



Technical Statement from the 73rd Greater Horn of Africa Climate Outlook Forum (GHACOF 73)

18-19 May 2026; Addis Ababa, Ethiopia

1. The Climate Outlook Forum

The 73rd Greater Horn of Africa Climate Outlook Forum (GHACOF73) was held from 18-19th May 2026, organised by the IGAD Climate Prediction and Applications Centre (ICPAC) in collaboration with the National Meteorological and Hydrological Services (NMHSs) of the Greater Horn of Africa (GHA), the World Meteorological Organisation (WMO), and other local and international partners. The forum aimed to review and document the performance and impacts of the March to May 2026 season, release the consolidated objective regional climate outlook for the JJAS 2026 season, discuss the sectoral implications of the JJAS 2026 climate forecast, and develop advisories and management strategies for various climate-sensitive socio-economic sectors.

The GHA region includes Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania, and Uganda. Climate information users from the relevant socio-economic sectors, such as disaster risk management, agriculture and food security, livestock, water resources, health, conflict, energy, and media, as well as NGOs, development partners, and humanitarian organisations, actively participated in the development of advisories and formulation of mitigation strategies.

2. Consolidated Objective Climate Outlook for the June to September 2026 Rainfall Season

The consolidated seasonal rainfall forecast for JJAS 2026, based on the post-processed (bias-corrected and calibrated) outputs from multiple Global Seasonal Forecasting Systems initialised in May 2026, indicates an increased likelihood of below-normal rainfall across most areas where JJAS is the main rainy season, specifically over South Sudan, Uganda, Ethiopia, Djibouti, much of Eritrea, much of southern Sudan and western Kenya. Enhanced chances for below-normal rainfall are highest over central, northeastern and northwestern Ethiopia, southern Sudan and northern Uganda where probabilities exceed 60% over substantive areas, with peaks to 80% in Ethiopia and South Sudan (Fig. 1).

In contrast, weakly enhanced chances for above-normal rainfall (probabilities of 40-50%) are indicated over localised areas of northern Sudan, southern coastal Somalia and Kenya as well as in a narrow strip from central Ethiopia to northern Somalia (Fig. 1).

There is a high probability (>90%) of seasonal rainfall exceeding 500 mm across much of the region where JJAS constitutes the primary rainy season, particularly over central to western Ethiopia, South Sudan, southern Sudan, and northern Uganda. However, primarily at the borders of this region, the probability of exceeding 500 mm is reduced by approximately 20–50 percentage points relative to climatology: this includes parts of southern South Sudan, the central to northern Ethiopian Highlands, northern Uganda, and the southern parts of Sudan. Only localised areas over southern Sudan show a modest increase (5–30 percentage points) in the likelihood of surpassing this threshold. This spatial pattern is consistent with and further reinforces the below-normal rainfall signal indicated in the consolidated tercile forecast (Fig. 2).

The predicted start of the JJAS 2026 season, based on six (6) Global Climate Model forecasts that provided daily outputs, is shown in Figure 3. The onset is forecast to progress northwards, consistent with the northward progression of the rainband. The forecast indicates enhanced chances of a late onset over much of South Sudan, northern Uganda and western Kenya, western and eastern parts of Ethiopia, as well as parts of southern Sudan. In contrast, enhanced chances of an early onset are forecast for some mainly small regions, most notably over north-central Ethiopia and small pockets within southern Sudan. It is important to note that in regions such as western Kenya, Uganda, parts of Ethiopia, and much of South Sudan, the early part of the JJAS season can manifest as a continuation of rainfall from the preceding season, and the onset is not well-defined.

Examining analogue years using the current Sea Surface Temperature (SST) pattern across the tropics and the observed and predicted evolution of the Relative Niño-3.4 index indicates that 1997 and 2023 most closely resemble the evolution expected for 2026, which is characterized by development of a strong El Niño (Fig. 4a). Both 1997 and 2023 were also strong El Niño years with an evolution that matches well the expected evolution in 2026. The JJAS rainfall outcomes during these two analogue years illustrate the range of conditions that can occur under broadly similar large-scale forcing (Fig. 4b). Observed rainfall in both 1997 and 2023 was below normal over substantive parts of Ethiopia, South Sudan, Uganda and western Kenya. As expected, the spatial patterns vary and 2023 was also dry over southern Somalia; however, with these caveats, the pattern broadly matches the regions with predicted enhanced chances of below normal in JJAS 2026 (Fig. 1).

