Food and Agriculture Organization of the United Nations

SWALIM
Somali Water and Land Information Management

REVIEW OF Gu 2024 RAINFALL PERFORMANCE, HAGAA OUTLOOK AND IMPLICATIONS ON LIVELIHOODS OVER SOMALIA

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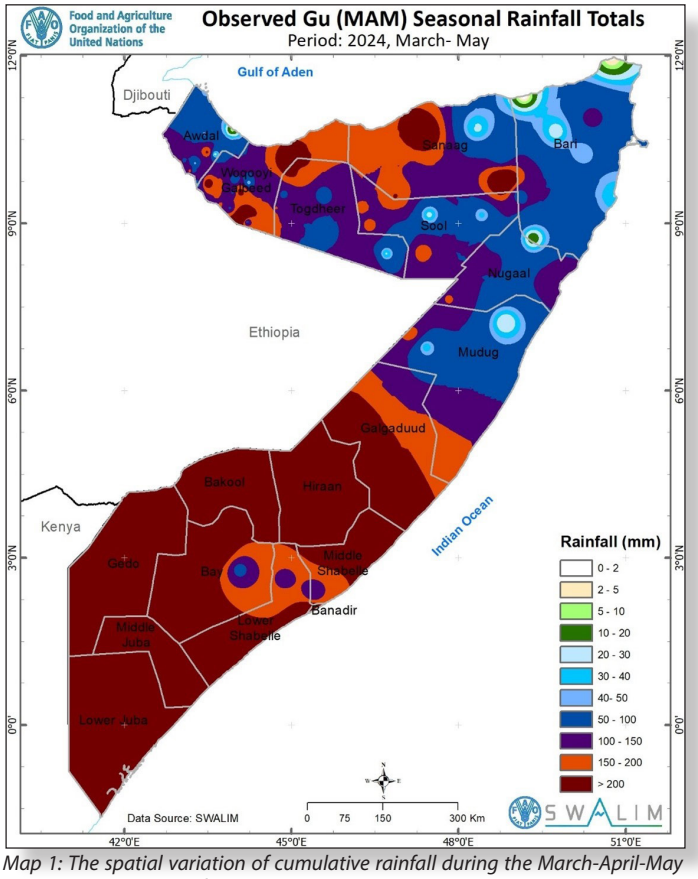
Key Highlights

Several key findings have been obtained following a review of the 2024 Gu (March-April-May) rains and forecast of Hagaa (June-July-August) season:

- The heaviest cumulative rainfall was observed in Hiraan region (408.2 mm at Belet Weyne) and Woqooyi Galbeed region (477.0 mm at Gumburaha station); with the least rainfall observed over Puntland.
- There was more than 3 weeks-long dry spell in all the stations in the country with even longer than two months over some stations in Puntland.
- The earliest rains (in March) of equal or more than 20 mm per day was observed in some stations in Somaliland with no single station in South and Central Somalia and Puntland that received daily rains of such intensity in the same month.
- Based on the adopted definition of onset, there was a staggered start to the rainy season across the stations with the earliest onset observed in Qansadhere in Bay region on March 24, 2024, and the latest onset in Gacan-libaah in Togdheer region on May 3, 2024.
- Over the Juba and Shabelle River Catchments, the above normal rains were evenly spread with less consecutive rainy days and therefore moderate flood magnitude. However, the close to double the LTM rains observed at Doolow (117.5 mm) on 07-May-24, and the more than double the average rainfall at Belet Weyne resulted in to floods, displacing 7,100 families in Belet Weyne town.
- On a positive note, the rains observed in Gu across most other parts of the country were beneficial to agropastoral livelihoods in many aspects including favorable soil moisture conditions for crop and fodder production, and replenishment of surface and ground water sources. The more than a month-long dry spell within the season however posed a serious threat to the survival of crops and water retention in both open, shallow and groundwater sources.
- According to IGAD Climate Prediction and Application Centre (ICPAC), wetter than usual conditions are expected over few areas in north-western and southern coastal parts of the country with rest of the country remaining usually dry over the Hagaa season.



Map 1: The spatial variation of cumulative rainfall during the March-April-May 2024 season over Somalia

- According to Climate Prediction Centre (CPC), there is a 65 % chance that the present ENSO-neutral conditions will favor the development of La Niña later in July-September. Depending on the evolution of other drivers including the Indian Ocean Dipole (IOD), this may drive below normal Deyr 2024 conditions over Somalia.
- The below normal rainfall conditions associated with the even better likelihood (85 %) of La Niña persisting into November-December-January may trigger a multi-season drought with a potential reversal of the currently achieved agropastoral gains.

This bulletin presents both qualitative and quantitative review of the temporal and spatial variation of the observed, and verification of the forecast Gu rainfall amount and anomaly, length of wet and dry spells, and onset dates. It also reviews the experienced (Gu) and current (Hagaa) and long term projected (Deyr) weather impacts on livelihoods over Somalia.

Spatio-Temporal Variation of the Observed Rainfall

The heaviest cumulative rainfall was observed over the south and central parts of Somalia and over some parts of Somaliland with the least rainfall observed over Puntland during the March-April-May season (Map 1). The heaviest seasonal cumulative rainfall of 408.2 mm (Figure 1) and 477.0 mm (Figure 2) were recorded at Belet Weyne and Gumburaha stations in Hiraan and Woqooyi Galbeed regions, respectively (Map 1). Xudun, in Sool region also recorded heavy rainfall, with a seasonal total of 215.2 mm (Figure 3). On a monthly scale, the heaviest cumulative rain amounting to 388.0 mm was observed in April at Qansax dheere in Bay region. Over Somaliland the heaviest rains were 316.0 mm received at Dhahar in Sanaag region in May. A better monthly rainfall distribution was realized in Somaliland where 13.9 mm, 73.1 mm and 42.2 mm areal average rains1 were received in March, April and May. Although a decent 153.9 mm of areal average rains1 were received in South and Central Somalia in April, only 4.1 mm was observed in a March and 62.4 mm in May. An even more dire case was observed in Puntland, where dry conditions prevailed in the month of March with less than 1 mm of areal average rains1 and a maximum of only 10.0 mm cumulative rainfall observed at Bargaal station in Bari region. Although the situation improved later in the season, the rain received over Puntland in April and May translated to only 20.5 mm and 53.5 mm, respectively, in areal average terms1. These areal average rains1 in May were however better than those received in Somaliland affirming the eastward rainfall onset progression in the northern parts of the country.

The heaviest 24-hour rains (equal or greater than 100 mm) were observed at at Doolow (117.5 mm) on 07-May-24, Daraweyne (123.0 mm) on 05-May-24, at Baidoa MRG (126.7 mm) on 18-Apr-24, and at Belet Weyne (144.4 mm) on 26-Apr-24. Not even a single station observed rains of such intensity over Puntland.

The highest number of rainy days (at least 1.0 mm of rain) were recorded in the following stations in South and Central Somalia: Mahaday (14 days), Baidoa (14 days), Bulo Burte (20 days), Bualle (20 days), Qansax dheere (21 days) and Kismaayo (21 days). The highest rainy days in the northern part of the country were recorded in the following stations: Boon (13 days), Salaxley (14 days), Sheikh (14 days) Baligubadle (14 days), Ceerigaabo (15 days), Harirad (16 days), Dhahar (11 days), Qardho (10 days) and Xudun (9 days), The least rainy days were observed over Puntland, with the highest rainy days being received in Dhahar (11 days). The comparatively heavy rains received in May demonstrates the longer Gu rains over South and Central Somalia.

