM is a multi-donor project managed by FAO and currently funded by The European Union, SDC, Government of France and USAID



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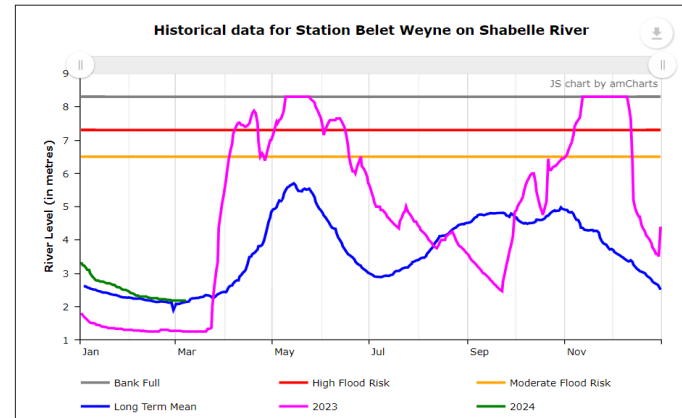
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## River Level Analysis

Current levels along the Juba River are above the station Long Term Mean (LTM) and almost identical to the 2023 levels at Dollow and Luuq, and with a remarkable spike in the last 24 hours at Luuq (Graph 1), and above both LTM and 2023 level at Bualle. Along the Shabelle, the current levels are way below both the station LTM and 2023 levels at both Bulo Burte and Jowhar and almost identical to the station LTM and way below the 2023 level at Belet Weyne (Graph 2). It is interesting to point out that while last year's river level at Belet Weyne were the lowest at this time of the year, devastating floods occurred a month after following the heavy rains observed over the Ethiopian Highlands. The situation can therefore rapidly change with the onset of the rains.

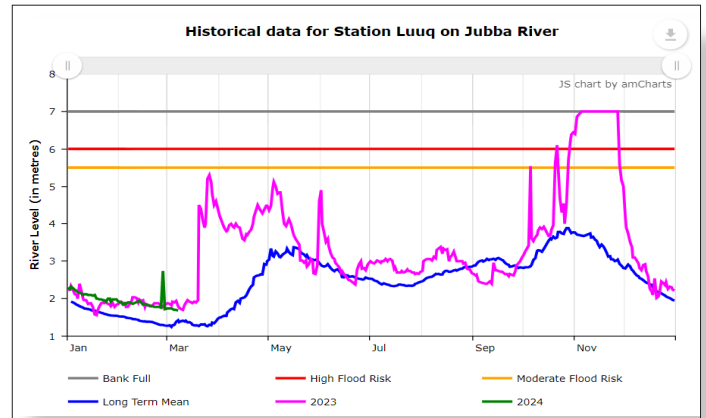
The levels along both Juba and Shabelle Rivers are



Graph 1 : Shabelle river level at Beletweyne gauging station as at 06 Mar 2024

expected to remain low until the start of the Gu rains. Given the lag between storm events and run off, noticeable peak in river levels will be observed days after the start of the rains. Shabelle River is particularly known for longer lag of between 10 – 15 days between heavy rainfall over the Ethiopian Highlands and peak flows posing flooding risk at Belet Weyne. A similar lag is observed between Belet weyne and Bulo Burte. Juba River on the other hand is known for relatively instantaneous response to storm events within its catchments.

It is indeed the low river levels limiting the water availability for the riverine communities, for domestic, livestock and agricultural use which in turn encouraging illegal river breakages.



Graph 2 : Juba river level at Luuq gauging station as at 06 Mar 2024

## Expected Impacts and Anticipatory Actions

Coming in the wake of substantially above normal Deyr 2023 rainfall, as is evidenced by the long term Standardized Precipitation Index analysis, the projected above normal Gu 2024 is likely to lead to substantial recharge of water sources, replenished water catchment levels, improved soil moisture conditions, creating favorable conditions for grassland regeneration, offering continued fodder for the livestock, land preparation and timely crop and fodder planting across the agro-pastoral livelihoods. The 50 % likelihood of early onset of Gu rains over most parts of south and western Somalia and over the northern parts of Woqooyi Galbeed should signal land preparation activities in March and dryland planting later in the month. The above-normal temperatures will likely lead to faster evaporation favoring riverine farmland practices while disadvantaging crop and vegetation productivity due to wilting in the continental areas. Moreover, above normal Gu rainfall forecast over both Somalia and Ethiopian Highlands may be accompanied by sporadic heavy rainfall, which depending on the length of the wet spells, is likely to pose moderate to high risk of flooding. Although 4 - 6 consecutive rainy days are forecast over

the Juba and Shabelle River basins, frequent short wet spells may still favor soil soaking thus permitting rapid run off over urbanized areas and steep-sloped surfaces.

Depending on the storm characteristics, the resultant floods may lead to substantial damage to crop lands, livestock fodder and pasturelands, buildings and road infrastructure rendering them impassable and cutting off access in to and out of towns and other human settlements with devastating implications. Depending on the scale of flooding and the resultant population displacement, other social challenges may be triggered including unavailability of shelter, food, and clean water for use, increase in water borne diseases, and family disconnection among others.

Therefore, while the Gu 2024 is expected to generally lead to improved food security situation across the country, the moderate to high flood risks may pose a serious threat to human and livestock survival. Knowing that floods, particularly flash floods, are rapid-onset hazards, emergency and resilience-based funding allocation and release towards setting up of early warning systems should be made on a no-regret basis.

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