

Tropical Cyclone Freddy Causes Widespread Damage and Loss to Main Season Crops in Mozambique and Malawi

Updated April 25, 2023

Highlights

- The passage of Tropical Cyclone Freddy lasted for at least 35 days in total and is likely the longest-lived and most energetic storm ever recorded after undergoing several periods of restrengthening events.
- The impact of Freddy was less than expected in Madagascar, and less than 5 percent damage was reported in the agricultural sector following rapid water removal from crop fields.
- In Mozambique, an estimated 144,000 hectares of crops were affected by the passage of Tropical Cyclone Freddy.
- In the Southern Region of Malawi, a recent flood assessment found that flood damage was reported by 69 percent of farmers surveyed, with an average crop loss of 74 percent.
- In the Southern Region of Malawi, many farmers also suffered losses to their food stocks due to flooding, with an average of 71 percent of household food stocks lost.

Overview

Along the eastern coastal areas of Southern Africa, the 2022/2023 main cropping season was impacted by the passage of several tropical cyclones and depressions since January 2023. On January 19, Tropical Cyclone Cheneso made landfall in the Sava region along **Madagascar's** northeastern coast before moving southwestwards across the country. The storm then briefly entered the Mozambique Channel, peaking on January 26 before making landfall for a second time along the central-western coast of **Madagascar**. Then on February 21, Tropical Cyclone Freddy first made landfall on **Madagascar's** eastern coast. The storm weakened overland as it made its way southwestwards before entering the Mozambique Channel on February 22 where it restrengthened. On February 24, Tropical Cyclone Freddy made landfall in Vilankulo district of Inhambane province of **Mozambique**, bringing significant rainfall and causing river levels to rise. The storm then returned once again to the Mozambique channel, passing near southwestern **Madagascar** before making a second landfall in southeastern Zambezia province of central **Mozambique** on March 11 as a severe tropical cyclone. Freddy then continued overland as a tropical depression and moved towards the Southern Region of **Malawi** on March 12. The Malawian President declared a State of Disaster on March 13 following torrential rainfall, flooding, and mudslides. The storm then weakened to a low-pressure area before it dispersed completely on March 15. The passage of Tropical Cyclone Freddy lasted for at least 35 days in total and is [likely the longest-lived and most energetic storm ever recorded](#) after undergoing several periods of restrengthening events. According to the March SADC Agromet Update, over 385,000 hectares of croplands were potentially affected by flooding due to the passage of tropical cyclones and torrential rains in **Madagascar, Malawi, Mozambique, and Zambia**.

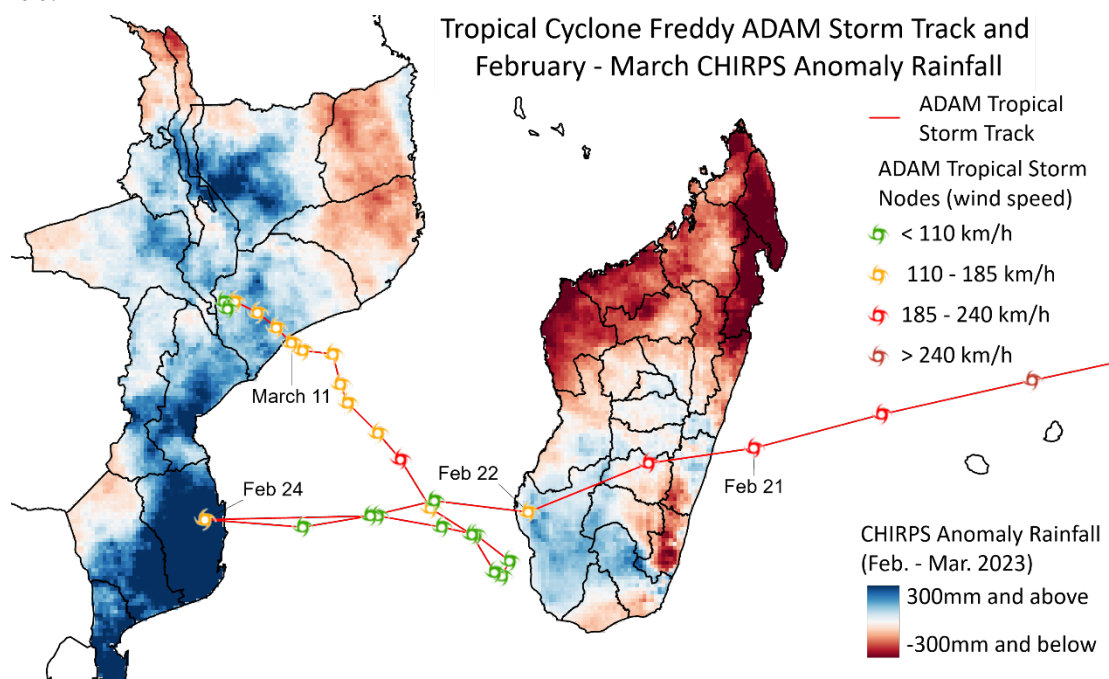


Figure 1. Tropical Cyclone Freddy ADAM storm track and CHIRPS February to March anomaly precipitation over Malawi, Mozambique, and Madagascar. Source: GEOGLAM/ NASA Harvest