The spatial analysis based on actual observed cumulative rainfall amounts (Map 1) show that:

- **Cumulative rainfall greater than 200 mm** was observed in Lower Juba, Middle Juba, Gedo, Bakool, and Hiraan regions. Similar rains were also received over most parts of Diinsoor, Qansax Dheere and Baydhaba districts in Bay region; Sablaale, Baraawe, Kurtunwaarey and Marka districts in Lower Shabelle region; Cadale and Adan Yabaal districts in Middle Shabelle region; southern halves of the following districts in Galgaduud region: Ceel Dheer, Ceel Buur, Dhuusamarreb, and Cabudwaaq; southern parts of Laasqoray district and northern parts of Ceerigaabo district in Sanaag region; northern parts of Sheikh district in Togdheer region; central parts of Berbera district, southern parts of both Hargeisa and Gebilley districts in Woqooyi Galbeed region. It is important to point out that, in general terms, rains of similar amounts fell over the entire Juba River catchment and upper and central parts of Shabelle River basin within the country.
- **Cumulative rainfall of between 100 mm and 200 mm** was received over most parts of Woqooyi Galbeed and Togdheer regions, Ceel Afweyn and southern parts of Ceerigaabo district in Sanaag region; Cadaado district and northern halves of the following districts in Galgaduud region: Ceel Dheer, Ceel Buur, Dhuusamarreb and Cabudwaaq; Buur Hakaba district in Bay region; Wanla Weyne district in Lower Juba region; Jowhar and Balcad districts in Middle Shabelle region; Xarardheere and Galdogob districts and southern half of Hobyo district in Mudug region; Laas Canood and Caynabo districts in Sool region; Eyl district and western parts of both Garowe and Burtinle districts in Nugaal region; Borama district and southern halves of both Baki and Zeylac districts in Awdal region; and western parts of Qardho district in Bari region.
- **Cumulative rainfall of less than 100 mm** was observed over most parts of Bossaso, Qandala, Caluula Ishkushuban and Bandarbeyla districts in Bari region, Jariiban district and northern half of Hobyo district and eastern parts of Galkacyo district in Mudug region; eastern parts of both Garowe and Burtinle districts in Nugaal region; Xudun and Taleex districts in Sool region; northern parts of Laasqoray district in Sanaag region; and Lughaye districts and northern halves of both Baki and Zeylac districts in Awdal region. The least cumulative seasonal rainfall of less than 20 mm was received in the following stations: Badhan (13.0 mm), Lughaye (8.0 mm) in Awdal region; and Dangoroyo (11.9 mm), Caluula (1.6 mm). In Bossaso, Bari region, and Laasqoray, Sanaag region, there was no rains recorded.

1Footer: the different number of stations and their distribution may not permit a simple comparison of averages.

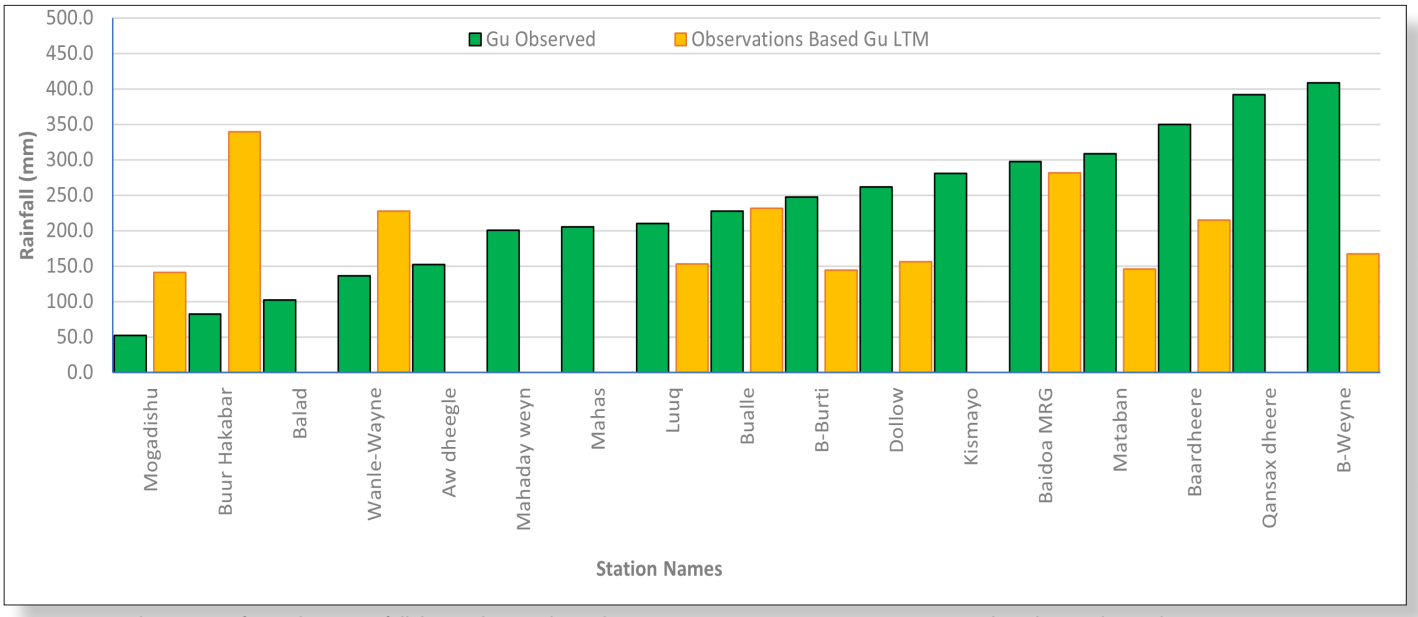


Figure 1: Spatial variation of cumulative rainfall during the March-April-May (Gu) 2024 season against LTM over South and Central Somalia.

