

Eastern Africa Seasonal Monitor

February-March 2023 & April-June Outlook



HIGHLIGHTS

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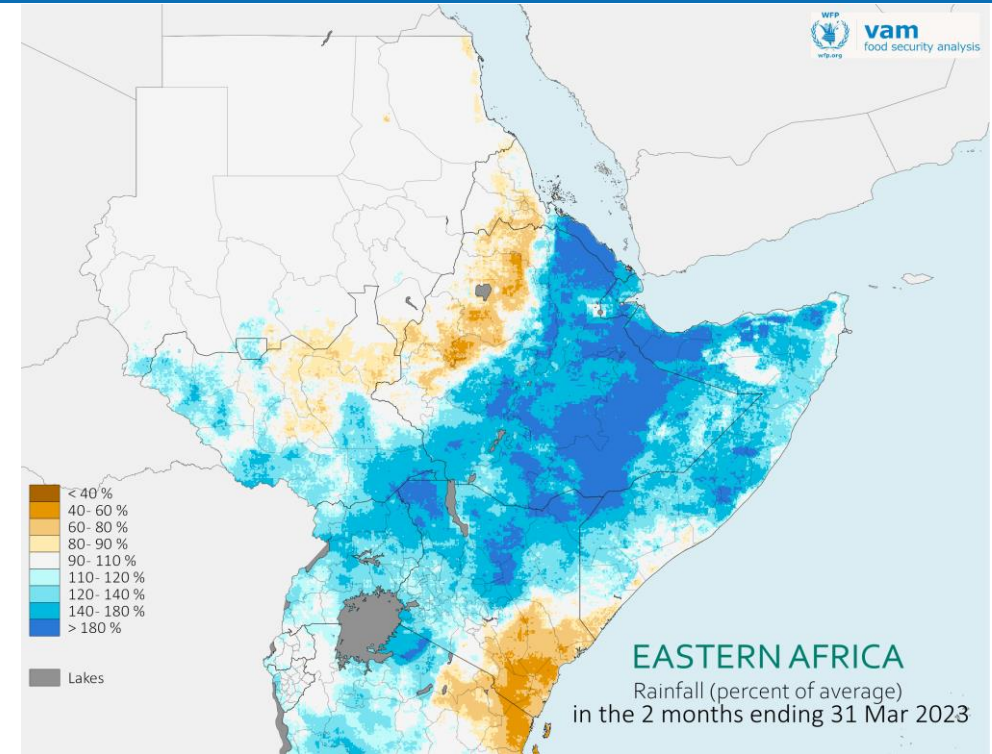
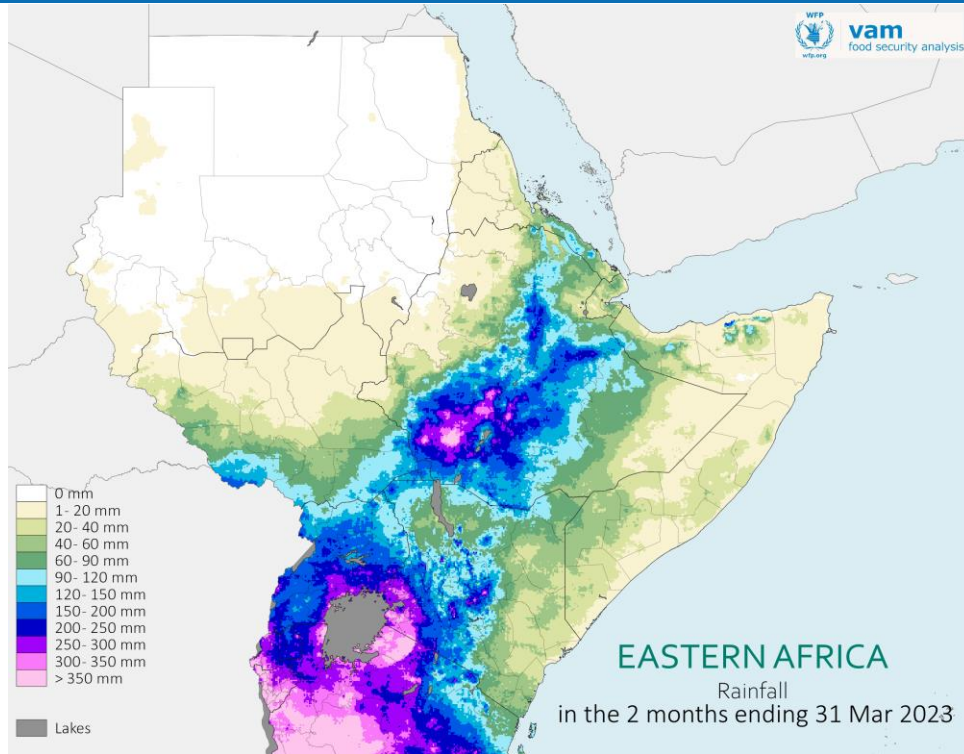
- **Dry and hot weather conditions** prevailed in January and part of February, **prolonging the drought conditions** in the eastern Horn of Africa. The March-May seasonal rains started on time in equatorial areas of the region and were earlier than normal in Somalia.
- **From mid-March, there were heavy rains** in southwest, central and parts of southern Ethiopia; most of Rwanda, Burundi, Uganda, equatorial South Sudan, most of Kenya except the coastal strip, and parts of southern Somalia **leading to wetter-than-normal conditions** except in southern Kenya and northeast Tanzania.
- The **heavy rains resulted in flash floods** in Ethiopia (parts of Somali, Sindama, Oromia, Afar, Amhara and Tigray regions); Somalia (Gedo region); Kenya (Nairobi, Kajiado, Marsabit, Tana River, Mandera, Nakuru, Garissa counties, and the Lake Victoria region). Nearly 230,000 people in Ethiopia (OCHA) and nearly 100,000 in Somalia (OCHA) have been affected.
- In **Somalia**, the floods resulted from heavy rains in Ethiopia highlands **rapidly raising water levels in the river Juba** leading to riverline flooding in Gedo region. Flash floods were experienced in other parts of the country.
- The ongoing seasonal rains coupled with inflows from Ethiopian highlands and East Africa **pose a risk of flooding along the stretch of the river Nile in South Sudan** by maintaining high river water levels. Of most concern are parts of Jonglei and Unity states where flooding has persisted from past seasons and may be exacerbated by the April-May rains.
- **Water resources have improved in northern Kenya and southern Ethiopia** easing the severe water stress caused by the drought. However, the situation has not significantly improved in parts of southern Somalia and southeast Ethiopia where water points are still in a poor status.

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- Available data (early April) shows a **marked vegetation improvement in southern and southeast Ethiopia, northeast Kenya, and northern and southwest Somalia following the rains**. However, **most ASALs in Kenya, localised areas in SNNPR and southern Ethiopia, and parts of south-central Somalia still face significant vegetation deficits**. Vegetation deficits imply that there is limited availability of livestock grazing resources or crops have not established in the marginal cropping areas. The vegetation condition is expected to improve further as the season progresses.
- **In drought-affected areas, livestock are still in poor/weak body condition**, which continues to affect production and household consumption of milk products. **Some improvement is expected as pastures and water become readily available**, however it will take time for a full recovery to take place. Livestock that are currently in very weak body condition are susceptible to wetter-than-normal conditions and disease outbreaks associated with the current rains.
- **Rainfall forecasts for the remaining part of the season show mixed predictions**. The national Meteorological Agencies (Kenya and Ethiopia) short-term models predict **a likelihood of rains continuing in April**. Regional and global medium-term forecasts show likelihood of **near-normal but with some localised incidences of below-average** rains in parts of Somalia, southern Ethiopia, Uganda, and northwest Kenya. Given that April is the peak month of the March-May rains, it is quite early to conclude how the season will perform. The RAM Unit will continue monitoring the progress of the season.
- Despite the intense rains received, the **humanitarian situation remains dire and there is need to sustain humanitarian response and strengthen resilience building** among the affected populations.

Eastern Africa: February - March 2023 Long Rains Performance



Rainfall in the two months ending 31st March 2023: Map 1 (Left) as amounts in mm, Map 2 (Right), as a percent of the average (blues for wetter than average conditions, browns for drier than average conditions).

After dry and hot weather in January that prolonged the drought conditions, the long rains were expected to start on time according to climate forecasts.

However, very low rainfall was received in areas that start receiving the seasonal rains in February (e.g. Rwanda and Belg areas of Ethiopia).

In March, the rains intensified and spread eastwards and northwards including into the pastoral areas of Kenya, Ethiopia, and parts of Somalia. By the end of March, over 100mm of rain had been received in Rwanda, Burundi, Tanzania, Uganda, southwest and central Ethiopia, and the western half of Kenya (Map 1).

