Food Security Early Warning System

Agromet Update

2022/2023 Agricultural Season

Issue 03 Month: February **Season: 2022-2023** **23-02-2023**

Highlights

- **The western parts of the region received below average rainfall between October 2022 and January 2023. An extended January dry spell in central and southern parts of the region resulted in moisture stress and permanent wilting in some cases. These conditions negatively impacted crop conditions and affected harvest prospects.**
- **In parts of southern Angola, northern Namibia, and northern Botswana, a delay of over 40 days in the onset of rainfall has resulted in delayed planting of summer crops, which is likely to impact the 2023 harvest potential.**
- **Vegetation conditions are below normal in the western parts of the region, including in much of Namibia and southern Angola, with negative implications for livestock.**
- **Heavy torrential rains and Tropical Cyclone Cheneso caused widespread flooding and damage in Eswatini, Malawi, Madagascar, Mozambique and South Africa.**
- **Tropical Cyclone Freddy struck Madagascar on 21 February and is forecast to make landfall in southern Mozambique on 24 February, potentially threatening northern South Africa, Zimbabwe, and eastern Botswana as well.**
- **Member States are encouraged to urge farmers and potential off-takers to prepare for post-harvest care and marketing of crops to realise maximum benefit from the 2023 harvest.**
- **Member States are urged to put up contingency action plans for areas affected by dryness, cyclones and flooding.**

Performance of the rainfall season to date

Cumulative rainfall for the 2022/23 rainy season from October through 10 February 2023 has been varied across the region, with large areas ranging from well below average to well above average rainfall (Figure 1). A number of western and central areas have cumulatively received below average rainfall, including much of Botswana and Namibia, south-eastern and south-western Angola, south-western Zambia and southern Zimbabwe, which all received less than 75 percent of their long-term average rainfall for this period. Northeastern Tanzania and northeastern Madagascar also received less than 75 percent of their average cumulative rainfall. Much of Angola, south-western DRC, and parts of northern, central and southern Mozambique received less than 90 percent of the average rainfall. In contrast, a number of areas in the southern, north-eastern and central parts of the region have received cumulatively above average rainfall, including much of South Africa, Lesotho, most of Madagascar, Malawi and Tanzania, as well as eastern and central Zambia.

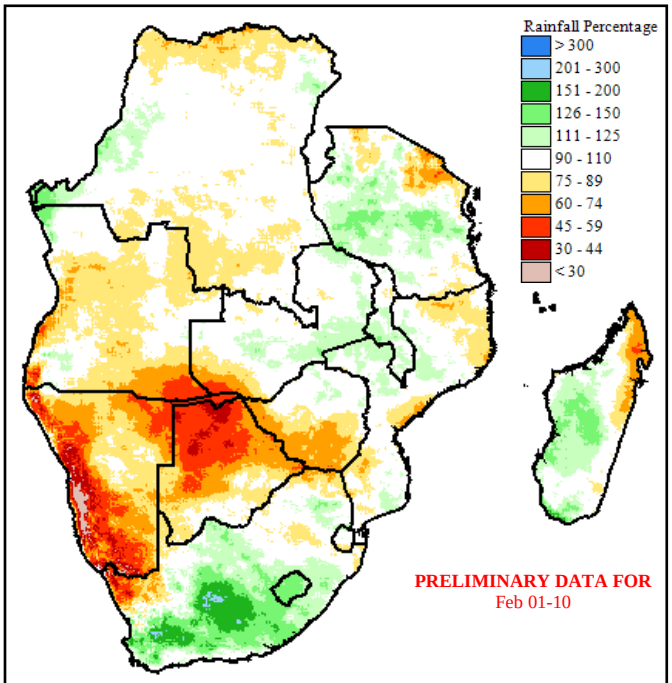

Figure 1. Rainfall for 1 Oct 2022 to 10 Feb 2023 expressed as a percent of average rainfall for the same period.
Source: Climate Hazards Center

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Sub-seasonal rainfall distribution