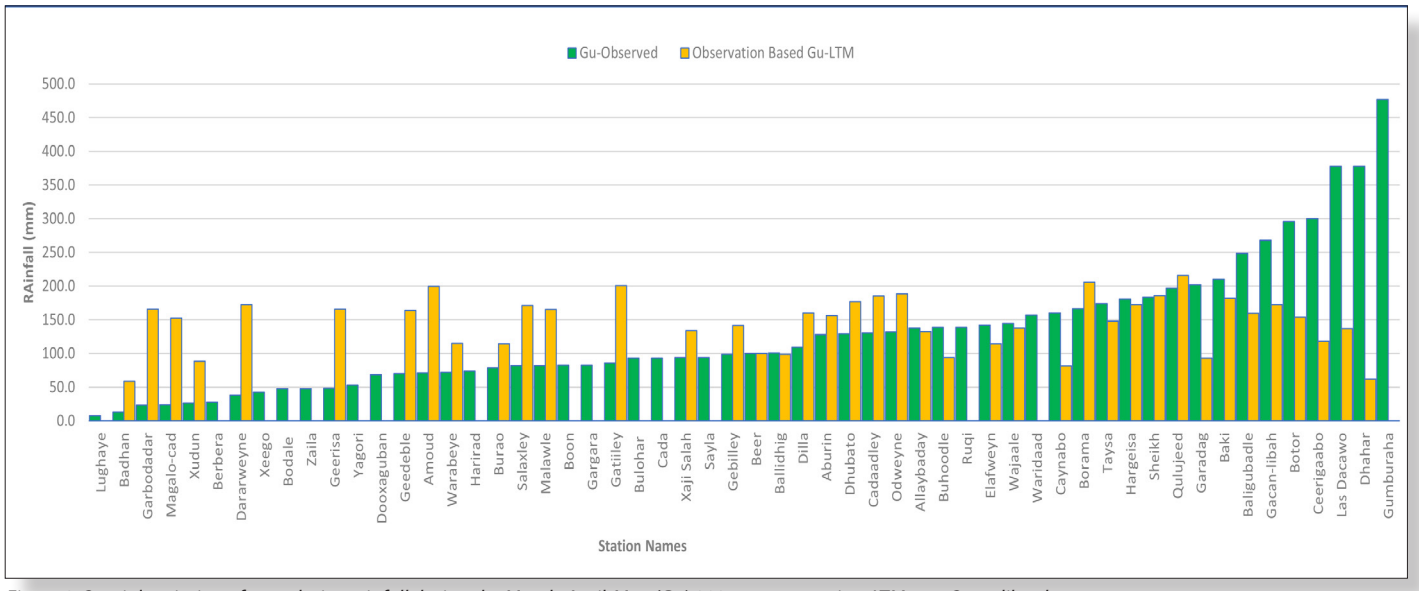


Figure 2: Spatial variation of cumulative rainfall during the March-April-May (Gu) 2024 season against LTM over Somaliland.

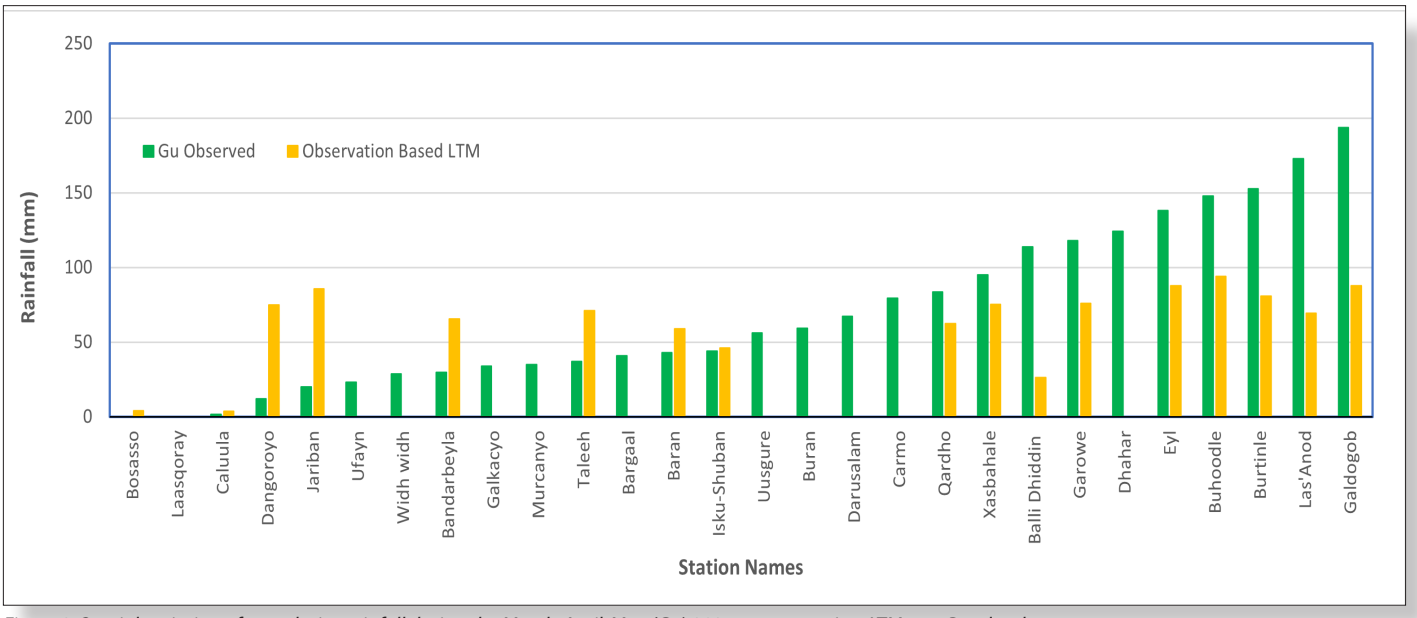


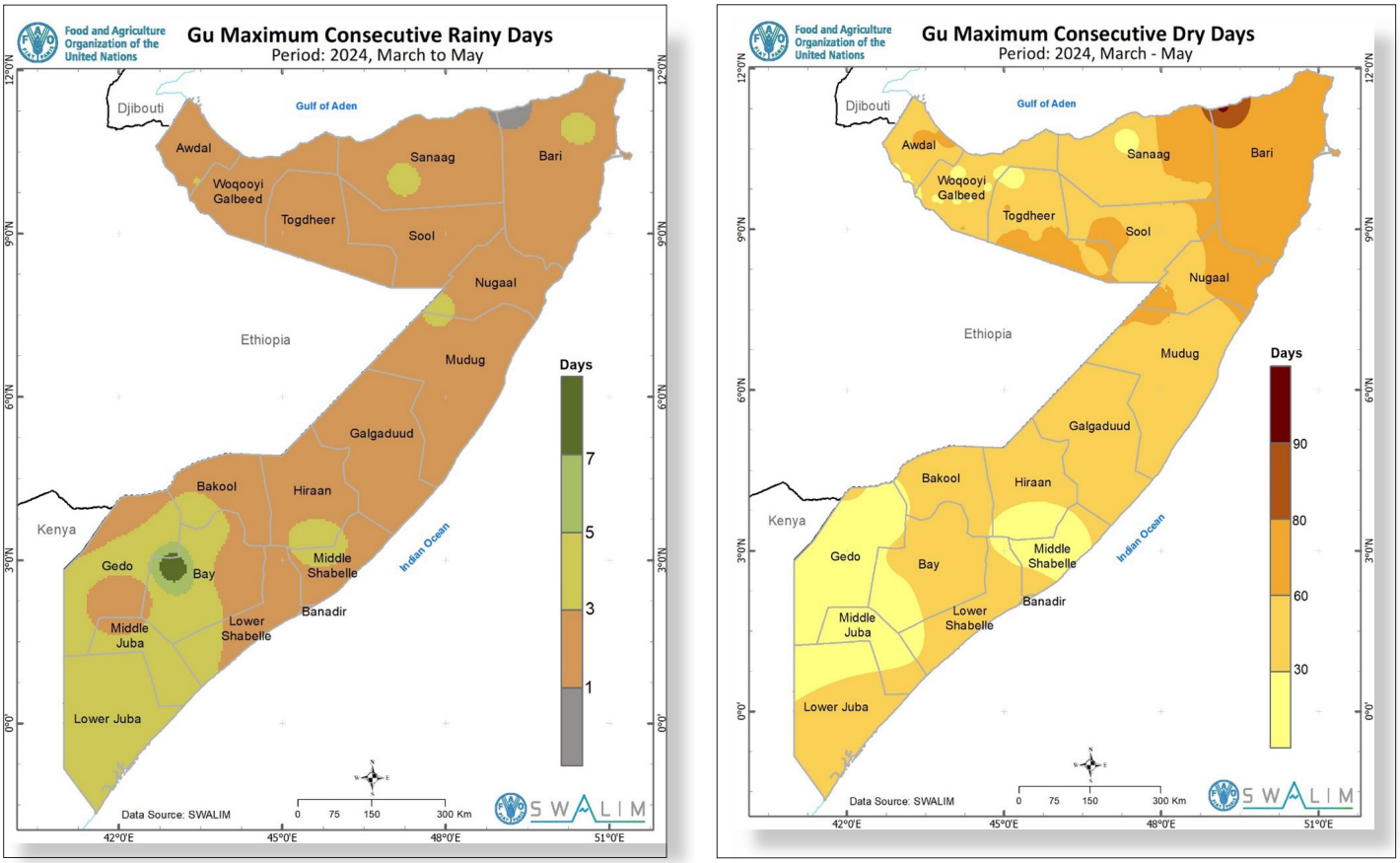
Figure 3: Spatial variation of cumulative rainfall during the March-April-May (Gu) 2024 season against LTM over Puntland