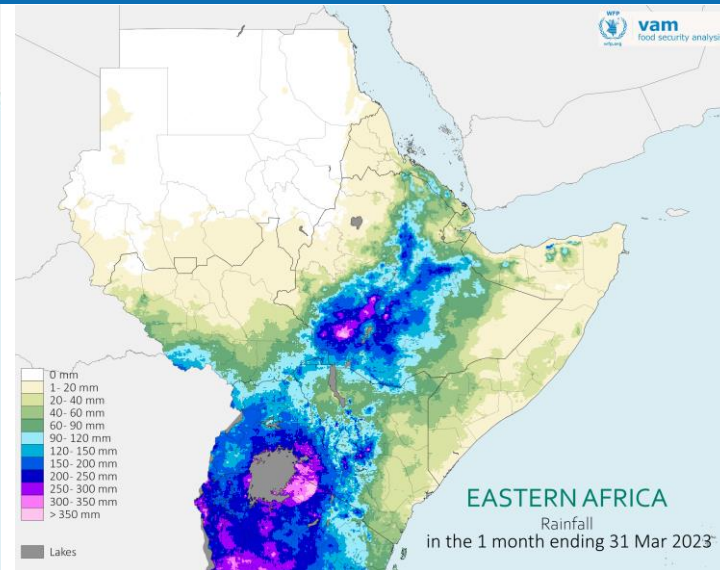
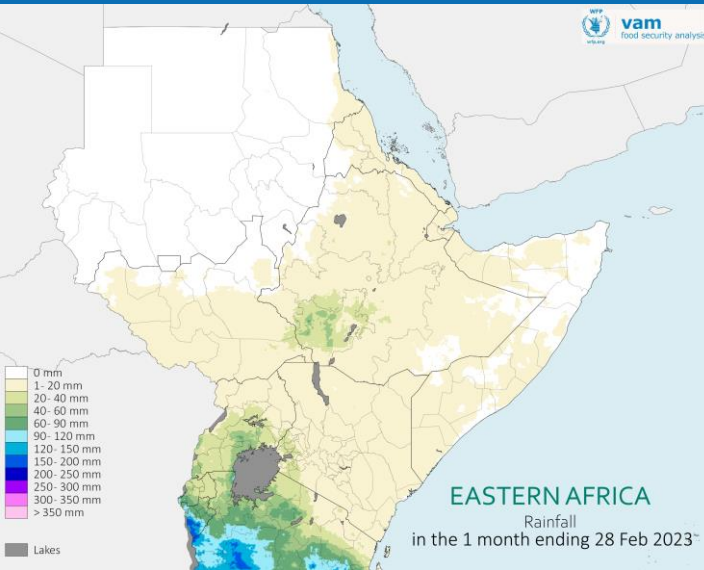
Most drought-affected pastoral and agropastoral areas received up-to 90mm of rain except in extreme southeastern Ethiopia and parts of Somalia where there was less than 20mm of rain (Map on left).

Compared to the long-term average, the February-March cumulative rains resulted in normal to wetter-than-normal conditions except in southern Kenya, northeast Tanzania, and a few areas in southern Somalia (Map 2).

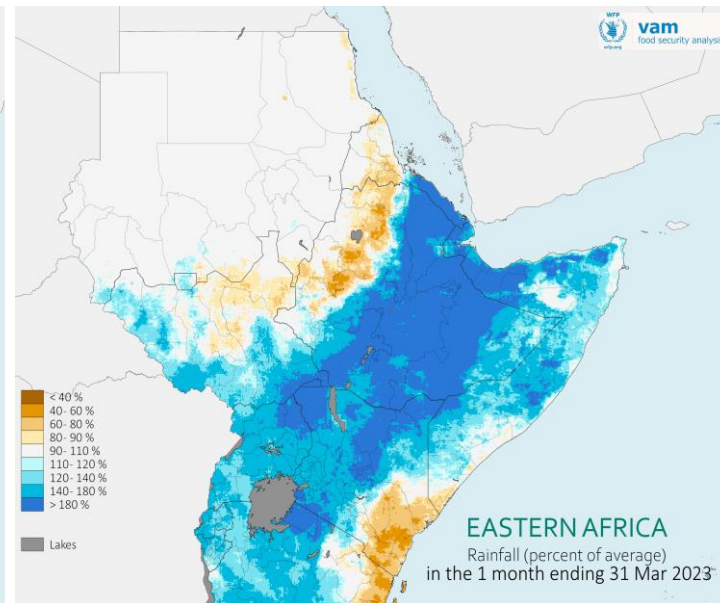
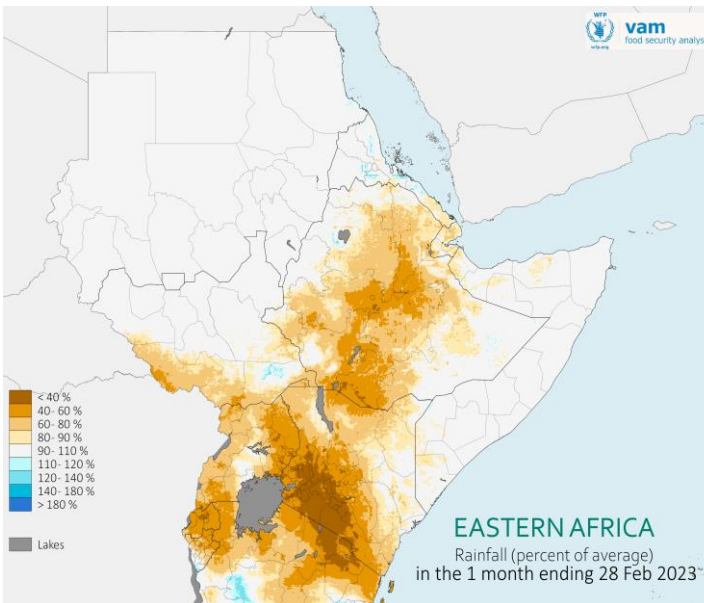
The heavy rains in March provided some relief in drought-stricken areas, alleviating the water stress. However, it also resulted in localised flash flooding that affected people's livelihoods and properties, livestock and infrastructure.

Initially rainfall forecasts predicted below-average seasonal rains, but the influence of tropical cyclone Freddy and the Madden-Julian Oscillation (MJO) over the Indian Ocean led to heavy rains. It is currently early to conclude on the overall seasonal performance but monitoring the progress will be necessary to provide early warning for early action.

Eastern Africa: February-March Monthly Performance & Distribution



Rainfall performance (mm) in February (Map 3: left) and March (Map 4: right) 2023 (the amounts increase from green to bluish to purple colour)

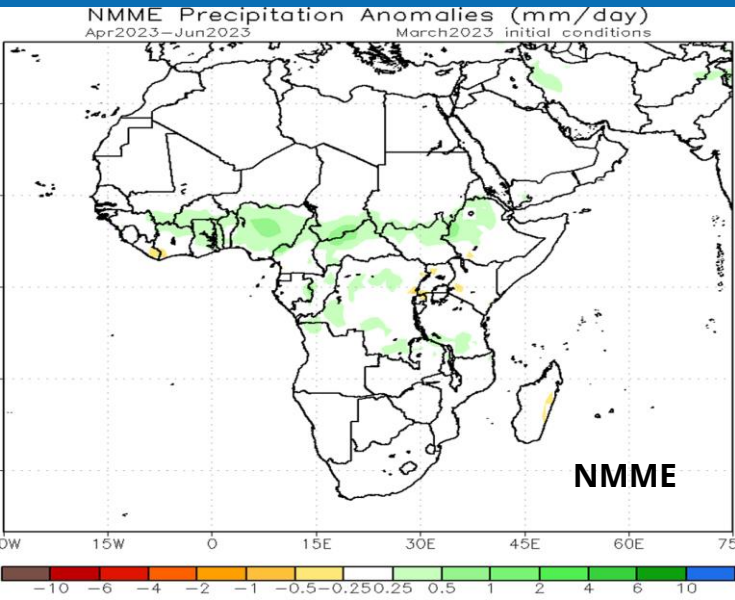


Monthly rainfall anomaly for February (Map 5: left) and March (Map 6: right) 2023 as a percentage of average. Brown shades indicate below-average rainfall; blue shades indicate above-average seasonal rainfall.

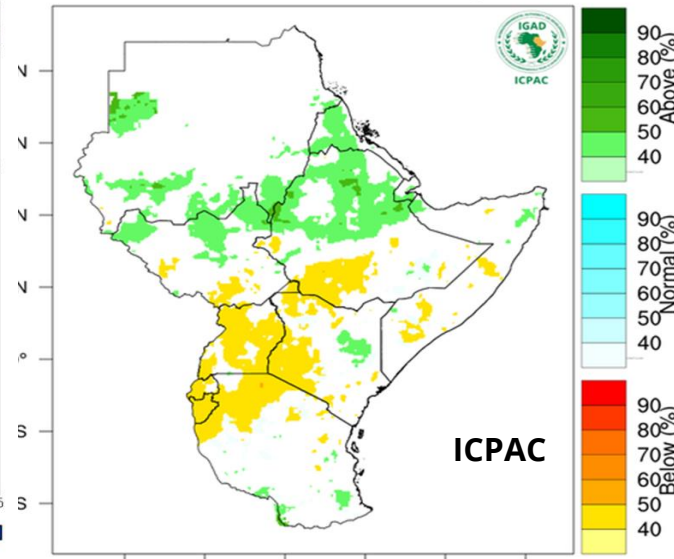
- In February, only Burundi had a significant amount of rainfall: over 100mm. The rest of the region including the Belg agricultural areas of Ethiopia where rains start from mid-February received very low rainfall (Map 3).
- The rains intensified in March and spread into Rwanda, Uganda, Kenya, Ethiopia, equatorial South Sudan, and northwest and southern Somalia (Map 4).
- In Somalia, the light to moderate rains from the second week of March marked an early onset of the Gu seasonal rains. The intense rains combined with inflows from upper catchments in Ethiopia highlands increased water levels in the river Juba resulting in flooding in Gedo region.