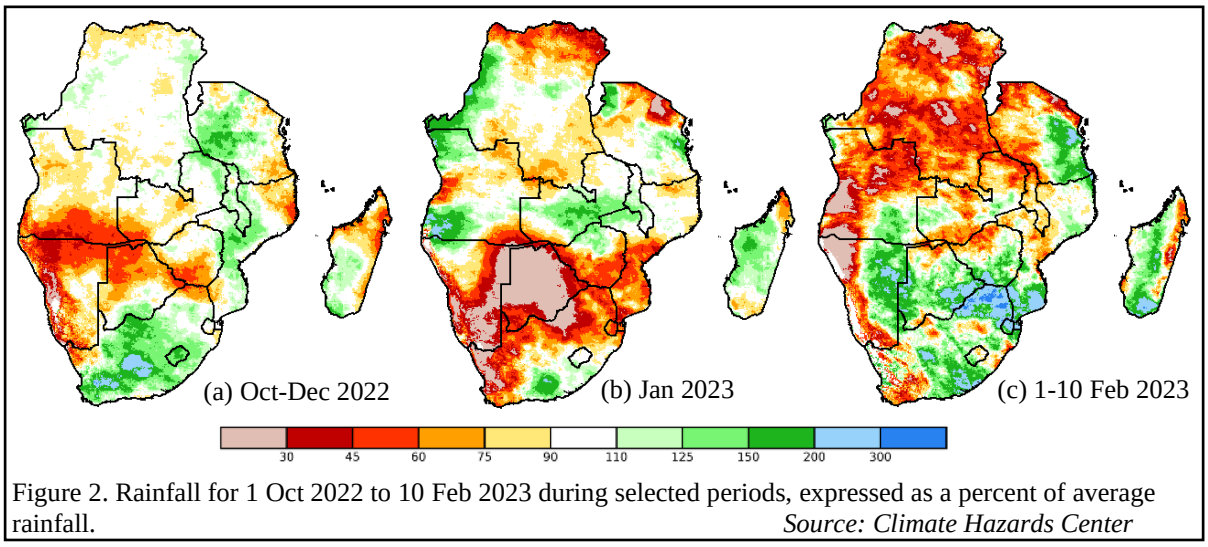

Figure 2. Rainfall for 1 Oct 2022 to 10 Feb 2023 during selected periods, expressed as a percent of average rainfall. *Source: Climate Hazards Center*

During October-December 2022, southern Angola, northern and western Namibia, northern and eastern Botswana, southern Zimbabwe, and north-eastern Madagascar received less than 60 percent of their long term average rainfall (Figure 2a). This dryness curtailed planting activities. In January, a severe dry spell affected many areas in the southwestern and central parts of the region (Figure 2b). In particular, much of Botswana, eastern and southern Namibia, and north-western South Africa, received less than 30 percent of average rainfall. Additionally, Eswatini, southern Mozambique, northern South Africa, and southern Zimbabwe also received well below average rainfall. In contrast, January rainfall was above normal in central Madagascar (primarily due to the passage of Tropical Storm Cheneso), along with central Zambia, central Malawi, south-western and north-western Angola, western DRC, southern South Africa, eastern Tanzania, and northern Zimbabwe. In early February (Figure 2c), rainfall was above normal in eastern Namibia, southern and eastern Botswana, Eswatini, much of South Africa, southern Mozambique, southern Zimbabwe, southern Madagascar, and eastern Tanzania. While the recent rains have been beneficial in alleviating dryness in some central areas, heavy rainfall has led to flooding in several countries.