Observed Wet and Dry Spells

The patterns of wet and dry spells almost mimic that of cumulative rainfall amounts observed with three (3) or less consecutive rainfall days over the Somaliland, Puntland and central parts of the country (Map 2). The longest maximum consecutive wet days were observed at Ceel Afweyn, Gacan-libah, Ruqi, Bulo Burte, Balli Dhiddin, and Burtinle (4 days), Dhahar (5 days), Mahaday (8 days) and Qansadheere (9 days) indicating extended periods of continuous rainfall (Map2). Based on the observations at Bulo Burte, Mahaday and Qansadheere, there was accurate forecast regarding the more than four (4) consecutive rainy days over the Juba and Shabelle River basins (Map 2). The consecutive rainy days were less in Kismayo (3 days), Baidoa (3 days), Belet Weyne (2 days), Balcad (2 days), Buur Hakaba (2 days), Wanla Weyne (2 days), Bardheere (2 days), Mahas (1 day), Doolow (1 day), and Mataban (1 day).

The least maximum dry days were observed at Bulo Burte (15 days), Borama (18 days), Sheikh (18 days), Qulujeed (19 days), Gacan-libah 19 days) and Ceerigaabo (21 days) indicating favorable agropastoral conditions particularly at Gacan-libah and Bulo Burte.

Although most other stations showed a mix of moderate wet and dry spells, suggesting variable weather patterns, there was more than 3 weeks-long dry spell in all the stations in the country. The dry spells were more than two months long over Bandarbeyla (61 days), Badhan (62 days), Balli Dhiddin (62 days), Geerisa (64 days), Carmo (64 days), Ufayn (64 days), Xaji Salah (66 days), Laasqoray (92 days) and Bosasso (92 days).



Map 2: The spatial variation of maximum consecutive rain (left) and dry (right) days during the Gu 2024 season over Somalia

Observed Rainfall Anomaly

Based on the available long-term mean (climatology), varying anomalies were generally observed throughout the country (Map 3). The most significant excess rainfall (actual positive anomalies) was realized at Las Dacawo (240.7 mm) in Woqooyi Galbeed region and Dhahar (315.8 mm) in Sanaag region where the cumulative observed rainfall was as high as 275 %, and 608 % of the respective station LTMs (Figure5). In percentage terms, the 87.5 mm excess rain observed at Balli Dhidhin (431.3 %) in Bari region represent the second largest positive. The most significant rainfall deficits (actual negative anomalies) were realized at Buur Hakaba (257.3 mm) in Bay region where the cumulative observed rainfall was as low as 24 % of the station LTM (Figure 4).

In percentage terms, the 4.5 mm, 2.6 mm and 0.2 mm rainfall deficits observed at Bu'alle (98.0 %) in Middle Juba region, Sheikh (99 %) and Beer (100 %) in Togdheer region represent the largest negative anomalies.

A significant variability in rainfall anomalies was also observed across different stations within the regions (Map 3). Over South and Central Somalia (Figure 4), stations like Doolow (163 %), Bulo Burte (167 %), Mataban (171 %) and

Belet Weyne (211 %) experienced significantly higher rainfall. In contrast, stations like Mogadishu (24 %) and Wanle Wayne (37 %) experienced much lower rainfall compared to their LTMs, potentially signalling drought conditions.

Over Somaliland (Figure 5), excessive rainfall was received over several stations. Dhahar (608%) stands out with an extremely high positive anomaly, indicating excessive rainfall of more than six (6) times the LTM. Other stations such as Las Dacawo (275%) and Ceerigaabo (253%) also observed high positive anomalies, suggesting much higher than average rainfall. Negative anomalies and therefore significant deficits were observed at many stations including Garboodadar (14%), Dararweyne (22%), and Amoud (36%) indicating possible widespread mild drought conditions.

Over Puntland (Figure 6), more than excessive rainfall equivalent to more than four times the LTM was received at Bali Dhiididin (431.3 %). Excessive rainfall of more than double LTM was also observed at Las Anod (248.9%) and Galdogob (221.1%) %). In contrast, stations like Jariban (23.4%), Dangaranyo (15.9%), and Bandarbeyla (45.5%) show substantial deficits, indicating potential drought conditions.

Based on the above observations, above normal Gu rainfall forecast was generally accurate over South and Central Somalia and inaccurate over some parts of Somaliland and Puntland. There was accurate forecast of above normal rains (>100 % of LTM) over Gedo region (Luuq, Baardheere, Doolow), Hiraan region (Bulo Burte, Mataban and Belet Weyne) and some parts of Bay region (Baidoa), Togdheer region (Ballidhig), Woqooyi Galbeed region (Allaybaday, Wajaale, Hargeisa, Taysa, Baligubadle, Botor, Las Dacawo), Sanaag region (Elafweyn, Garadag, Dhahar, Ceerigaabo), Awdal region (Baki), Togdheer region (Buhoodle and Gacan-libah), Sool region (Caynabo and Las'Anod), Nugaal region (Xasbahale, Garowe, Eyl, Burtinle), Bari region (Qardho, Balli Dhiddin)), and Mudug region (Galdogob).

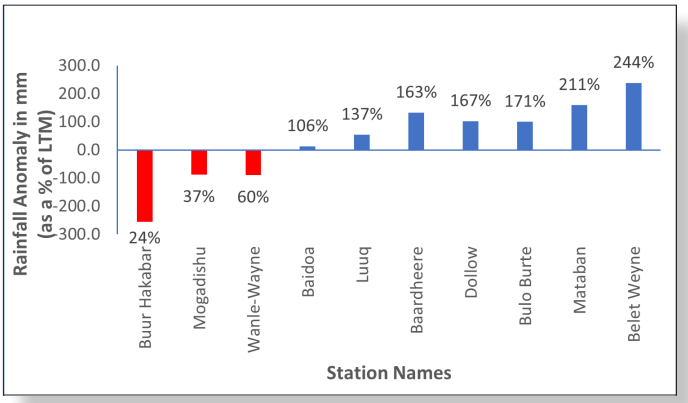
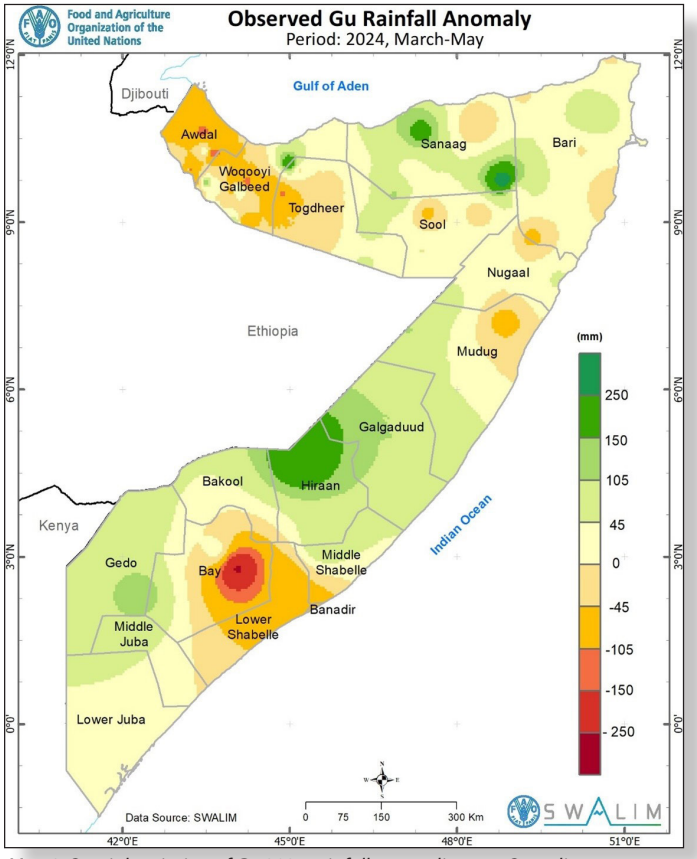