- Compared to the long-term average, the rains were generally below-average in most areas including in areas where the seasonal rains start in February (Rwanda, Burundi, parts of Belg areas of Ethiopia). The delayed onset led to the late start of crop planting.
- By February, the pastoral and agropastoral areas of Kenya, Somalia, southern and south-eastern Ethiopia were still experiencing drought conditions (Map 5).
- The intense rains in March led to wetter-than-normal conditions, even in Somalia, following an earlier-than-normal onset of Gu rains (Map 6).
- The heavy rains led to localised flash floods in Somalia, northern and southern Kenya, and in Ethiopia including in some of the previously drought-affected areas.
- Given that the seasonal rains normally peak in April, it will be prudent to monitor the situation to inform whether the season is on track or not.

Eastern Africa: April-June 2023 Climate Outlook



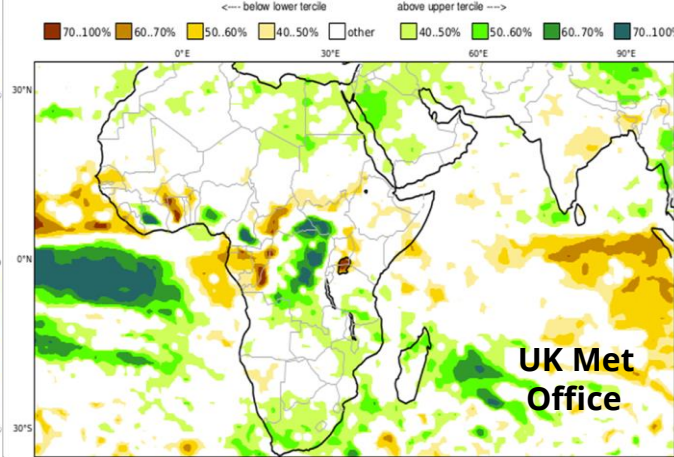
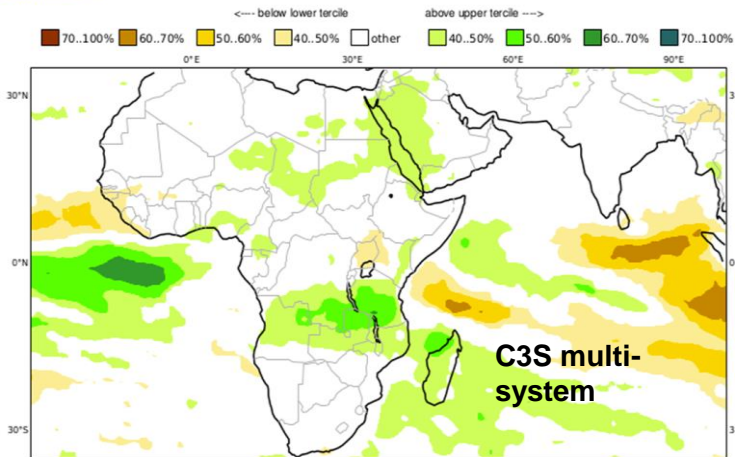
Rainfall Probabilistic Forecast for April-June 2023



- The El Niño–Southern Oscillation (ENSO) is in a neutral condition (i.e., neither La Niña nor El Niño) which will likely persist through July 2023 (IRI/CPC).
- Short-term rainfall forecasts for April indicate the likelihood of the rains continuing in several areas of the region that received rains in March.
- The Regional and global forecasts for April through June provide mixed predictions (Maps 7-10). For instance, the NMME and C3S multisystem indicate a likelihood of near-normal rains in most pastoral and agropastoral areas of eastern Horn of Africa. The UK Met Office and the regional ICPAC forecast show localised areas with below-average rains.
- The likelihood of near-normal rains in the drought-affected areas will provide an opportunity for further rangelands and pastures regeneration, water replenishment, and crop establishment in marginal cropping areas of southeast and coastal Kenya, and southern Somalia.
- For the western part of the region (parts of Uganda, western Kenya, and equatorial South Sudan), the predictions are also mixed. Some locations might experience depressed rains that could negatively impact on seasonal crop production and consequently on food availability and food security in coming months.

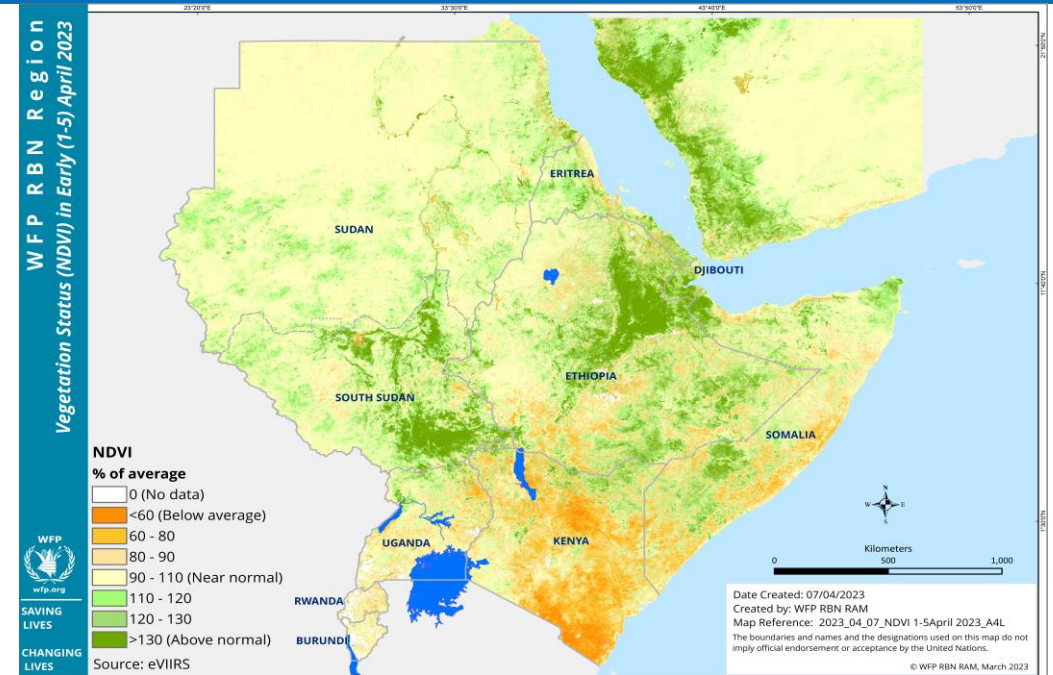
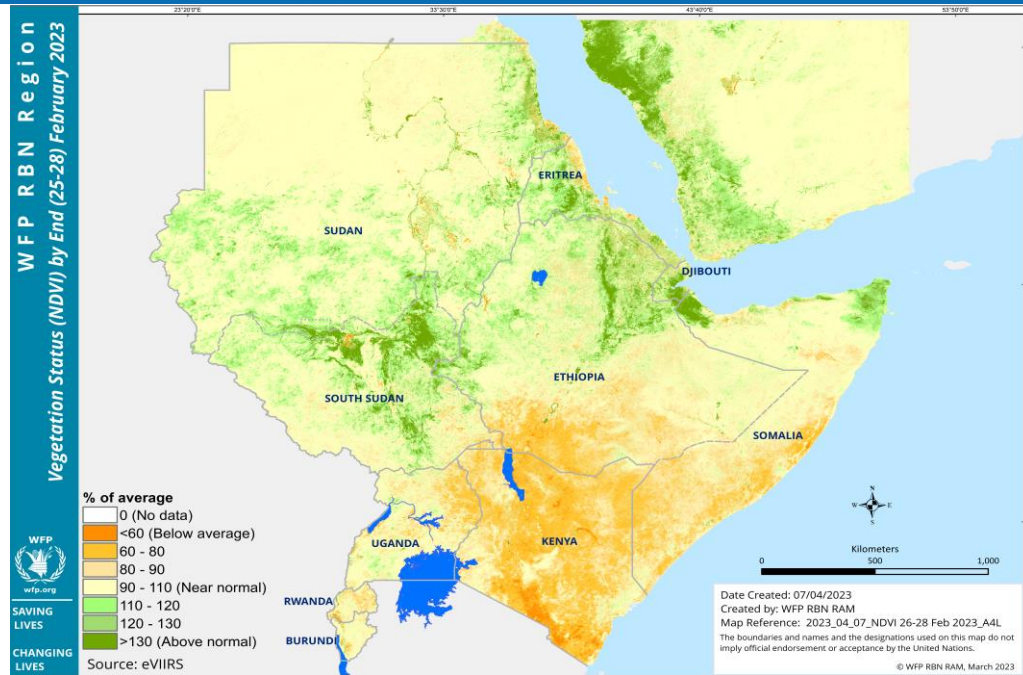
C3S multi-system seasonal forecast
ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/AMJ
Prob(most likely category of precipitation)
Nominal forecast start: 01/03/23
Unweighted mean