Crop performance

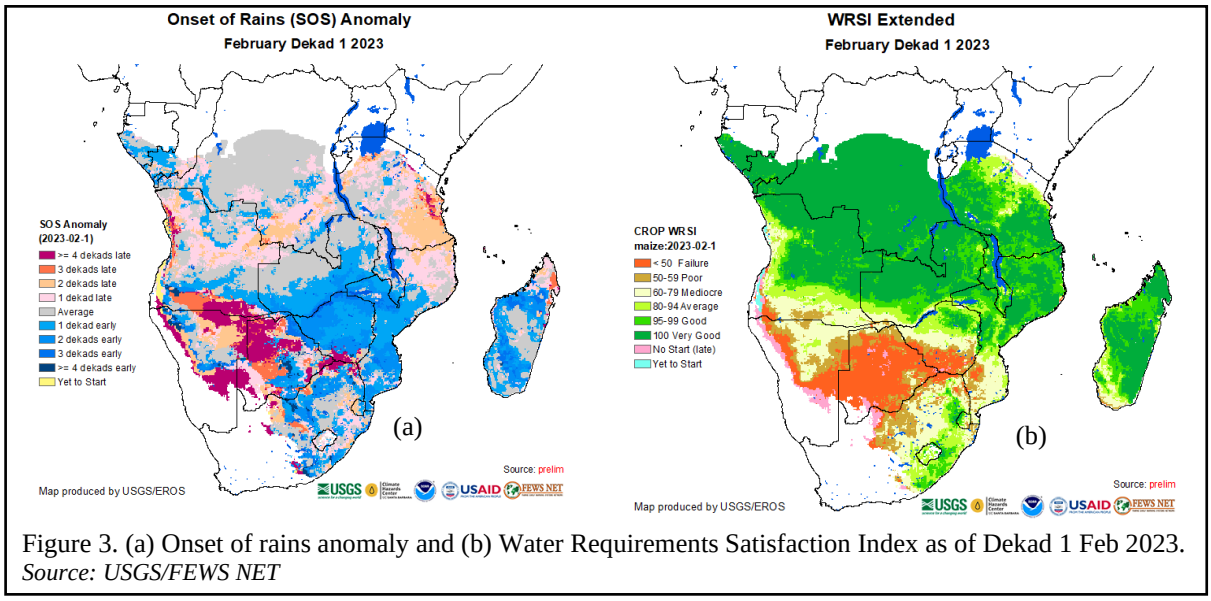

Figure 3. (a) Onset of rains anomaly and (b) Water Requirements Satisfaction Index as of Dekad 1 Feb 2023. *Source: USGS/FEWS NET*

The poor early season rainfall resulted in an extreme delay in planting in southern Angola, northern Namibia, Botswana, and southern Zimbabwe, which is likely to result in a reduction in planted area (Figure 3a). In particular, the delay in planting is a concern in northern Namibia as it is the highest

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cereal producing part of the country, and the delayed and erratic rainfall during the planting window may significantly impact national production. Additionally, the dry-spell in January resulted in severe moisture stress and in some cases, permanent wilting across much of Botswana, southern Zimbabwe, parts of southern Mozambique, and parts of central and eastern South Africa where maize crop damage due hot dry conditions was reported (Figure 3b).

Excessive rains in parts of Madagascar, Malawi, Mozambique, Eswatini and South Africa resulted in waterlogging and flooding that negatively affected cropping in some areas. Further details on flood impacts are provided in the flooding section.

Although several areas were affected by extended dry conditions and flooding, many parts of the region have experienced good rainfall conditions conducive to crop development. These include many parts of Malawi, South Africa, Tanzania, Zambia, and northern Zimbabwe, where crops are in good condition. Crops are currently at various growth stages, ranging from the initial and early vegetative stage in areas where the season started late, to flowering stage in most areas where the season started on time.

Livestock and pastures

Vegetation conditions, based on the satellite derived Normalized Difference Vegetation Index (NDVI) are currently below normal in western parts of the region (Figure 4) due to the low rainfall that has been received there to date (Figures 1 and 2). The most affected areas include much of Namibia, southern Angola, western Zambia, and much of Botswana. Parts of northern South Africa, southern Mozambique, north-eastern Tanzania and southern Zimbabwe are also currently showing below average vegetation conditions. Madagascar NDVI is also suggesting widespread conditions of below average vegetation, however this is not aligning with the above average rainfall conditions estimated there, and needs to be interpreted with caution. In areas where grasslands are a dominant aspect of the land cover, the below average vegetation conditions will have negative implications for grazing and livestock.