Country Specific Impacts

In **Madagascar**, Tropical Cyclone Cheneso impacted around 141,000 hectares of agricultural land, representing 4 percent of the country's total agricultural land, primarily in Boeny, Diana, Menabe, and Sofia regions across the north and west coast of the country, according to the [February 21 FAO rapid geospatial impact assessment](#). The floodwater and landslides caused by the cyclone destroyed crops that were just emerging and germinating, leading to the loss of around 1,400 rice fields, according to the [National Bureau of Risk and Disaster Management](#). Moreover, the flooding damaged or destroyed stored food, including rice, and inputs such as seeds and fertilizer meant for the lean season. Conversely, the impact of Tropical Cyclone Freddy was less than expected in **Madagascar**, and less than 5 percent damage has been reported in the agricultural sector following rapid water removal from crop fields, according to the [March 14 OCHA Flash Update](#). In total, 60,798 hectares of crops were reported to have been affected by Freddy during February and early March.

In the most impacted areas of **Mozambique**, Freddy brought four times greater precipitation than the average monthly amount, and Zambezia and Nampula received some of the highest rainfall in 40 years between March 11 to 15. An estimated 144,000 hectares of crops were affected in Gaza, Inhambane, and Maputo, including 30,000 hectares in Inhambane alone, and an estimated 52,545 hectares were affected in Sofala, according to FAO estimates.

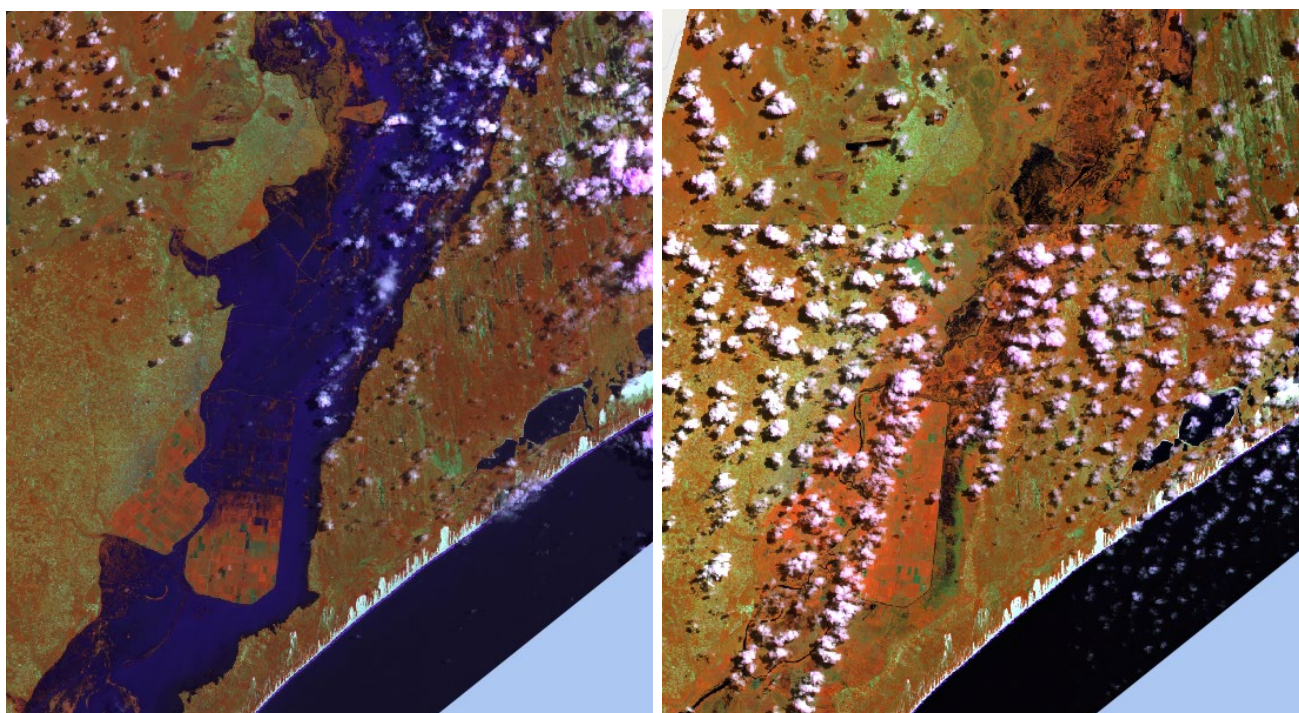
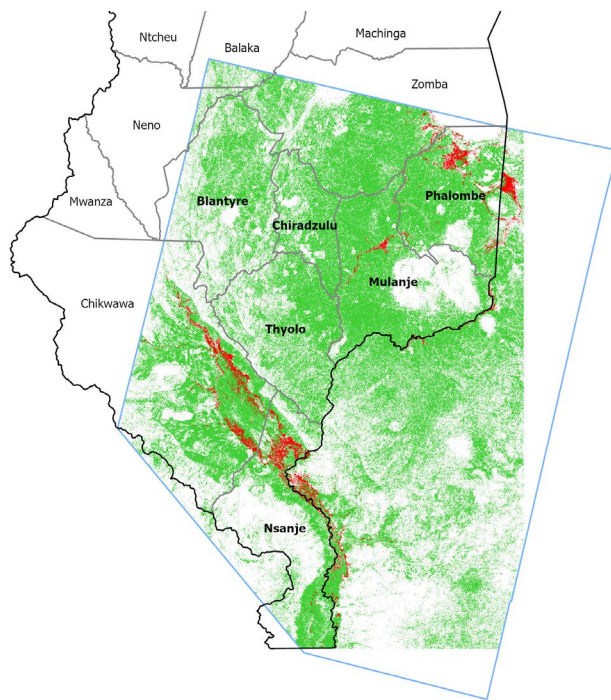