C3S: Met Office contribution
Prob(most likely category of precipitation)
Nominal forecast start: 01/03/23
Ensemble size = 50, climate size = 672



Rainfall forecast for the April 2023 period by NMME (Map 7: upper left), ICPAC (Map 8: upper right), C3S Multi-system (Map 9: lower left) and UK Met Office (Map 10: Lower right). Shades of green shows likelihood of wetter-than-normal rains, white as near-normal, and shades of orange/yellow below-average rains

Eastern Africa: Vegetation and Livestock Conditions



NDVI in late (25-28) February (Map 11: left), and early (1-5) April 2023 (Map 12: right) a percent of average (greens for above average, browns for below average)

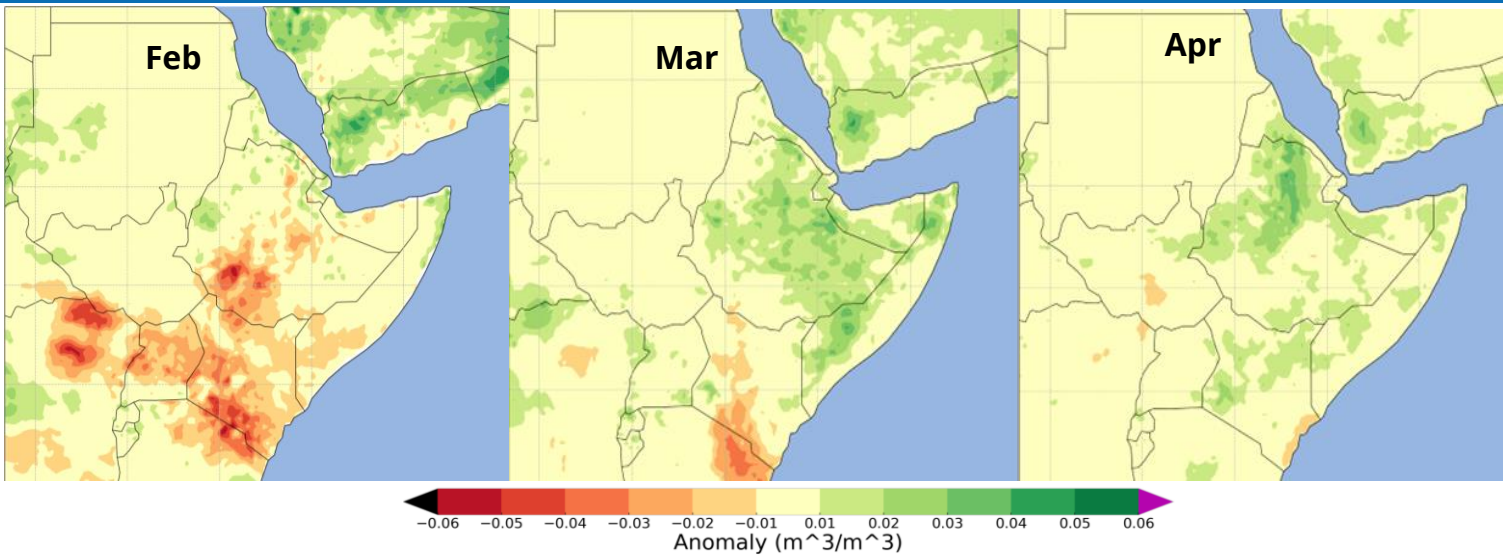
Vegetation

- Vegetation anomalies for early (1st-5th) April (Map 12) show marked improvement in southern and southeast Ethiopia, northeast Kenya, and northern and southwest Somalia compared to the end of February (Map 11). However, most areas in Kenya and parts of Somalia still face significant vegetation deficits despite the rains received in March.
- The drought decimated most pastures and it requires time for vegetation to respond to moisture. As a result, pastoral and agropastoral areas will continue facing inadequate grazing resources until later in the season.
- In the marginal cropping areas of Kenya and southern Somalia, this means that crop establishment is yet to take place owing to delayed crop planting. The situation is expected to improve as more rains are received.

Livestock

- The favourable vegetation in northern areas suggests that livestock will have grazing resources and there will be normal livestock conditions.
- On the contrary, in drought-affected areas where 13.2 million head of livestock have died due to drought (FSNWG), remaining livestock are still in poor body condition due to limited availability of grazing resources, long distance trekking in search of water and pastures, and high temperatures.
- Livestock are expected to improve as water and pastures become available but those in very weak body condition are susceptible to wetter-than-normal conditions, emerging diseases, or being washed away by floods.
- Several favourable seasons are needed for livestock to recover, and the effects of drought may last for a long time among the affected pastoral and agropastoral households.

Eastern Africa: Soil Moisture and Water



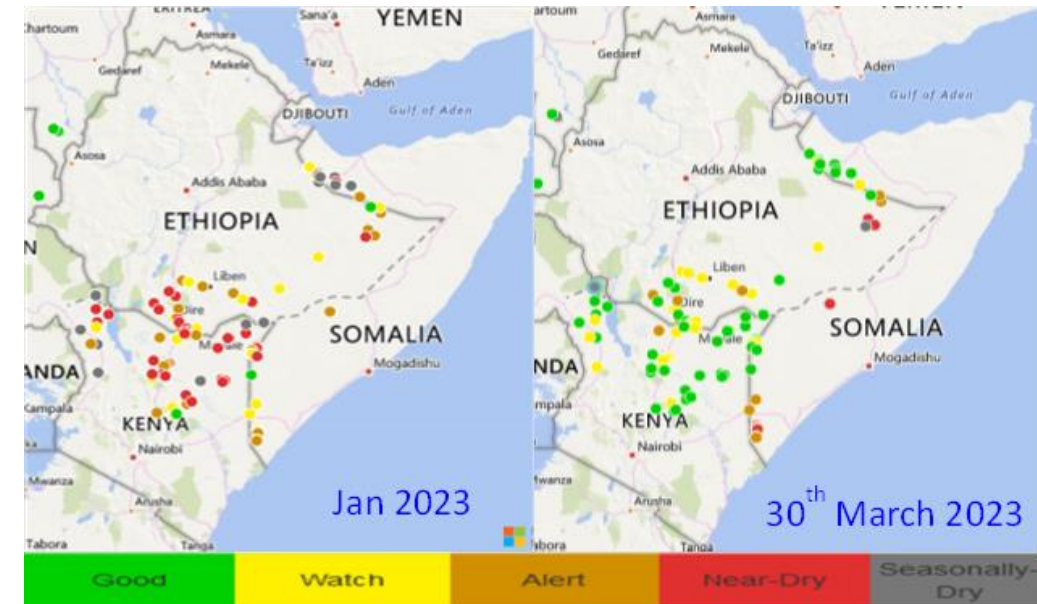
Map 13: Surface soil moisture forecasts in February (left), March (centre) and April (right); greenish for above-average and orange to reddish for below-average (Source: FLDAS)

Surface soil moisture

- In February, many areas in the region, particularly in Kenya, southwest Ethiopia, and parts of Uganda, faced surface soil moisture deficits due to the dry conditions. The situation is expected to improve as rains are received in March and in April (Map 13).
- Improved soil moisture will facilitate vegetation regeneration, surface water replenishment and retention, and crop development.