It must be emphasised that the rainfall distributions observed in the analogue years represent only two examples of conditions that can occur when large-scale climate drivers are similar to those expected for JJAS 2026, and that significant intra-seasonal and local variability is to be expected. The socio-economic impacts observed during these analogue years can serve as a tentative guide for stakeholders in formulating potential response strategies. It should be noted, however, that the actions taken in those years may not always have been appropriate, and lessons drawn from them should therefore be applied with caution. It is emphasised that the objective forecast, based on the latest climate data specific to the upcoming season, remains the primary reference; the information provided by the analogue years is indicative only and should not be used to replace it.

The consolidated objective temperature forecast for JJAS 2026, based on the post-processed (bias-corrected and calibrated) outputs from eight (8) GPCs, indicates a significantly higher likelihood of above-normal temperatures across the vast majority of the GHA (Fig. 5). The highest probabilities of warmer-than-normal temperatures are concentrated over northern Sudan, most parts of South Sudan and Ethiopia, and extend southward through Somalia and Kenya into Tanzania. Consistent with the projected strong El Niño event, the probability of normal-to-below-normal temperatures is very low across the entire region, indicating a strongly dominant warm signal for the season.

The outlook is relevant at seasonal timescales and for relatively large geographical areas; local and sub-seasonal and month-to-month variations may occur as the season progresses. While the rainfall forecast indicates that below-normal conditions are most probable over most parts of the GHA region that normally receive rain during JJAS, wet spells may still occur in areas favoured for below-normal rainfall, and dry spells may occur in areas with enhanced chances of near-normal to above-normal rainfall. ICPAC will provide regional updates on a regular basis, while the National Meteorological and Hydrological Services (NMHSs) will issue detailed national and sub-national climate updates.

3. Methodology

In line with the recommendation of the World Meteorological Organisation (WMO), ICPAC has implemented an objective seasonal forecast procedure to generate climate forecasts for the Greater Horn of Africa (GHA). May 2026 initialised seasonal forecasts from eight (8) Global Producing Centres (GPCs) were utilised and processed using three calibration techniques (canonical correlation analysis, linear regression, and Kharin et al., 2017 methods) to develop the JJAS 2026 seasonal climate outlook. The final consolidated forecast is obtained by averaging the forecasts generated by the three different approaches.

Forecast probability distributions are established objectively to indicate the likelihood of above-normal, normal, or below-normal rainfall for each zone. Above-normal rainfall is defined as the upper third of historical JJAS rainfall totals, below-normal as the lower third, and normal as the range between the upper and lower third of the rainfall totals. Climatology here refers to the historical series of observed weather conditions over the 30-year period (1991-2020). Forecast probability distributions for temperature are also established. The rainfall and temperature outlooks for JJAS 2026 for various zones within the GHA region are given in Figure 1 and Figure 5, respectively.

Experts also examined the prevailing and predicted SSTs over the Pacific, Indian, and Atlantic Oceans, as well as other global and regional climate factors that affect the rainfall evolution during the JJAS season. These factors were assessed using dynamical and statistical models. SST conditions over the central equatorial Pacific Ocean were near average, while positive SST anomalies were present in the eastern Pacific. WMO and major global producing centres indicate that El Niño conditions will develop rapidly and be active throughout the JJAS season and will strengthen as the season progresses - with continued post-season strengthening. The CPC Probabilistic ENSO Outlook, updated on 14 May 2026, indicates a high likelihood of El Niño development in the coming months, with an 82% probability during May–July 2026. El Niño conditions are further expected to persist through the Northern Hemisphere winter of 2026/27, with probabilities increasing to 96% during December 2026–February 2027. The Indian Ocean Dipole (IOD) is currently in a neutral state, following the weakening of earlier negative conditions. Global climate models forecast a shift toward a positive IOD phase by mid-year (June–July 2026), expected to develop in concert with the strengthening El Niño event.