Figure 4: Gu 2024 rainfall anomalies as a percentage of observations-based LTM over South and Central Somalia. Red bars indicate negative anomalies (below the LTM) while blue bars indicate positive anomalies (above the LTM).



Map 3: Spatial variation of Gu 2024 rainfall anomalies over Somalia

At less than 60% of LTM, Gurains were inaccurately overestimated over some parts of Bay region (Buur Hakaba), Lower Shabelle (Wanla Weyne) and Mogadishu regions, Awdal region (Garbodadar, Amoud, Magalo-cad and Geerisa), Sanaag (Dararweyne), Togdheer region (Gatiiley), Woqooyi Galbeed region (Geedeble, Salaxley, Malawle), Sool region (Xudun andTaleeh)), Mudug region (Jariiban), and Bari region (Dangoronyo, Bandarbeyla, Bosasso and Caluula). The varying anomalies suggest varying influence of sub-seasonal drivers e.g., Madden Julian Oscillation (MJO) and broader climatic events such as El Niño associated Sea Surface Temperatures (SSTs).

Gu Rainfall Onset Dates

The earliest rains (in March) of equal or more than 20 mm per day was observed at the following stations in Somaliland: at Boon (21.5 mm), Borama (40.0 mm) and Ceel Afweyn (47.0 mm) on 09-Mar-24, at Hargeisa (24.0 mm, Baki (34.0 mm), Gatiiley (23.0 mm), Malawle (24.0 mm) and Odweyne (40.0 mm) on 26-Mar-24, at Geedeble (48.5 mm) and Harirad (47.0 mm) on 28-Mar-24, and at Cada (19.5 mm) on 29-Mar-24. No single station in South and Central Somalia and Puntland received daily rains of such intensity in the month of March.

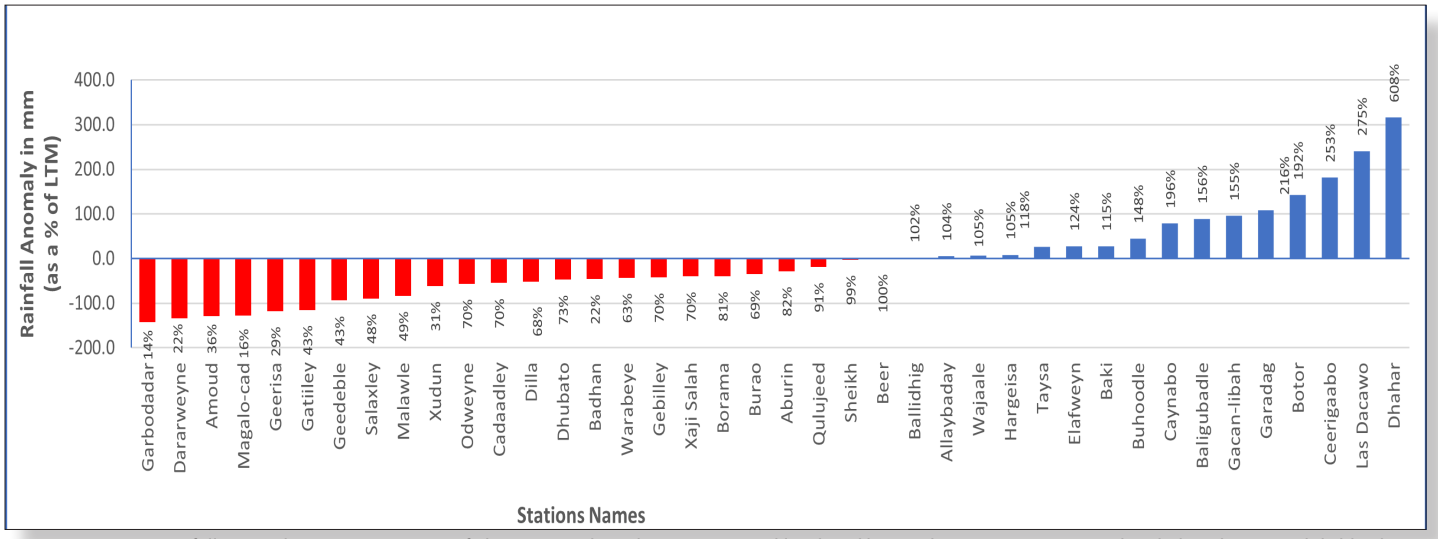


Figure 5: Gu 2024 rainfall anomalies as a percentage of observations-based LTM over Somaliland. Red bars indicate negative anomalies (below the LTM) while blue bars indicate positive anomalies (above the LTM).