Surface water resources

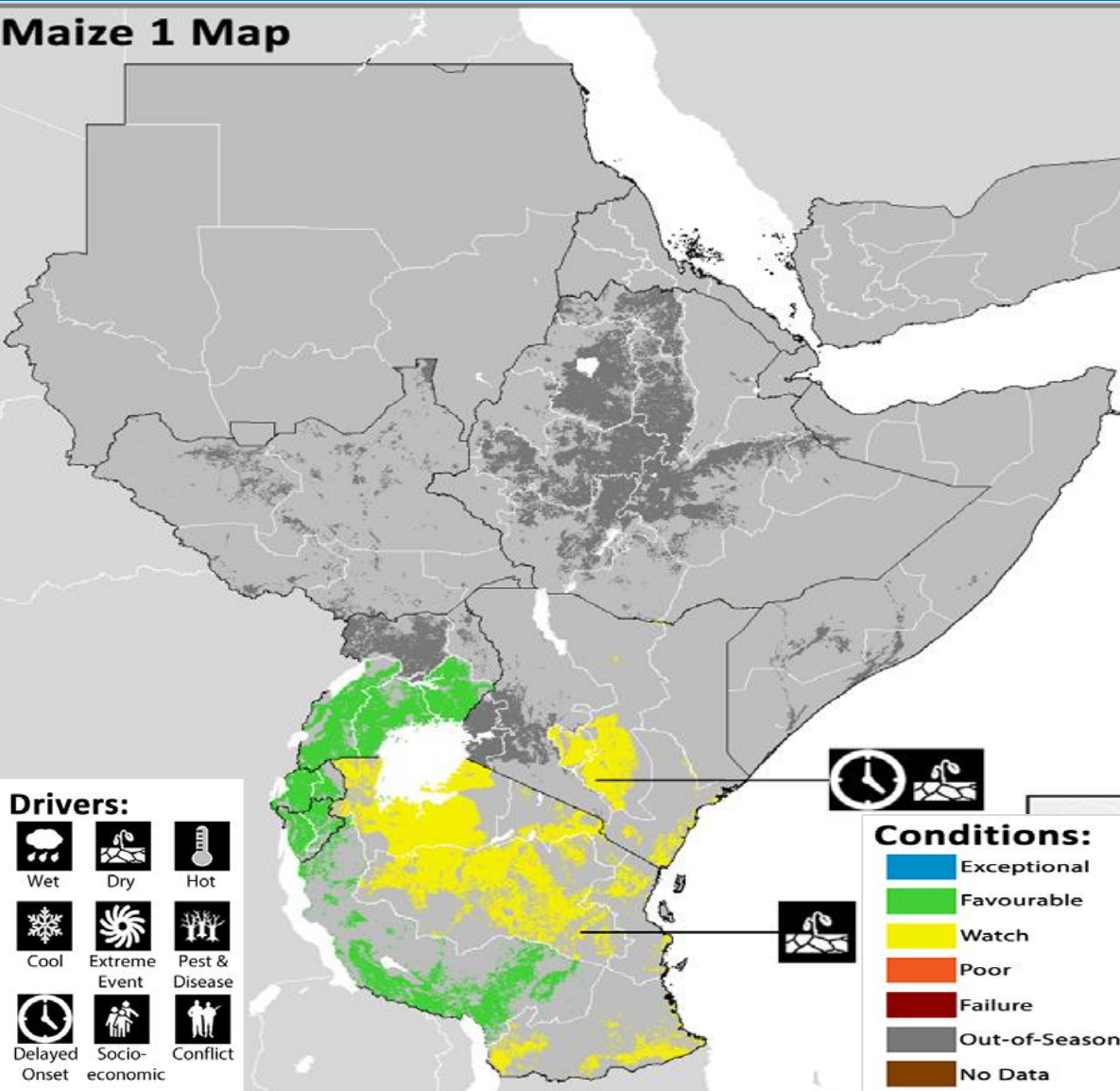
- An estimated 24 million people were facing severe water scarcity in the region by December 2022 due to drought (UNICEF). This led to rising cases of water-borne diseases (e.g. cholera) in Kenya, Ethiopia, Somalia and Burundi.
- The received rains have to some extent eased the water stress in drought-affected areas. The surface water points have improved in northern Kenya and parts of southern Ethiopia, and northwest Somalia compared to January 2023 except in localised areas in southeast Ethiopia and southern Somalia (Map 14).
- An improvement in water availability increases the amount of water for human, livestock and wildlife consumption; reduces the long trekking distances by humans and livestock in search of water; minimises incidences of conflicts over resources; and eases the burden of water trucking and expenditures among households.
- It will also lower the incidences of cholera outbreaks as people consumed contaminated water. However, incidences of diarrhoea are likely due to consumption of untreated waters. Incidences of malaria might increase as mosquitoes breed in stagnant waters.



Map 14: Status of surface water points in January (left) and by 28th March (right) 2023; Green for good and orange to reddish for alert to nearly-dry water points (USGS/FEWS NET)

Eastern Africa: Crop Production

Maize 1 Map



- February/March marks the start of crop planting in the equatorial areas of the region as well as the winter wheat harvesting period in wheat production areas of **Sudan**.
- By the end of March 2023, crop planting had taken place (or was nearly completed) in **Rwanda and Burundi**, and crops were approaching the vegetative stage. In Ethiopia, planting of Belg season cereals continues that will be harvested from June, and there is concern due to dry conditions at the start of the season as well as residual socio-economic challenges relating to the conflict in the north.
- In **Kenya's** bimodal areas of the eastern and coastal regions, planting of the Long rains cereal crops is underway. However, there is concern about the outputs as the seasonal rains have been delayed and below-average.
- In other areas of the region (equatorial **South Sudan, Karamoja and northern Uganda**, and **Somalia**), land preparation are underway following the start of the rains. Normally, crop planting starts in April, but households may take advantage of the rains to undertake earlier-than-normal planting.
- The relatively good rains in March-April will facilitate crop establishment but there are concerns, given the likelihood of depressed rains over April-June in some areas (e.g., Uganda), because inadequate soil moisture might affect crop development through wilting leading to localised poor crop harvests.
- Close monitoring of the rainfall performance throughout the season and provision of early warning information is critical towards ensuring food security in coming months.

Map 15: A synthesis of crops condition by 28th March 2023, (GeoGLAM)

Eastern Africa: Flooding

- The heavy rains in March resulted in flash floods in several parts of the region including in areas previously affected by droughts. However, there are few statistics on the impacts.
- In **Kenya**, the heavy rains led to massive flash floods in parts of the Nairobi metropolitan area, Kajiado, Marsabit (especially in Moyale town), Tana River, Mandera, Nakuru, Garissa counties, and the Lake Victoria region. Thousands of people are estimated to have been affected. According to the Kenya Red Cross Society (KRCS), between 13th March and 3rd April 2023, over 52,000 people were affected by floods in addition to injuries, fatalities, missing persons, and thousands of livestock deaths, and damage to properties.
- In **Ethiopia**, the WFP ADAM system estimated that over 500,000 hectares of land were flooded/inundated in parts of Somali, Sindama, Oromia, Afar, Amhara and Tigray regions, affecting nearly 230,000 people (OCHA). Flooding has even occurred in Addis Ababa city (in Mango Sefer of Woreda 12) killing 4 people (Ethiopia Monitor). In Woreda FMA, an estimated 3,598 households were displaced, 608 livestock killed, and 4000 houses destroyed. Similarly, by late March, increasing water levels in the river Omo were raising concerns over high risks of flooding in IDP sites and Omorate Town of Dasenech Woreda (South Omo Zone, SNNPR) while the Shabelle river posed flooding risk in downstream areas in Somali region and into Somalia.
- In **Somalia**, the light to moderate rains in March together with waterflows from Ethiopian highlands led to rising water levels in Juba river and flash floods that have affected nearly 100,000 people and damaged properties and infrastructure (OCHA). This comes at a time when the country is also facing significant impacts of drought. The worst affected area is Baardheere District in Gedo region (OCHA). There is high risk of water-borne diseases due to poor sanitation and water infrastructural damage.
- In parts of **South Sudan**, flooding has persisted since 2019. The intense rains received in March, together with waterflows from the Nile river catchments in Ethiopia and East Africa pose further risk of flooding. Initial reports indicate flooding has started in Maban County and the risk may increase as more rains are received in the remaining period of the season.
- With rainfall forecasts indicating a likelihood of rainfall continuing in various parts of the region in the next two weeks, incidences of flash floods are likely to increase. This calls for the need to monitor the situation and prepare to respond should the situation demand so.

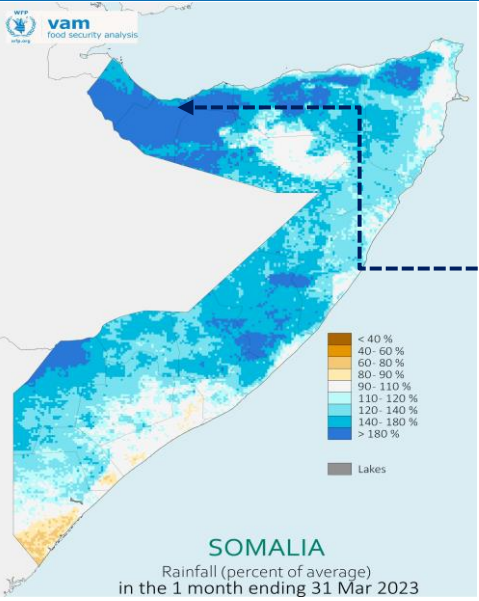


Flooded street in Dhuusamarreeb, Galmudug after heavy rains on 22 March. Photo: OCHA

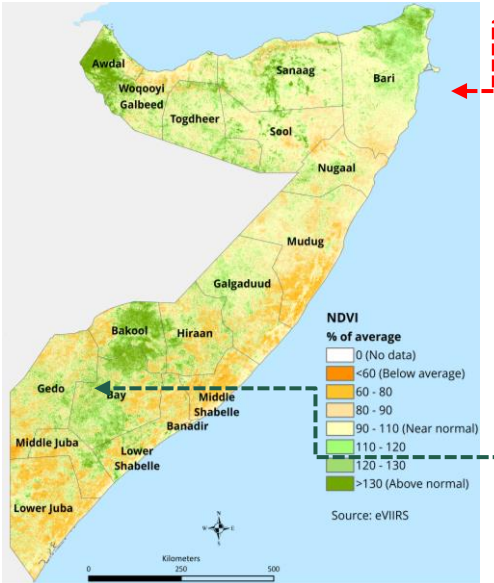


A flooded location in West Imey Woreda, Ethiopia (source: WFP Gode sub office)