The JJAS rainfall interannual variability in the GHA is strongly linked with SST anomalies in the tropical Pacific Ocean. El Niño (La Niña) episodes have been shown to be associated with dry (wet) JJAS rainfall across much of the northern part of the GHA region. However, historically, the IOD has shown little to no effect on JJAS rainfall over the GHA. Updates on the ENSO and IOD conditions will be provided regularly by the WMO and the major global producing climate centres.

The seasonal forecast was developed during the pre-COF73 climate capacity building workshop held in hybrid format from 11th to 15th May 2026. During this workshop, regional scientists and national forecasters from ICPAC Member

States used ICPAC’s High-Performance Computing (HPC) cluster and developed regional and national-level climate outlooks.

4. Probability Forecast of Rainfall for June to September 2026

The rainfall outlook for various zones within the GHA region is given in Figure 1 below:

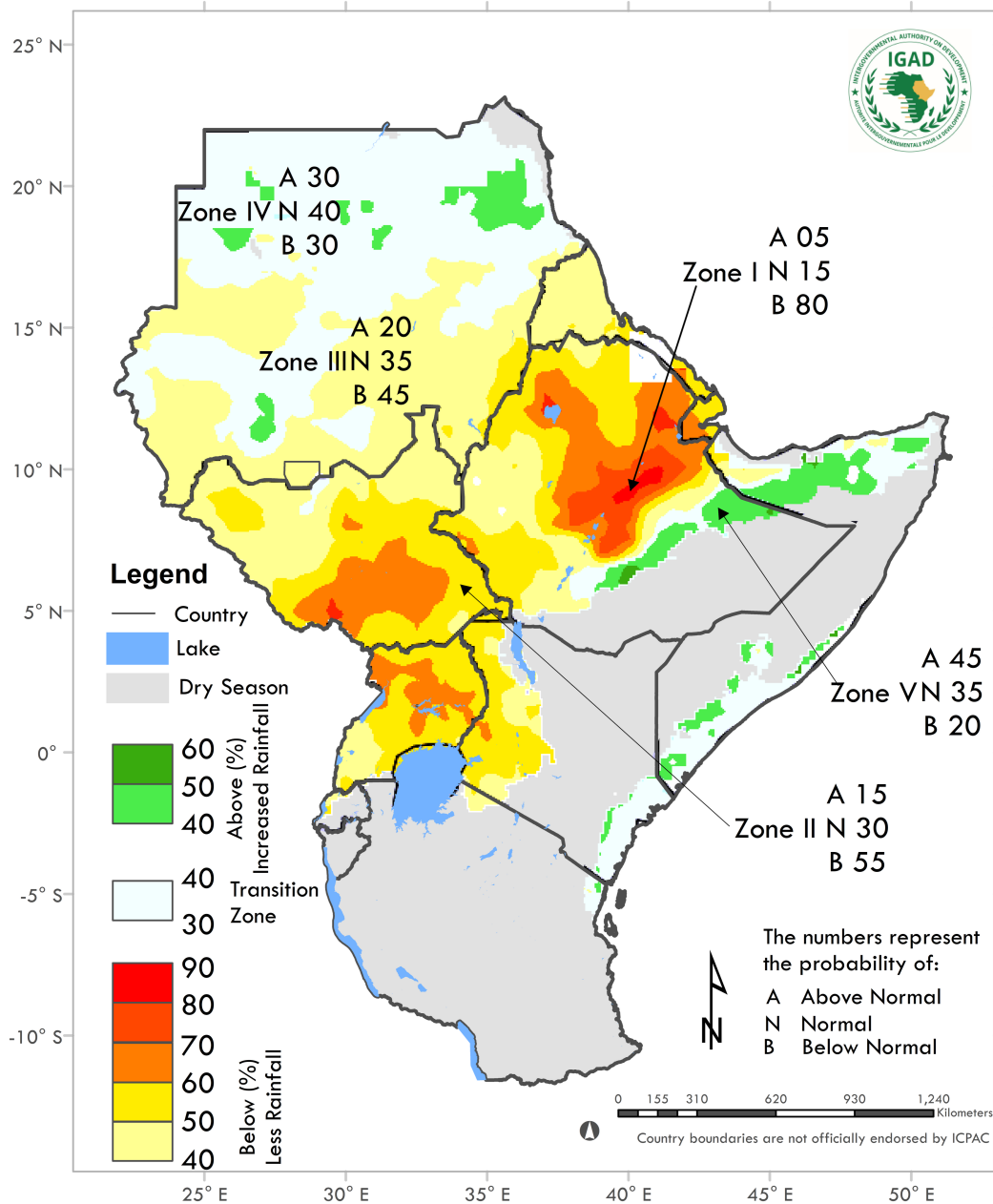


Figure 1. Probability forecast of rainfall for various zones within the GHA region for June to September 2026. Grey shading indicates regions where JJAS is climatologically a dry season.

Zone I: In this zone (dark orange), the below normal rainfall (drier) category has the highest probability (80%). The probability for normal and above normal categories are 15% and 5%, respectively.

Zone II: In this zone (yellow), the below normal rainfall (drier) category has the highest probability (55%). The probability for normal and above normal categories are 30% and 15%, respectively.

Zone III: In this zone (light yellow) also, the below normal rainfall (drier) category also has the highest probability (45%). The probabilities of the near normal and above normal categories are 35% and 20% respectively.

Zone IV: In this Zone (cyan), the probability of normal category is the highest (40%). The probabilities of the above and below normal categories are 30% and 30% respectively.

Zone V: In this zone (green), the probability for the above normal (wetter) category is the highest (45%). The probabilities for the normal and below normal categories are 35% and 20%, respectively.