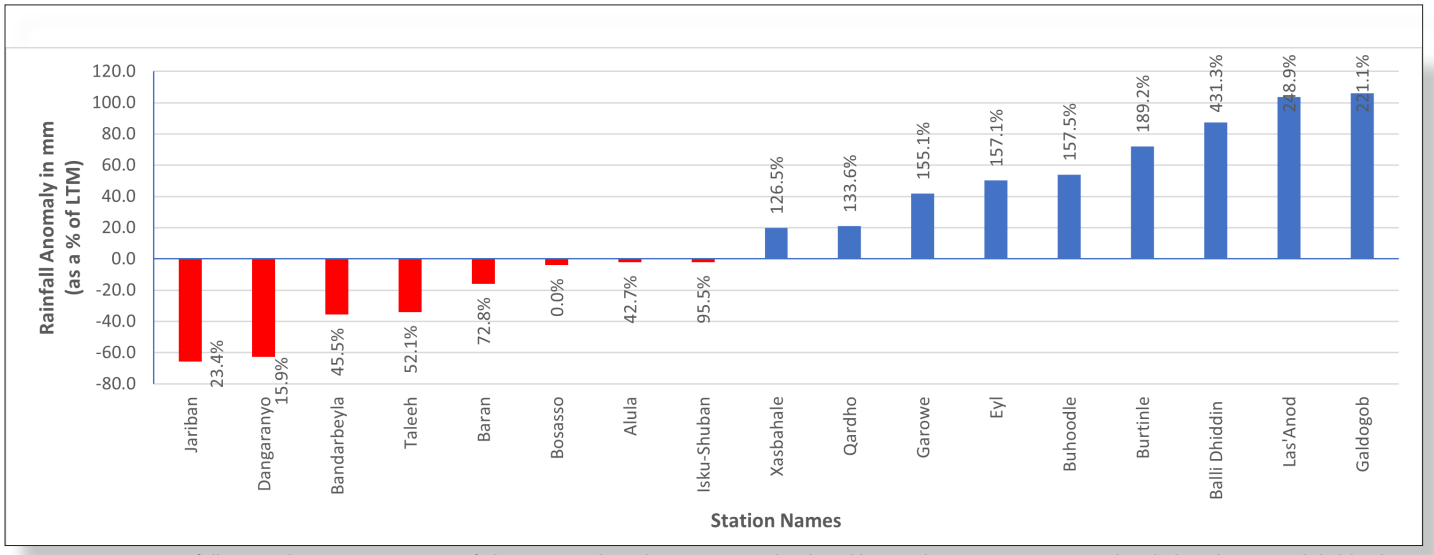


Figure 6: Gu 2024 rainfall anomalies as a percentage of observations-based LTM over Puntland. Red bars indicate negative anomalies (below the LTM) while blue bars indicate positive anomalies (above the LTM).

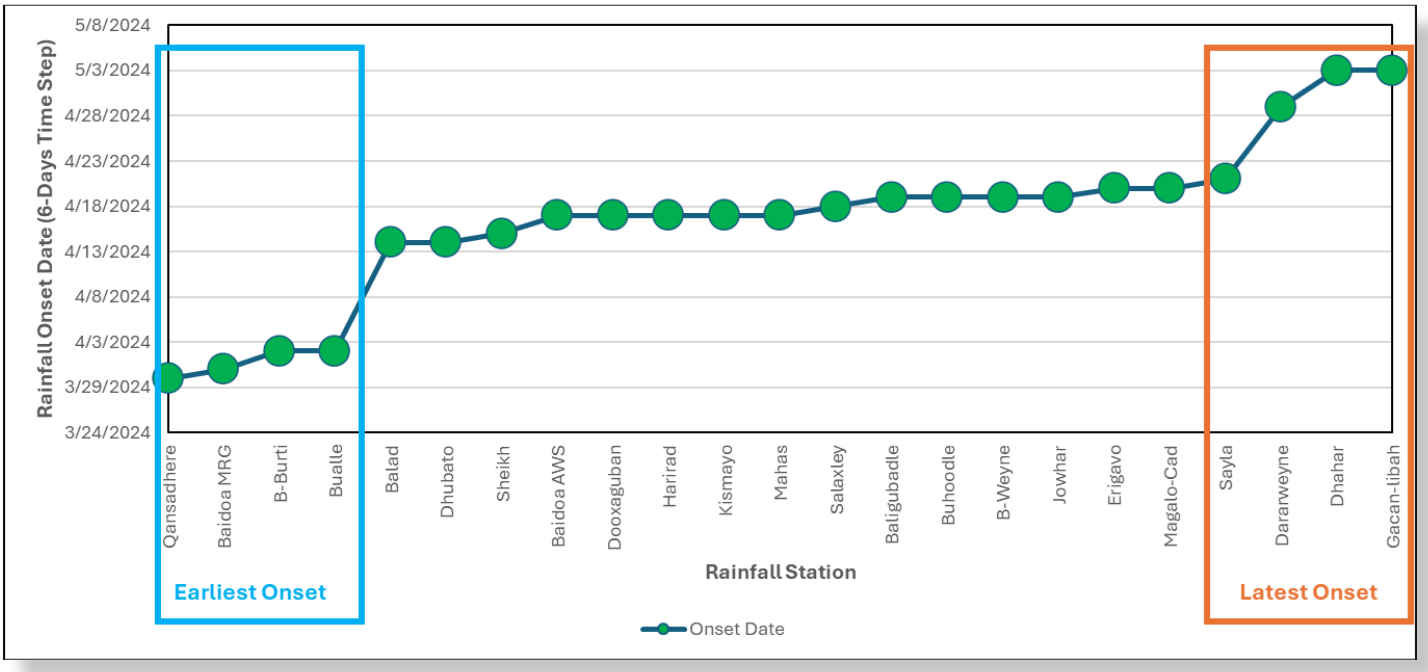


Figure 7: Gu 2024 rainfall onset dates over applicable stations over Somalia

In this analysis, the following operational onset-day definition was adopted: “a rainy day after which 20 mm of rain was received within three days (which can be observed in a day within the three days) and no seven continuous dry days within 21 days afterwards”. A rainy day is operationally defined as a day during which equal or greater than 1 mm of rain was observed.

The onset of the Gu2024 rainfall season varied across different stations (Figure 7), with the earliest onset observed in Qansadhere in Bay region on March 24, 2024, and the latest onset in Gacan-libaah in Togdheer region on May 3, 2024. There was a general progression of the onset dates from late March to early May, indicating a staggered start to the rainy season across the stations.

The forecast of the onset of G urains was generally skillful over Woqooyi Galbeed, Sanaag, and Hiraan regions.

The following stations in Woqooyi Galbeed region realized onset within a week of the skillful forecast onset date (11-Apr-24): Dhubato (8-Apr-24), Dooxaguban, Salaxley and Baligubadle (13-Apr-24), and Sayla (18-Apr-24). The rainfall onsets over Kismayo (13-Apr-24) in Lower Juba (06-Apr-24), Baidoa AWS (13-Apr-24) in Bay region (11-Apr-24), Mahas (13-Apr-24) and Belet Weyne (18-Apr-24) in Hiraan region (16-Apr-24), Jowhar (18-Apr-24) in Middle Shabelle region (21-Apr-24), Magalo-Cad (18-Apr-24) in Awdal region (21-Apr-24), Dhahar (28-Apr-24) and Dararweyne (23-Apr-24) in Sanaag (26-Apr-24) were also skillful having been observed within a week of the regions’ forecast onset dates (in brackets).

Rainfall onsets over the following stations were earlier than the regions’ forecast onset dates (in brackets) by more than a week: Bu’alle (3-Apr-24) in Middle Juba region (11-Apr-24), Balad (08-Apr-24) in Lower Shabelle region (16-Apr-24), Qansadhere (24-Mar-24) and Baidoa MRG (29-Mar-24) in Bay region (11-Apr-24), Bulo Burte (29-Mar-24) in Hiraan region (16-Apr-24), Harirad (13-Apr-24) in Awdal region (21-Apr-24), Sheikh (8-Apr-24) in Togdheer region (21-Apr-24), Buhoodle (13-Apr-24) in Sool (26-Apr-24), and Ceerigaabo (18-Apr-24) in Sanaag region (26-Apr-24).

The only rainfall onset that was later than the forecast onset date by more than a week was that over Gacan-libaah (03-May-24) in Togdheer region (21-Apr-24).

According to the adopted criterion, onset was realized in only 23 stations (Figure 7) representing about a quarter of the monitoring network. No onset was observed in any of the stations in Gedo, Bakool, Galgaduud, Mudug, and Bari regions whose forecast onset dates were 01-Apr-24, 11-Apr-24, 26-Apr-24, 26-Apr-24, and 1-May-24, respectively. It is interesting to note that this is the case over Doolow where more than 117.5 mm was received on 07-May-24. It is also interesting that not even a single station that observed the earliest rains (in March) of equal or more than 20 mm per day in Somaliland realized an onset. This is likely because of more than seven continuous dry days within 21 days afterwards.