Somalia Focus

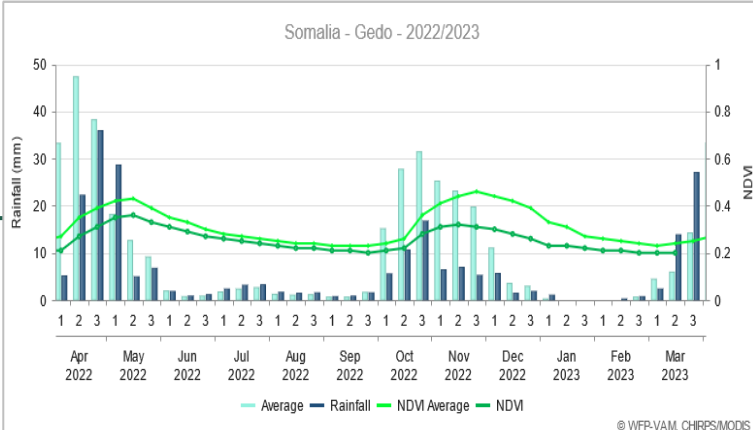
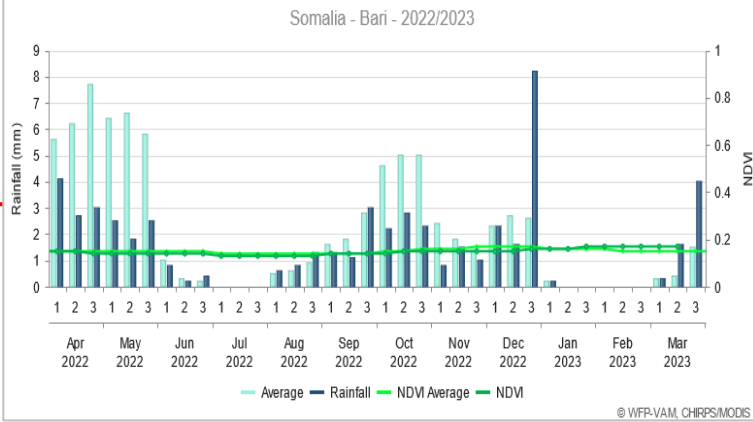
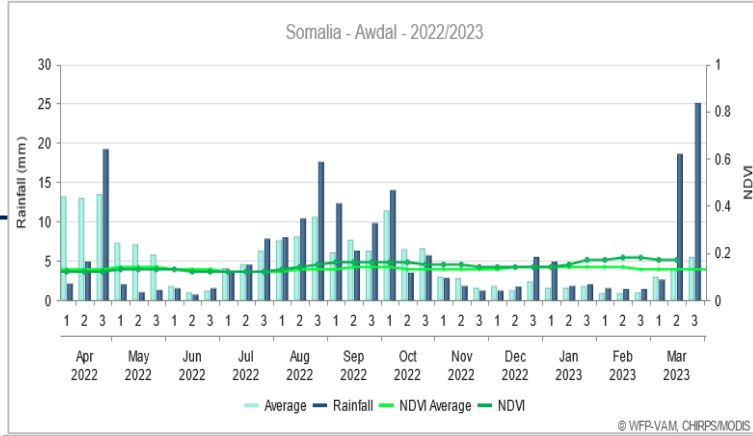


Map 16: Rainfall for 1 month ending 31st March 2023 as a percent of the average (blue for wetter, orange for drier-than-average conditions).



Map 17: NDVI for 1-5 April 2023 as a percent of the average (greens for above-average, browns for below-average)

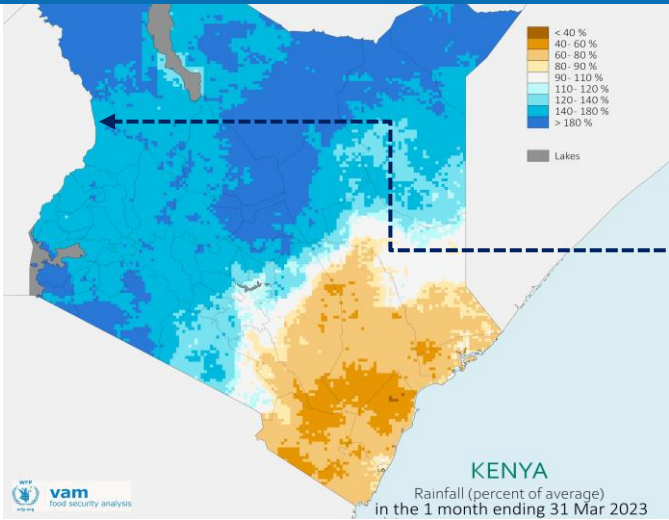
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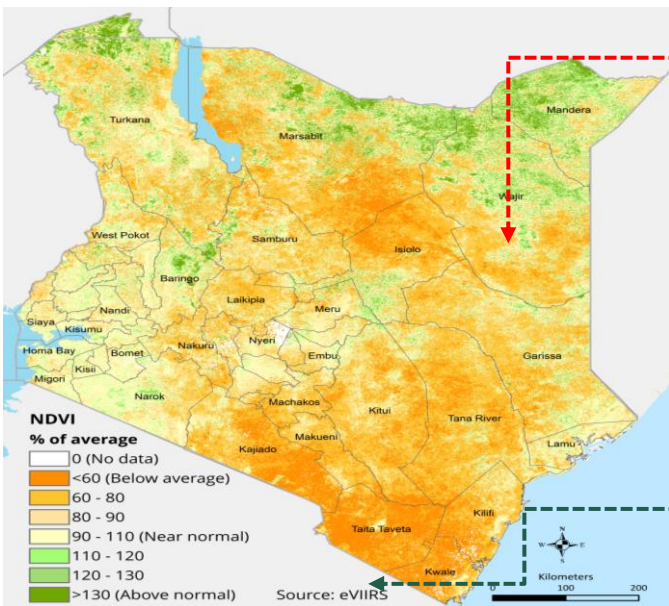
- Somalia has faced five consecutive poor seasons since late 2020 leading to severe drought conditions that ravaged the country, causing severe water shortage for human and livestock consumption, and production (for crops and vegetation).
- Food security, livelihoods and nutrition outcomes have deteriorated over time, and 6.5 million people are likely to be severely food insecure between April-June 2023 (IPC), and 1.8 million children under 5-years being malnourished (FSNAU). The risk of famine has been averted through upscaled humanitarian assistance and resilience building activities.
- In March, light to moderate earlier-than-normal Gu rains were received particularly in the southwest, northwest and in the northern highlands totalling between 40 and 120mm. Other areas received less than 40mm. Because of the earlier-than-normal start, most areas exhibited above-normal conditions except along the coast of Shabelle and in the southernmost areas (Map 16). This has to some extent eased the severe water shortage in some locations.
- The earlier-than-normal Gu rains together with water flows from Ethiopia highlands led to rapidly rising water levels in the Juba River, causing river line flooding in Gedo region (FAOSWALIM). Several other areas experienced localised flash floods. About 100,000 people and properties were affected (OCHA).
- The rising water levels in Juba and Shabelle basins will benefit irrigated agriculture along the stretches of these river basins.
- Although vegetation regeneration has started in southwest and northern regions, poor conditions prevail in parts of the southern and central areas (Map 17) signalling poor livestock grazing resources. Land preparation and crop planting is underway.
- The country has lost 3.8 million head of livestock to drought and millions are in poor body condition and with reduced production and productivity. The ongoing rains will to some extent ease water scarcity and regenerate pastures but might be insufficient for optimal recovery from the cumulative effects of the 2020-2023 drought. It will require several seasons with adequate rains for rangelands to fully recover in order to allow households to restock their livestock herds.

Seasonal profiles of vegetation and NDVI since April 2022. Dark (light) blue bars for current (average) rainfall, dark (light) green line for current (average) NDVI.

Kenya Focus

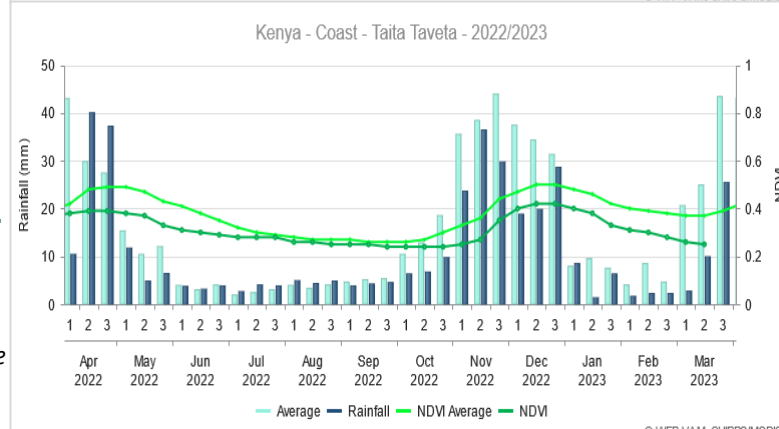
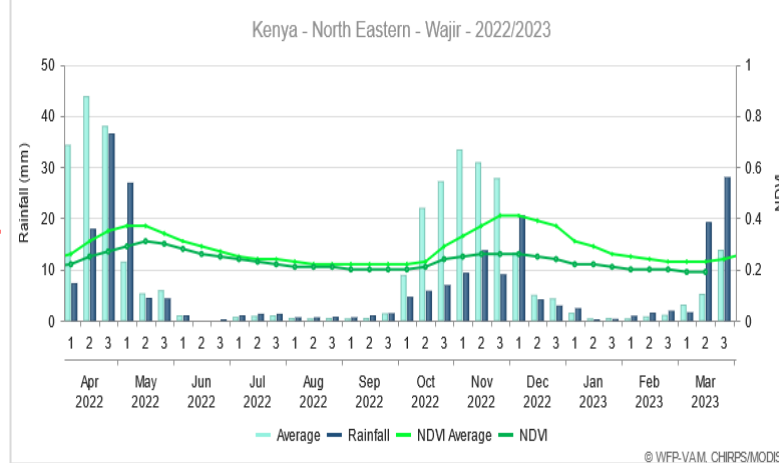
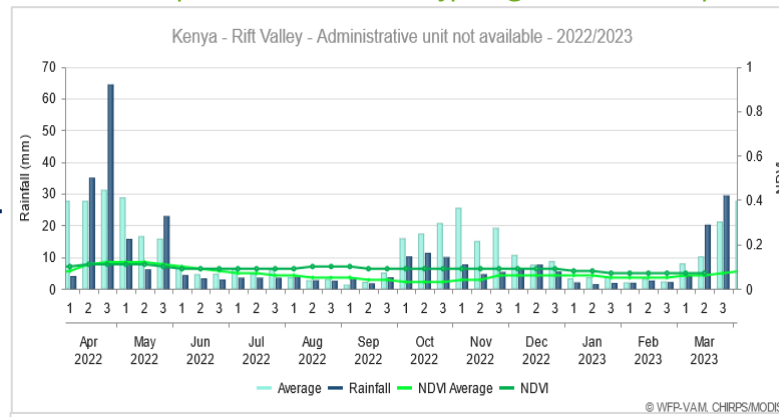