Note: *In Fig 1, the numbers (next to A, N and B) for each zone indicate the probabilities of rainfall in each of the three categories: above, near, and below normal. For example, in Fig. 1, the top number (A) indicates the probability of rainfall occurring in the above-normal category; the middle number (N) is for near-normal, and the bottom number (B) is for below-normal category. In the case of Zone-I (Fig. 1) for instance, there is 5% probability of rainfall occurring in the above-normal category, 15% probability of rainfall occurring in the near-normal category; and 80% probability of rainfall occurring in the below-normal category. It is emphasized that boundaries between zones should be considered as transition areas.*

5. Probability of Exceedance for user specified thresholds

Figure 2 presents the probability of JJAS 2026 seasonal rainfall exceeding 500 mm (left panel), the corresponding climatological probability (center), and the difference in exceedance probability (right). There is a high probability (>90%, similar to the climatological chance) of seasonal rainfall exceeding 500 mm across much of the region where JJAS constitutes the primary rainy season, particularly over central to western Ethiopia, South Sudan, southern Sudan, and northern Uganda. However, primarily at the borders of this high probability region, the probability of exceeding 500 mm is reduced, relative to climatological chances, by approximately 20–50 percentage points, including over parts of southern South Sudan, the central to northeastern Ethiopian Highlands, northern Uganda, and southern part of Sudan. Only localized areas over southern Sudan show a modest increase (5–30 percentage points) in the likelihood of surpassing this threshold.

This pattern is consistent with, and reinforces, the below-normal signal in the consolidated tercile forecast (Fig. 1). The reduced probability of exceeding 500 mm over the high-impact JJAS rainfall zones, particularly the Ethiopian highlands, southeast of South Sudan, northern Uganda, and parts of southern Sudan has direct implications for rainfed agriculture, water availability, and hydropower generation. Stakeholders are encouraged to factor this elevated risk of insufficient seasonal rainfall into anticipatory planning across the affected sectors.