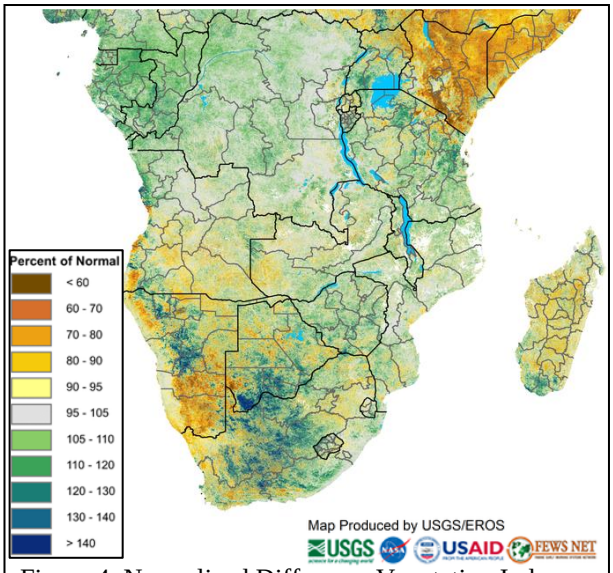

Figure 4. Normalized Difference Vegetation Index (NDVI) for 6-15 February 2023 compared to average
Source: USGS/FEWSNET

Flooding

Several areas in the SADC region were affected by floods during the current season, including Eswatini, Madagascar, Mozambique, South Africa, and Malawi. In Eswatini, close to 260 people were affected by floods and massive damage to infrastructure including six bridges. Madagascar was affected by flooding caused by Tropical Cyclone Cheneso that made landfall in north-eastern Madagascar in late January, and traversed south-westwards through central Madagascar, causing extensive damage and flooding (Figure 5 and 6). According to BNGRC, Madagascar's national disaster management office, over 90,000 people were affected, with over 34,000 people displaced. BNGRC preliminary estimates based on satellite imagery analysis indicate that close to 70,000 ha of crops were flooded. The United National Office for the Coordination of Humanitarian Affairs (UN OCHA) reported that widespread flooding occurred in southern Mozambique in early February due

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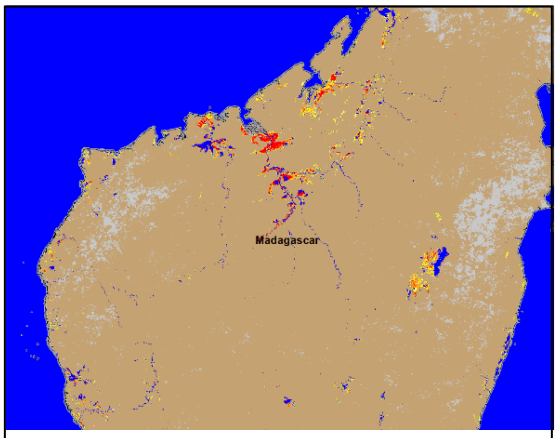

Figure 5. NOAA VIIRS composite image for 1-5 Feb showing areas flooded by TC Cheneso in Madagascar. *Source: USGS*

Figure 6. Aerial photo showing areas flooded by TC Cheneso in Madagascar, including agriculture fields *Source: storymaps.arcgis.com*

to heavy rainfall from 7-11 February. According to INGD, Mozambique's national disaster management institute, over 43,000 people were affected by flooding, including over 16,500 people displaced. UN OCHA reported that over 94,500 people in Mozambique have been affected by the rainfall season since October 2022, and that summer season crop harvests may be affected by the flooding in southern and central areas. Flooding in South Africa during the 2022/23 season has affected seven of the country's nine provinces. The severity of the floods resulted in a declaration of a national state of disaster. The floods resulted in fatalities, damage to infrastructure, displacement, and crop and livestock losses. In Malawi, the Department of Disaster Management Affairs reported that since the start of the season, close to 100,000 people in almost all Malawi districts have been affected by various natural disasters, including floods and storms. Recently, flooding caused damage in Blantyre in southern Malawi on 12 February. Flooding and loss of cropped areas was reported among the flood impacts in Malawi during this season.