Map 18: Rainfall for the month ending 31st March 2023 as a percent of the average (blues for wetter, oranges for drier-than-average conditions).



Map 19: NDVI for 1-5 April 2023 as a percent of the average (greens for above-average, browns for below-average)

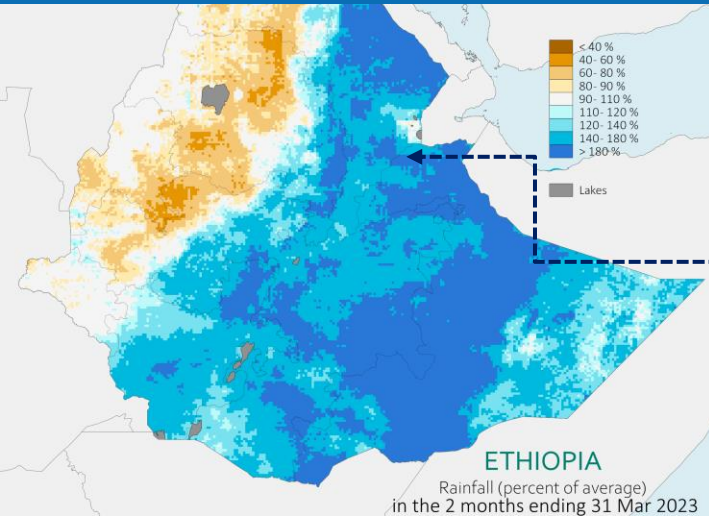
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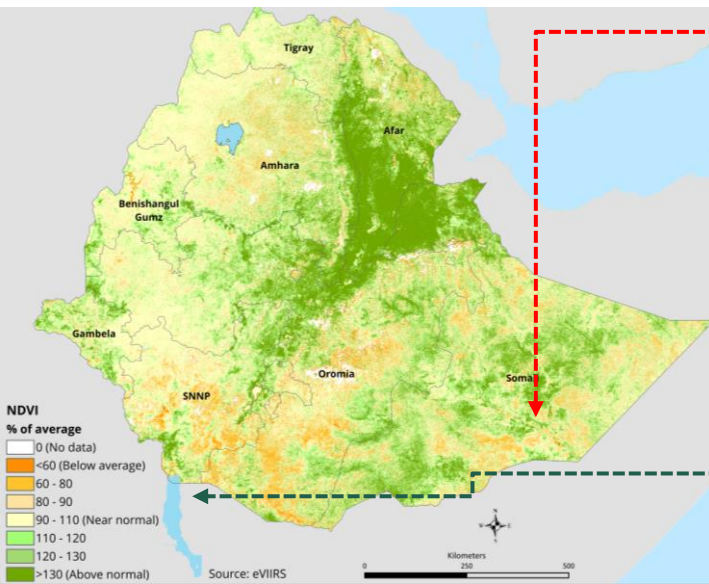
- The ASALs have gone through five consecutive poor seasons since late 2020 impacting on crops and vegetation production, livestock and water resources.
- Between March and June, 5.4 million people are likely to face food insecurity; 0.97 million children under 5-yrs were estimated to be acutely malnourished over Feb-June 2023. This is due to a combination of shocks, including five consecutive poor rainy seasons that impacted on crop production, poor livestock conditions and deaths, high food prices amidst low and declining household purchasing power, and worsened terms of trade between livestock and food commodities.
- The long-rains started on time except over a few areas in southwestern, Lake Victoria Basin and northeast where the onset was earlier than expected.
- By end of March, above-normal rains were reported in most places except in the southern and southeast areas (Map 18). This led to improved water availability in northern pastoral areas.
- The heavy rains also led to massive flash floods in parts of Nairobi, Kajiado, Marsabit, Tana River, Mandera, Nakuru, Garissa counties, and the Lake Victoria region.
- The vegetation has slightly improved in parts of northeastern counties but remains generally below-normal in many areas (Map 19 and graphs). This signifies inadequate availability of grazing resources and crop establishment in marginal areas of southeast and coast region. More rains are needed to alleviate the situation.
- The national meteorological department predicts continued rains in April, but it is uncertain whether they will be sufficient to support vegetation regeneration, water replenishment, and crops development to maturity, especially in marginal areas.

Seasonal profiles of vegetation and NDVI since April 2022. Dark (light) blue bars for current (average) rainfall, dark (light) green line for current (average) NDVI.

Ethiopia Focus

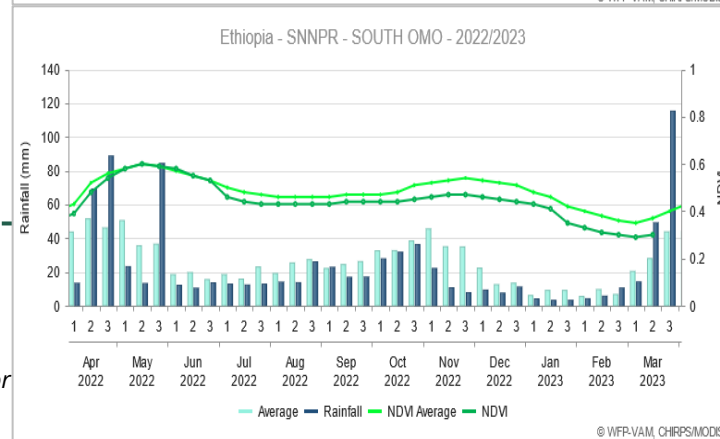
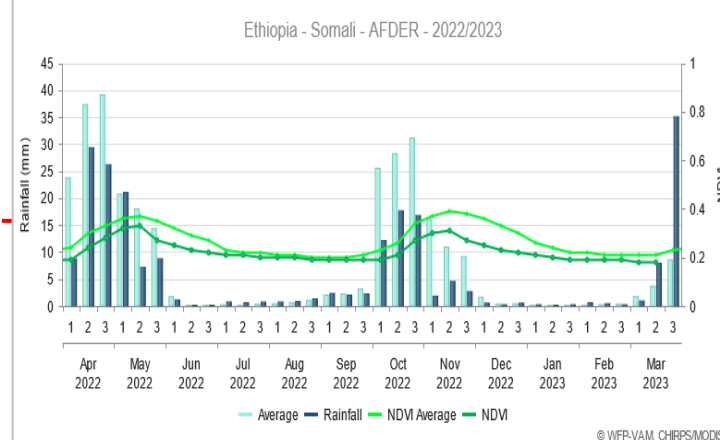
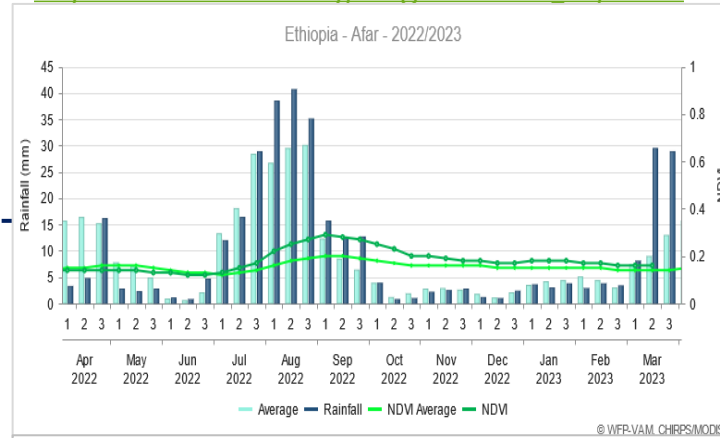


Map 20: Rainfall for 2 months ending 31st March 2023 as a percent of the average (blues for wetter, oranges for drier-than-average conditions).