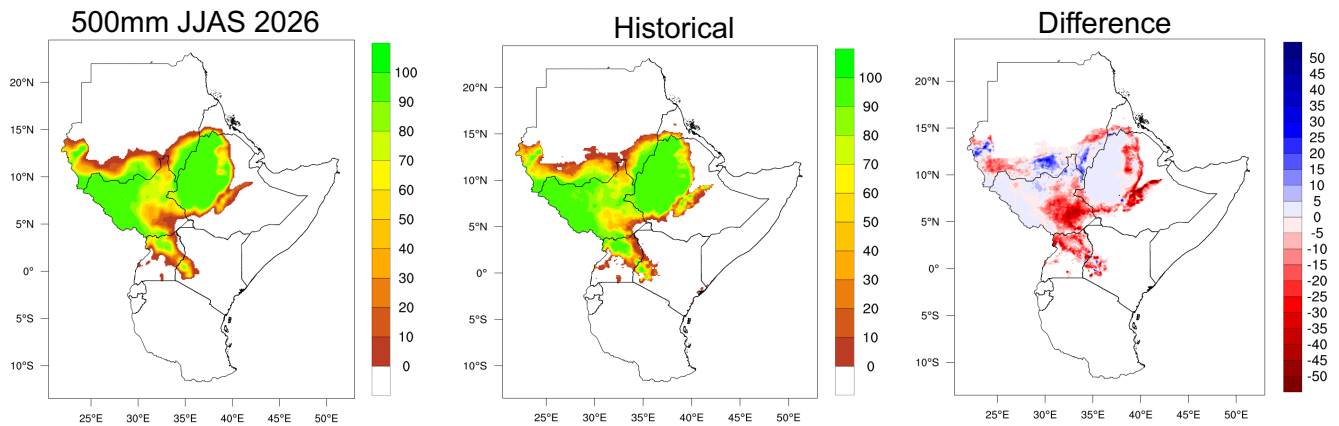


Figure 2: Probability of JJAS seasonal rainfall exceeding 500 mm over the GHA region. Left the JJAS 2026 forecast probability exceeding 500 mm, centre the corresponding climatological, and right the difference between the forecast and the climatological probability. Negative values (red) indicate a reduced chance of exceeding 500 mm in 2026 relative to climatology, while positive values (blue) indicate an enhanced chance.

6. Probability Forecasts of the Start of JJAS 2026 Season and the Expected Average Onset Dates

The predicted most likely start dates of the June to September 2026 season, as well as forecast probabilities for three categories of onset time (early/normal/late) are provided in Figure 3. The forecast was generated by utilising daily rainfall forecasts derived from six Global Climate Models (ECMWF, Météo-France, CMCC-Italy, DWD-Germany, ECCC-Canada, BOM-Australia), from the C3S Climate Data Store, incorporating a collective of 223 ensemble members.