Prior to the Gu onset, hot and dry Jilaal season were observed over the entire country. Although the earliest Gu rains were observed in Somaliland, the analysis of the operational onset seemingly depicts a general northward spread from Bay region to Hirshabelle and Somaliland.

The lack of dense-enough station network within Lower Juba, however, may explain the lack of evidence to demonstrate the climatological northwestward rainfall onset progression from the southern coastal parts of Somalia.

Experienced Impacts of Gu, and Projected Hagaa and Deyr Impacts on Livelihoods over Somalia

Prior to the 2024 Gu rains, the El Nino driven 2023 Deyr rains had led to both favorable agropastoral climatic conditions and substantially damaging floods requiring widespread humanitarian interventions particularly along the Juba and Shabelle River Systems. After the climatologically hot and dry Jilal season, the 2024 Gu rains varied in magnitude, intensity and onset across the country. Having started off in the southern and northwestern parts of the country in late March and early April before spreading northward in the south and eastwards in the north, above normal rainfall was generally observed in South and Central Somalia and parts of Somaliland and Puntland. Thermal discomfort due to high temperatures was however reported in various parts of the country due to dry cloud breaks and dry spells particularly over Sanaag, Sool, Galgaduud and Mudug regions in May.

Over the Juba and Shabelle River Catchments, the above normal rains were evenly spread with less consecutive rainy days and therefore moderate flood magnitude. The close to double the LTM rains observed at Doolow much of it in the first week of May and particularly the 117.5 mm received on 07-May-24 caused destructive flooding. The more than double the average rainfall at Belet Weyne also led to flooding which according to a rapid assessment report conducted by the Hirshabelle State, displaced an estimated 7,100 families living in low lying flood prone areas, who were safely evacuated to highland areas. The report mentions that the flooding caused widespread destruction of farms, public infrastructure, and other livelihood assets.

Based on Radio Ergo audience feedback, floods are also reported to have affected some villages in Middle Shabelle region. Rainstorms are reported to have destroyed houses in some parts of Bari region leading to humanitarian needs situation.

The infrastructural interventions in Belet Weyne together with timely and accurate early warning information proved valuable in saving lives and livelihoods through evacuation to previously identified higher grounds and provision of humanitarian assistance.

According to reliable reports, including SWALIM field observers and Radio Ergo audience feedback, the rains observed in Gu across most other parts of the country were beneficial to agropastoral livelihoods in many aspects including favorable soil moisture conditions for crop and fodder production, and replenishment of surface and ground water sources.

However, based on analysis, while the Gu rains generally led to improved food security situation across the country, and that the dry spells in between the season favored farmland practices like weeding, the more than a month-long dry spell posed a serious threat to the survival of crops and water retention in both open, shallow and groundwater sources.

According to IGAD Climate Prediction and Application Centre (ICPAC), above normal Hagaa conditions are expected over Lower Juba, Middle Juba, and Lower Shabelle regions, coastal parts of Middle Shabelle region and southern parts of both Woqooyi Galbeed and Awdal regions, and northern parts of Ceerigaabo district in Sanaag region. According to Climate Prediction Centre (CPC), there is a 65 % chance that the present ENSO-neutral conditions will favor the development of La Niña later in July-September. Depending on the evolution of other drivers including the Indian Ocean Dipole (IOD), this may drive below normal Deyr 2024 conditions across Somalia. Even with an understandable high level of uncertainty, (CPC) models are already projecting up to 50 % likelihood of below normal September-October-November rains over the central parts of the country including Gedo, Bay, Bakool, Hiraan, Middle Shabelle, and Galgaduud regions, and southern halves of Awdal and Woqooyi Galbeed regions. The below normal rainfall associated with the even better likelihood (85 %) of La Niña persisting into November-December-January may trigger a multi-season drought with a potential reversal of the currently achieved agropastoral gains.

Taking in to account the performance of the Gu rains and the present Hagaa weather conditions, the projected impacts will vary from region to region (Annex 1).

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Annex 1: Impacts of Observed Gu, Current Hagaa and projected Deyr seasonal rainfall on livelihoods over Somalia

Region (Livelihoods within the Zone)	Impact of Observed *Gu* Rains	Potential Impact of Current *Hagaa* and Projected *Deyr* Rainfall
Awdal (Pastoral and Agropastoral)	Moderate recharge of water sources, improvement of soil moisture conditions likely to have supported grassland regeneration and offered fodder for the livestock and timely planting and other agricultural activities over the southern half of Awdal region. Unfavorable conditions in the northern half	Above normal *Hagaa* conditions likely to sustain the good rangeland and fodder conditions in the southern half with moderate agropastoral risk in the northern half. Below normal *Deyr* conditions likely to exacerbate the risk
Woqooyi Galbeed (Pastoral and Agropastoral)	Good recharge of water sources and improvement of soil moisture conditions likely to have supported grassland regeneration and offered fodder for the livestock and timely planting and other agricultural activities	Above normal *Hagaa* conditions likely to sustain the good rangeland and fodder conditions in the southern half with moderate agropastoral risk in the northern half of the region. Below normal *Deyr* conditions likely to exacerbate the risk
Sanaag (Goats, Sheep, Frankincense and Fishing)	Good recharge of water sources and improvement of soil moisture conditions are likely to have supported grassland regeneration and offered fodder for goats and sheep. The moist *Gu* soil conditions likely to have favored the development of the Frankincense bark. Unfavorable conditions in northern parts of Laasqoray half	Normal *Hagaa* conditions likely to sustain the rangeland and fodder conditions particularly in the northern parts of Ceerigaabo district with moderate agropastoral risk. Additionally, below normal *Deyr* conditions likely to exacerbate the risk Given the August-January harvest season of Frankincense (Boswellia carterii) begins, the below normal *Hagaa* and Deyr conditions in July will favor the drying and hardening up of its cutout resin surfaces. The SE monsoon winds in *Hagaa* are likely to aid coastal upwelling at Sanaag region's shores leading to upward transport of cold, nutrient-rich waters to the ocean surface thereby favoring fish abundance
Togdheer (Pastoral and Agropastoral)	Moderate recharge of water sources and fair soil moisture conditions supported early planting activities, grassland regeneration and offered fodder for the livestock with reported livestock calving. Improved human thermal comfort	Normal *Hagaa* conditions likely to sustain the moderate rangeland and fodder conditions with moderate agropastoral risk. Additionally, below normal *Deyr* conditions likely to exacerbate the risk
Nugaal (Goats, Sheep, and other forms of pastoralism)	Moderate recharge of water sources and fair soil moisture conditions likely to have supported some grassland regeneration and offered some fodder for goats, sheep, and other pastoral activities reportedly leading to recovery from drought and water shortage and increased livestock market ahead of the Eid season.	Normal *Hagaa* conditions likely to sustain the moderate rangeland and fodder conditions with moderate agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk
Sool (Goats, Sheep, and other forms of pastoralism)	Moderate recharge of water sources and fair soil moisture conditions likely to have supported some grassland regeneration and offered some fodder for goats, sheep, and other pastoral activities. Improved human thermal comfort	Normal *Hagaa* conditions likely to sustain the moderate rangeland and fodder conditions with moderate agropastoral risk. Additionally, below normal *Deyr* conditions likely to exacerbate the risk
Bari (Goats, Sheep, Frankincense and Fishing)	Low recharge of water sources and fair soil moisture conditions supported some grassland regeneration and offered some fodder for goats and sheep reportedly leading to moderate recovery from drought and water shortage in some areas. Rainstorms are reported to have destroyed houses in some parts. The average soil conditions favored moderate development of the Frankincense bark. However, prevailing drought conditions and high temperature reportedly led to	Normal *Hagaa* conditions likely to impact the fair rangeland and fodder conditions with high agropastoral risk. Additionally, below normal *Deyr* conditions likely to exacerbate the risk Given the August-January harvest season of Frankincense (*Boswellia carterii*) begins, the below normal *Hagaa* and Deyr conditions in July will favor the drying and hardening up of its cutout resin surfaces.