Map 21: NDVI for 1-5 April 2023 a percent of the average (greens for above-average, browns for below-average)

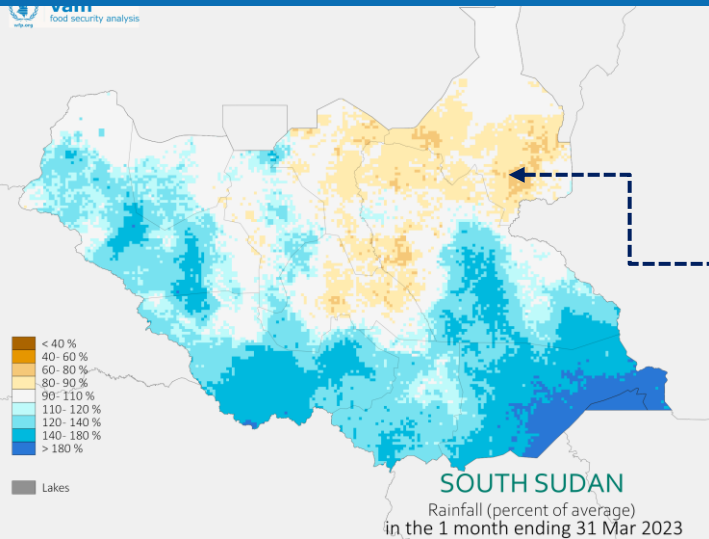
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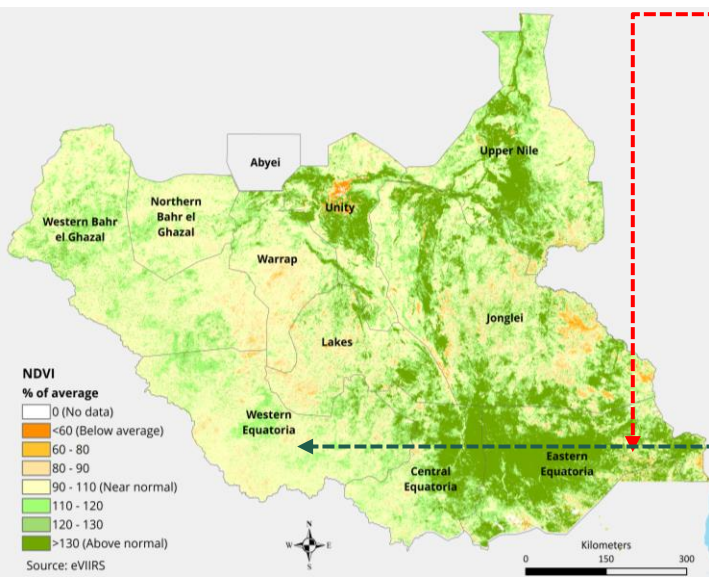
- The southern and south-eastern areas have experienced prolonged drought conditions since late 2020. As a result, 11.8 million people need food assistance because of the protracted 2020 - 2023 drought.
- Many households also lost their livestock assets through deaths - estimated at 6.8 million.
- The Belg rains starts in mid-Feb in Belg cropping areas and mid-March in the southern and southeast pastoral areas. In February, the rains were very low, delaying the start of long cycle crop planting. The rains intensified from the second Dekad of March in most areas (see profiles) leading to above-average rains by end of March including in pastoral areas.
- The heavy rains resulted in flash floods that impacted people, properties, transportation among other sectors. According to the WFP ADAM system, over 500,000 hectares were flooded/inundated in parts of Somali, Sindama, Oromia, Afar, Amhara and Tigray regions. Nearly 230,000 people are affected (OCHA).
- Water resources and vegetation have improved except in few locations (slide 7). In Afar and central regions, above-average vegetation is evident due to pasture regeneration or crop establishment, respectively. The vegetation has also improved in southern and southeastern areas severely affected by droughts, except in localised areas in southern SNNPR and parts of southern Oromia where crops are yet to establish or pastures not adequately regenerated.
- The national meteorological agency predicts the rains will continue in April, which will further improve the situation. Monitoring of floods and impacts is needed.
- Given that impacts of drought will take time to end, humanitarian assistance to affected populations should be maintained while monitoring the progress of the season, and its implication on food availability and markets.

Seasonal profiles of vegetation and NDVI since April 2022. Dark (light) blue bars for current (average) rainfall, dark (light) green line for current (average) NDVI.

South Sudan Focus

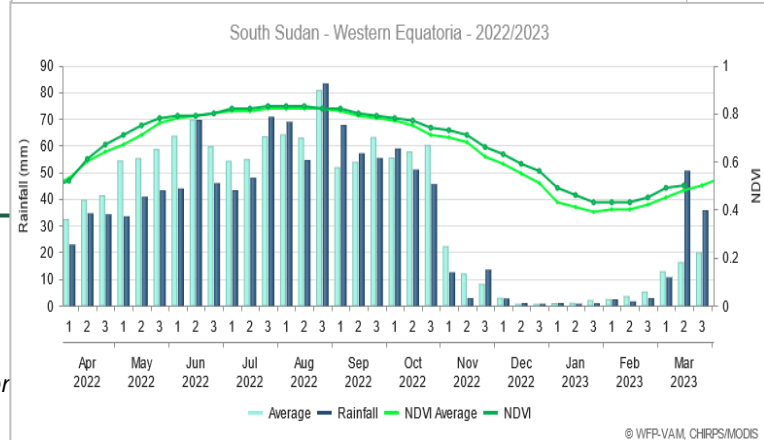
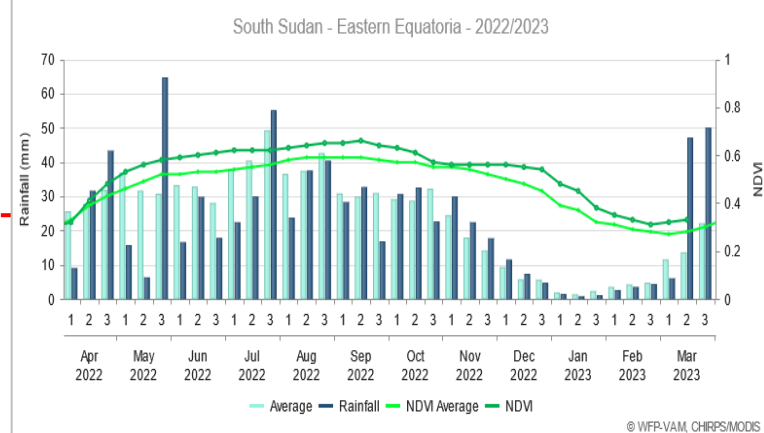
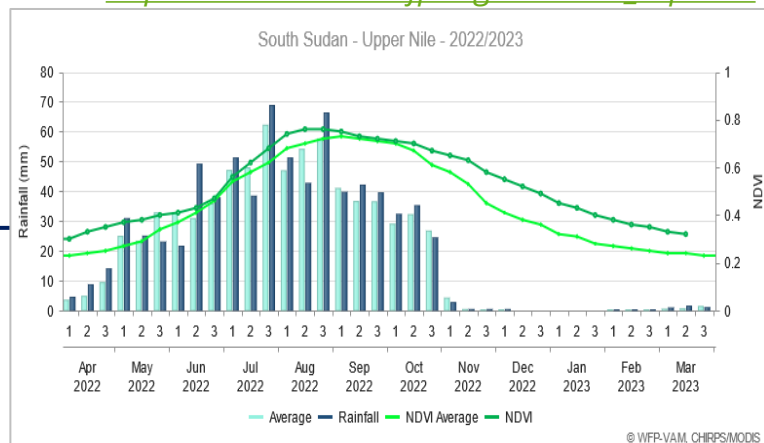


Map 22: Rainfall for the month ending 31st March 2023 as a percent of the average (blues for wetter, oranges for drier-than-average conditions).



Map 23: NDVI for 1-5 April 2023 as a percent of the average (greens for above-average, browns for below-average)

https://dataviz.vam.wfp.org/seasonal_explorer



- Unlike countries in eastern Horn of Africa that have faced prolonged droughts, parts of South Sudan have experienced flooding since 2019 due to heavy rains and water inflows from upper catchments of the Blue and White Nile rivers.
- This flooding combined with other socio-economic factors, have impacted on food and livestock production for consecutive seasons in Unity, Jonglei, Upper Nile and Northern Bahr el Ghazal states. This was in addition to displacing populations and hindering transportation and accessibility to services.
- The wet conditions have however maintained vegetation in good condition (see profiles) despite occasional dry spells in localised areas such as Kapoeta. As a result, livestock grazing resources and water have been abundant except in areas with limited accessibility due to flood waters.
- This year, an unusually earlier-than-normal and heavy rainfall was received in mid-March in the bimodal areas of Greater Equatoria triggering land preparations for early crop planting. Unless the crops are affected by dry spells and wilting during their development, favorable first season harvests will likely be achieved.
- The ongoing seasonal rains coupled with inflows from Ethiopian highlands and East Africa pose a risk of flooding along the stretch of the Nile River by maintaining high river water levels. Initial field reports indicate that following the intense rains in March, water levels are rising leading to flooding in Maban county. Of most concern are areas in Jonglei and Unity states where flood waters from previous season have not receded, because the April-May rains might exacerbate the situation in these areas.

Seasonal profiles of vegetation and NDVI since April 2022. Dark (light) blue bars for current (average) rainfall, dark (light) green line for current (average) NDVI.



FOR FURTHER INFORMATION:

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