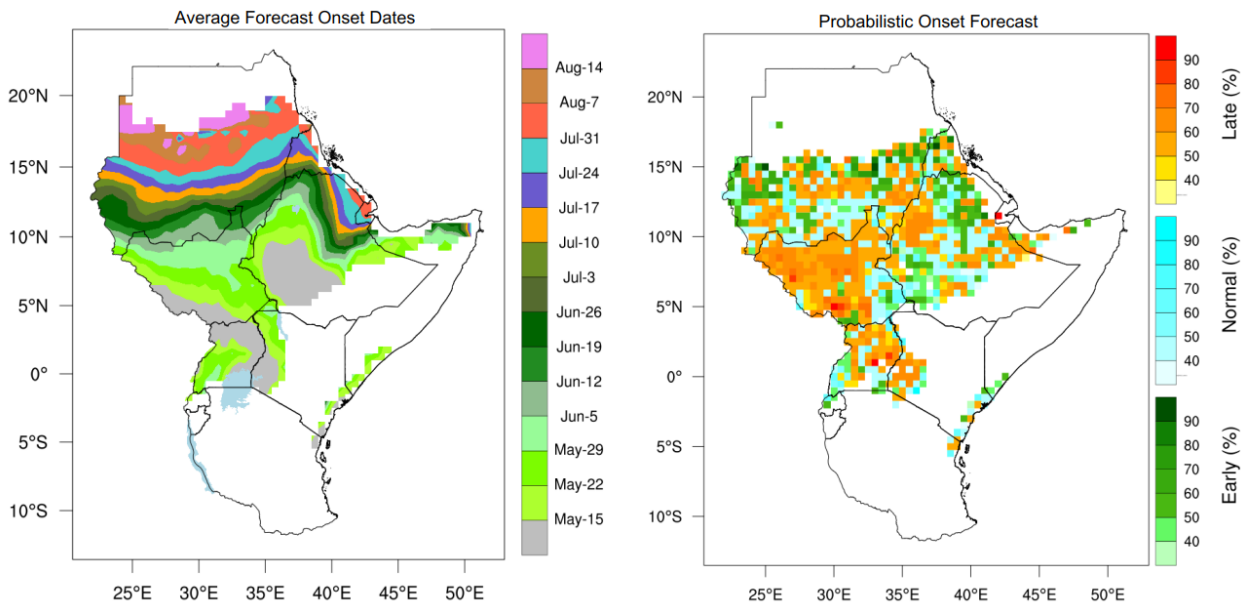


Figure 3: The map on the left indicates the approximate rainfall onset dates for the JJAS 2026 season from model ensemble mean values. The right map indicates the forecast probabilities for three (tercile) categories of onset timing (early/normal/late).

7. Analogue Years based on the Current Global SST Pattern & Niño3.4 Index Evolution

The selection of analogue years based on the Relative Niño3.4 index is carried out by calculating the correlation and the mean difference between the combined observed and forecast evolution of Relative Niño3.4 in the target year and the corresponding Relative Niño3.4 index for the same period in previous years (Fig. 4a). The observed/predicted evolution in 2026 shows the expected development and strengthening of El Niño conditions and a similar evolution is also seen in the analogue years.

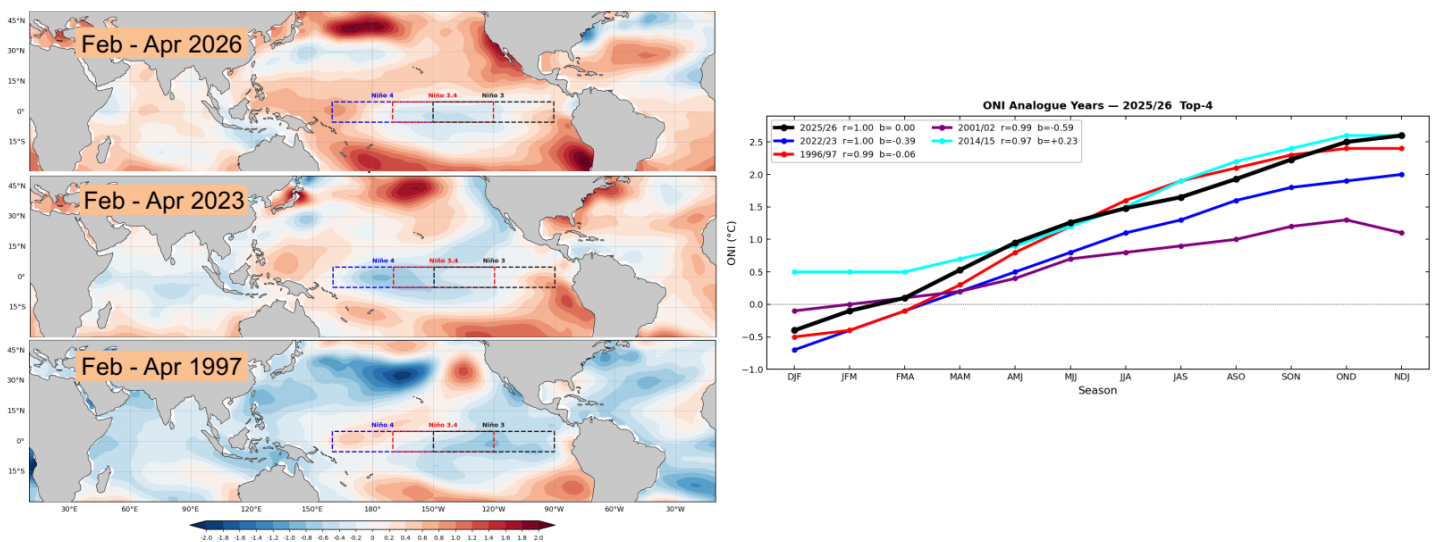


Figure 4a: The top-left panel shows the current (February–April 2026) pattern of SST anomalies over the tropical oceans. The right panel shows the 2026 evolution of the Relative Niño-3.4 index, extended by the predicted values (black), compared with the observed evolution in years whose Relative Niño-3.4 trajectory most closely matches that of 2026. The closeness of the match is quantified by the temporal correlation and the mean difference, indicated in the boxes. The February–April SST anomaly patterns for two of the selected analogue years (2023 and 1997) are shown in the middle-left and bottom-left panels, with the corresponding three-month running mean Niño-3.4 index for those years on the right, for direct comparison with the February–April 2026 anomalies and the 2026 Niño-3.4 evolution. The observed rainfall patterns during these analogue years are also indicated in Fig. 4b.