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	water shortage and poor pasture conditions in some areas particularly in the north	The SE monsoon winds in *Hagaa* are likely to aid coastal upwelling at Bar region's shores leading to upward transport of cold, nutrient-rich waters to the ocean surface thereby favoring fish abundance
Mudug (Pastoral, Cowpea belt Agropastoral and Fishing)	Low recharge of water sources, and fair soil moisture conditions likely to have favored average production of cowpeas, supported some grassland regeneration, thus offering some fodder which supported pastoral livelihoods	Normal *Hagaa* conditions likely to impact cowpea production, and rangeland and fodder conditions with high agropastoral risk. Additionally, below normal *Deyr* conditions likely to exacerbate the risk The SE monsoon winds in *Hagaa* are likely to aid coastal upwelling at Mudug region's shores leading to upward transport of cold, nutrient-rich waters to the ocean surface thereby favoring fish abundance
Galgaduud (Pastoral, Cowpea belt Agropastoral and Fishing)	Good recharge of water sources, and improvement of soil moisture conditions likely to have led to timely planting of cowpeas, supported grassland regeneration, thus offering fodder which supported pastoral livelihoods. Livestock calving and enhanced milk production. However, drought conditions and water shortage led to livestock deaths in some areas	Normal *Hagaa* conditions likely to sustain cowpea production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk The SE monsoon winds in *Hagaa* are likely to aid coastal upwelling at Galgaduud region's shores leading to upward transport of cold, nutrient-rich waters to the ocean surface thereby favoring fish abundance
Hiraan (Camels, Goats, Sheep, Cattle and Sorghum and Pump irrigation)	Good recharge of water sources, and improvement of soil moisture conditions, reported to have increased farm productivity (rain fed sorghum, easing of pump irrigation), supported grassland regeneration, and offered fodder which supported livestock. Flooding at BW led to some farmland and property damage. After recovery from flood, pests' infestation has been reported leading to crop ruin	Normal *Hagaa* conditions likely sustain the sorghum production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk. Therefore, pump irrigation may need to be deployed for sorghum production
Bakool (Camels, Goats, Sheep, cattle and Sorghum and Bay-Bakool low potential Agropastoral)	Good recharge of water sources, and improvement of soil moisture conditions, likely to favored planting of sorghum and supported grassland regeneration, offering fodder that supported livestock and improved the low potential agropastoral activities in the southern parts of Bakool	Normal *Hagaa* conditions likely sustain the sorghum production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk.
Middle Shabelle (Camels, Goats, Sheep, Cattle, and Cowpea belt, high potential Sorghum, riverine gravity irrigation and Fishing)	Good recharge of water sources, and improvement of soil moisture conditions over Adan Yabaal and Cadele Districts reported to have favored production of vegetables, maize and cowpeas and supported grassland regeneration, thus offering fodder that supported livestock. While the downflow of flood waters along the Shabelle likely to have enhanced high potential sorghum production in the riverine irrigation zone, farmland damages were also reported	Above normal *Hagaa* conditions likely sustain cowpea and sorghum production, and rangeland and fodder conditions particularly along the coastal areas with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk.
Bay (Camels, Goats, Sheep, Cattle, and high potential Sorghum, and Bay-Bakool low potential Agropastoral)	Good recharge of water sources, and improvement of soil moisture conditions over Diinsoor, Qansax Dheere and Baydhaba districts likely to have favored high potential production of sorghum and supported grassland regeneration, thus offering fodder that supported livestock. It is also likely to have improved the low potential agropastoral activities in the northern parts of Bay. Unfavorable conditions are likely over Buur Hakaba district	Above normal Hagaa conditions over Buur Hakaba and normal conditions over Diinsoor, Qansax Dheere and Baydhaba district likely to sustain high potential sorghum production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk

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Lower Shabelle (Camels, Goats, Sheep, Cattle, rain fed Maize, and high potential Sorghum, riverine gravity irrigation)	Good recharge of water sources and improvement of soil moisture conditions over Sablaale, Baraawe, Kurtunwaarey and Marka districts likely to have favored timely planting of rain fed maize and favored high potential production of sorghum supplementing riverine gravity irrigation and supported grassland regeneration, thus offering fodder that supported livestock. Unfavorable conditions are likely over Wanla Weyn district	Above normal *Hagaa* conditions likely sustain rainfed maize and sorghum production, and rangeland and fodder conditions with low agropastoral risk over Sablaale, Baraawe, Kurtunwaarey and Marka districts. However, below normal *Deyr* conditions likely to exacerbate the risk.
Gedo (Camels, Goats, Sheep, Cattle, and high potential Sorghum, riverine gravity irrigation)	Good recharge of water sources, and improvement of soil moisture conditions likely favored timely planting of sorghum supplementing riverine gravity irrigation and supported grassland regeneration, thus offering fodder that supported livestock and livestock recovery. Flooding along the Juba River at Doolow led to some farmland and property damage.	Normal *Hagaa* conditions likely sustain sorghum production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk.
Middle Juba (Camels, Goats, Sheep, Cattle, rain fed, Maize, and high potential Sorghum, riverine gravity irrigation)	Good recharge of water sources, and improvement of soil moisture conditions likely to have favored timely planting of rain fed maize and favored high potential production of sorghum supplementing riverine gravity irrigation and supported grassland regeneration, thus offering fodder that supported livestock. Strong winds and ocean waves associated with Tropical Cyclone *Ialy*	Above normal *Hagaa* conditions likely sustain rainfed maize and sorghum production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk.
Lower Juba (Camels, Goats, Sheep, cattle, Sorghum and rain fed Maize, riverine gravity irrigation)	Good recharge of water sources, and improvement of soil moisture conditions reportedly led to timely production of rain fed maize and favored high potential production of sorghum supplementing riverine gravity irrigation and supported grassland regeneration, thus offering fodder that supported livestock aiding recovery. Strong winds and ocean waves associated with Tropical Cyclone *Ialy*	Above normal *Hagaa* conditions likely sustain rainfed maize and high potential sorghum production, and rangeland and fodder conditions with low agropastoral risk. However, below normal *Deyr* conditions likely to exacerbate the risk.
Banadir/Mogadishu (urban)	Moderate recharge of water sources, and enhancement of soil moisture conditions, improved the vegetative cover over highly urbanized areas thus mitigating against windblown natural dust and urban particulates, and supported daytime breeze in improving thermal comfort, thus reducing AC power demand	Current coastal cloudiness and SE monsoon rains are likely to lead to sustain the improved air pollution and human thermal comfort over the urbanized areas in Banadir/Mogadishu region. However, below normal *Deyr* conditions likely to exacerbate the poor air quality and human thermal discomfort thereby increasing demand for AC power.

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