Tropical Cyclone Freddy strikes Madagascar, heading towards southern Mozambique

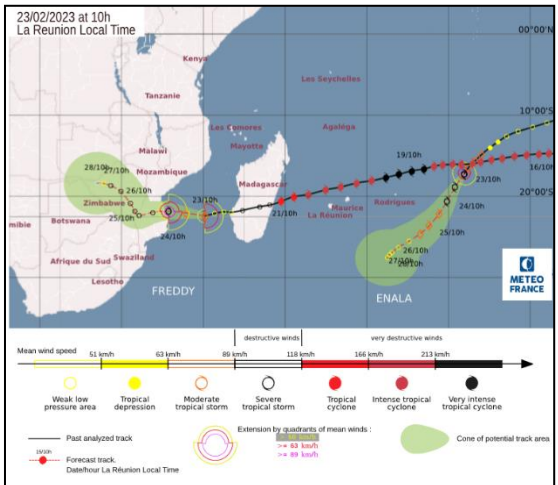

Figure 7. Forecast track of Tropical Cyclone Freddy and Severe Tropical Storm Enala as of 23 February 2023, 12h00 Central Africa Time. *Source: Météo France La Réunion RSMC*

Tropical Cyclone Freddy made landfall on the east coast of Madagascar on 21 February 2023, bringing cyclonic winds and heavy rainfall to central and southern Madagascar, before weakening and re-emerging in the Mozambique Channel on 22 February as a severe tropical storm. Preliminary estimates from BNGRC indicate that around 11,000 people in Madagascar were displaced, and more than 4500 houses damaged by TC Freddy. The forecast from Météo France La Réunion Regional Specialized Meteorological Centre (RSMC) issued on 23 February 2023, indicates that Freddy is expected to intensify as it continues westwards, and make landfall in southern Mozambique on 24 February (Figure 7). Southern Mozambique is expected to be impacted by strong winds and extreme rainfall.

Based on the RSMC forecast, Freddy is expected to weaken as is it progresses inland in the SADC region, but it will continue to pose a serious threat to southern Mozambique, northern South Africa, Zimbabwe, and eastern Botswana. These regions are likely to receive heavy rains with risk of local flooding due to the moisture induced by the remnants of Freddy. The forecast map further indicates that parts of south-western Zambia and north-eastern Namibia also lie within the area of the potential track Freddy may take (Figure 7). National Meteorological and Hydrological Services (NMHSs) and Disaster Risk Reduction (DRR) authorities

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in the affected countries remain on high alert, closely monitoring the situation and providing regular updates, with contingency plans in place. Readers are strongly advised to closely follow updates and guidance from NMHSs and DRR authorities. With normal to above normal rainfall forecast for the remainder of the season, flooding remains a risk.

Kariba dam levels and the impact on electricity generation

Due to good rainfall in the Kariba catchment area, the dam levels have risen from under 1 percent of full usable capacity in early January to over 12 percent by 23 February, according to the Zambezi River Authority. Significant additional inflows to the dam are required to further raise dam water levels. Kariba is a major supplier of hydroelectrical power to Zambia and Zimbabwe, and due to Kariba's low water levels, loadshedding of between 12 and 18 hours remains in place for the two countries. The loadshedding is continuing to affect irrigation operations in agriculture, livelihoods, and economic output, due to its impacts on industry and the mining sector.

Preparations for post-harvest care encouraged

As the rainy season draws to a close, Member States are encouraged to urge farmers and potential off-takers to start preparations for post-harvest care and marketing of crops to minimize the impact of post-harvest losses on available grain reserves. This is particularly important given that the harvest is likely to be affected in some parts of the region due to dry spells and flooding.

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