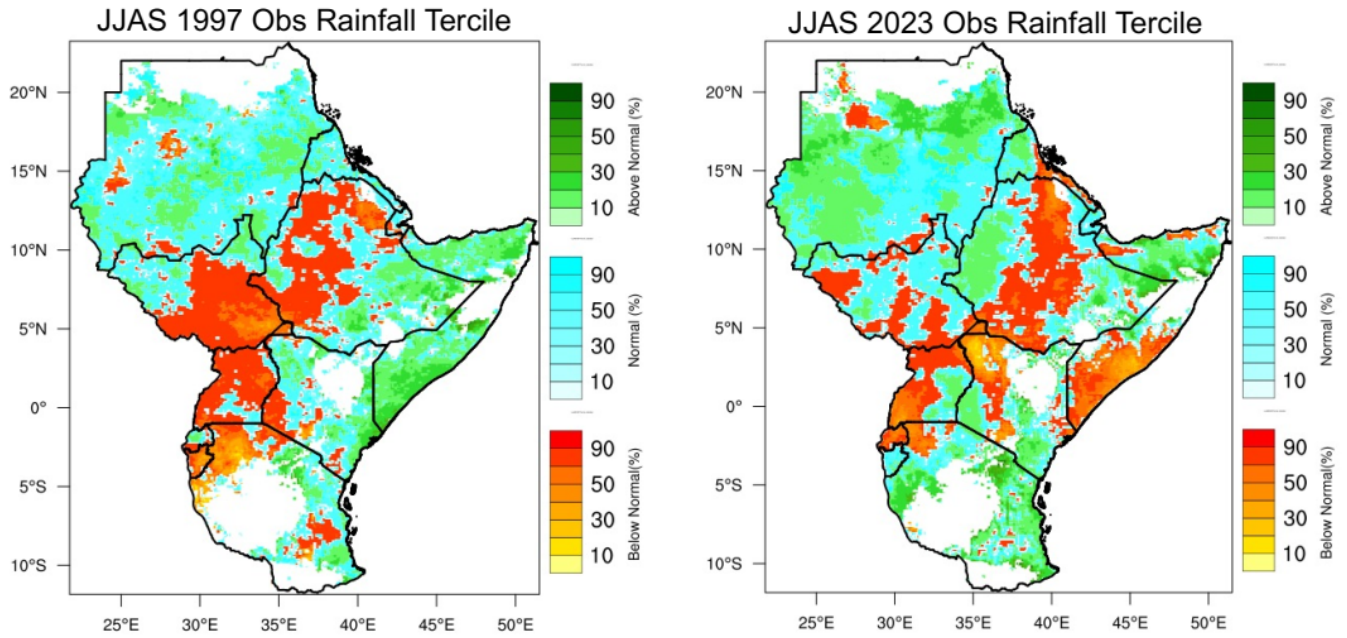


Figure 4b: Observed JJAS rainfall tercile categories across the Greater Horn of Africa (GHA) for the two SST analogue years identified in Figure 4a: JJAS 1997 (left) and JJAS 2023 (right). Colour intensity (%) indicates how extreme the seasonal rainfall was within each tercile category relative to climatology, calculated over the 1991-2020 period.

8. Probability Forecast of Temperature for June to September 2026

The temperature outlook for various zones within the GHA region is given in Figure 5 below.

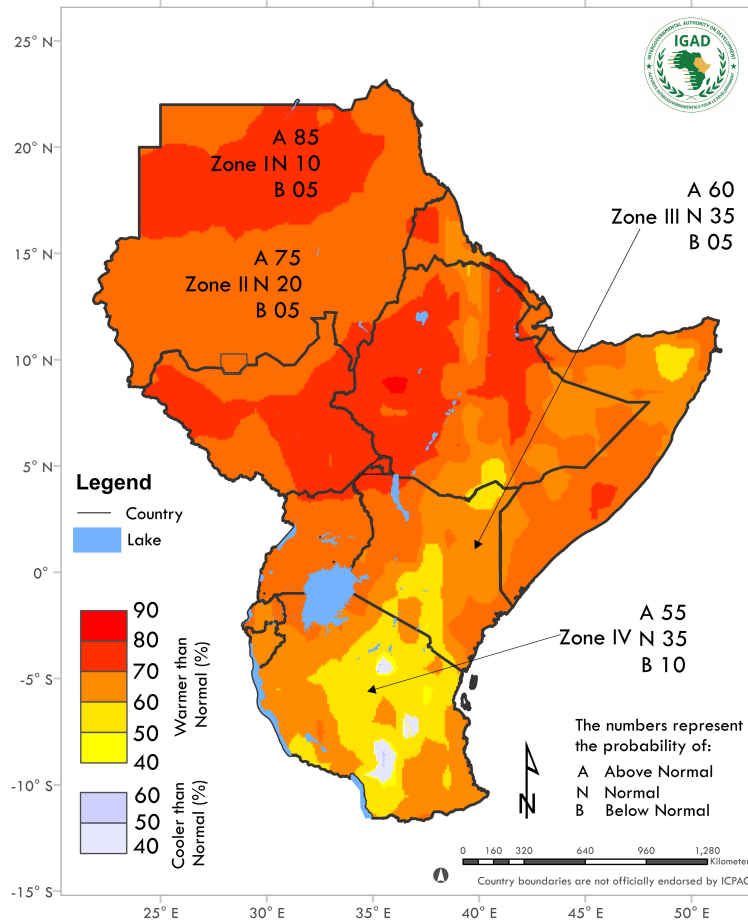


Figure 5: Probability forecast of mean surface temperatures for the June to September 2026 season.

Zone I: In this Zone (red), the above normal mean temperature (i.e., warmer) category is most likely at 85%. The probabilities for the near normal and below normal categories are 10% and 5%, respectively.

Zones II: In this Zone (dark orange), the above normal mean temperature category has the highest probability (at 75%). The probabilities of the normal and below normal categories are 20% and 5%, respectively.

Zones III: In this Zone (orange), the above normal mean temperature category has the highest probability (at 60%). The probabilities of the normal and below normal categories are 35% and 5%, respectively.

Zones IV: In this Zone (yellow), the below normal mean temperature category has the highest probability (at 55%). The probabilities of the normal and above normal categories are 35% and 10%, respectively.

9. Contributions

GHACOF 73 was organised jointly by IGAD’s Climate Prediction and Applications Centre (ICPAC) and the National Meteorological and Hydrological Services (NMHSs) of the Greater Horn of Africa (GHA). The forum was supported by the Weather and Climate Information Services - Pan-African Seasonal Strengthening - East Africa (WISER PASS-EA), the Strengthening Coordination and Implementation of IDDRSI (SCII), the Web-mapping Technology for Disaster Risk Reduction project funded by the European Union under the Joint Research Centre, the UNDRR-Africa office, the ARiPHA Regional project on AA (GFFO), BMZ, GIZ (MoDiAC project), EU(SCALAA project) and the WISER Kenya, AICCRA, SCALAA GHA(ECHO funded) and PASToral livelihoodS in the African Greater Horn through Effective anticipatory action (PASSAGE) projects. Contributors to the regional climate outlook included representatives of NMHSs from GHA countries (Institut Géographique du Burundi, Météorologie Nationale de Djibouti, Ethiopia Meteorological Institute, Eritrea Meteorological institution, Kenya Meteorological Department, Rwanda Meteorological Agency, National Hydro-Meteorological and Monitoring Service of Somalia; South Sudan Meteorological Service, Sudan Meteorological Authority, Tanzania Meteorological Agency and Department of Meteorological Services-Uganda) and climate scientists, as well as other experts from national, regional, and international institutions and organizations: ICPAC, UK Met Office, NOAA CPC-International Desk and WMO Global Producing Centres (GPCs).

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