Figure 2: Left: Flooded cropland along Incomati river in Maputo province, Mozambique (Sentinel 2 false color composite between 01-25/02/2023). Right: The same area in February 2022 for comparison. Source: [ASAP High Resolution Viewer](#)

In **Malawi**, Freddy brought the equivalent of six months of precipitation in six days, impacting the country at the end of the rainy season when water bodies were already at high levels, according to the [March 17 OCHA Flash Update](#). Tropical Cyclone Freddy caused significant damage to crops in several districts, including Blantyre, Chikwawa, Chiradzulu, Mulanje, Mwanza, Neno, Nsanje, Phalombe, Thyolo, and Zomba. Early reports suggested that up to 35,000 hectares of crops were completely destroyed, with ground reports indicating an average crop loss of 74 percent across the southern region, according to an MoA/FAO/NASA Harvest field assessment. However, the storm also brought much-needed relief to the southern areas, with over 400mm of rainfall received. Ground information indicates that many households have taken advantage of the inundated soils and planted rice, while others in southern areas plan to plant a second maize crop in the moisture-rich soils once waters have receded. Heavy rainfall continued in the week after the storm, leading to inundation, landslides, and river overflows. The heavy rainfall also caused significant damage to infrastructure, including the complete destruction of a major bridge connecting to Nsanje, which has left the district entirely cut off. A total of 40 bridges across the Southern Region were reported to be damaged.



- RCM Capture Extent (2023.03.14)
- Flooded Cropland Area (NASA Harvest cropland mask)
- Non Flooded Cropland Area (NASA Harvest cropland mask)



Figure 3. Left: Flooded area extent over cropland in southern Malawi using satellite detected surface water from RCM from 3/14/2023 over the NASA Harvest cropland mask. Source: NASA Harvest. Right: Field photos of crop damage from Tropical Cyclone Freddy in southern region, Malawi. Source: FAO/NASA Harvest

Malawi Ministry of Agriculture/FAO/NASA Harvest Flood Assessment

The Malawi Ministry of Agriculture, in partnership with FAO and NASA Harvest, conducted a field campaign from April 3 to 7 to assess the impacts of Tropical Cyclone Freddy on agriculture, livestock, and food security in the Southern Region of Malawi. A total of 2,095 fields were surveyed across 11 districts, with 86 percent of farmers reporting flood occurrences during the season.

According to the results, flood damage was reported by 69 percent of farmers, with an average of 74 percent crop loss reported. The largest average crop losses were reported in the districts of Zomba (86 percent), Mulanje (86 percent), and Machinga (85 percent). Of the farmers that reported flood damage, 35 percent reported waterlogging, 29 percent reported partial crop loss, and 24 percent reported total crop loss. On average, fields were flooded for 8.4 days. Additionally, nearly 40 percent of farmers that had livestock reported livestock mortalities, with floods due to the cyclone cited as the primary cause, followed by disease.

In terms of food security impacts, the majority of farmers in the surveyed area primarily rely on self-production or market purchases for their food needs, but in the week prior to the survey response, most obtained food through purchases. However, 74 percent of farmers reported insufficient money or resources to buy food. Many farmers also suffered losses to their food stocks due to flooding, with an average of 71 percent of household food stocks reported to be lost. Almost all farmers reported having no food stocks left from the previous season, and 96 percent reported that the current harvest will not be enough for their household's food needs until the next harvest.

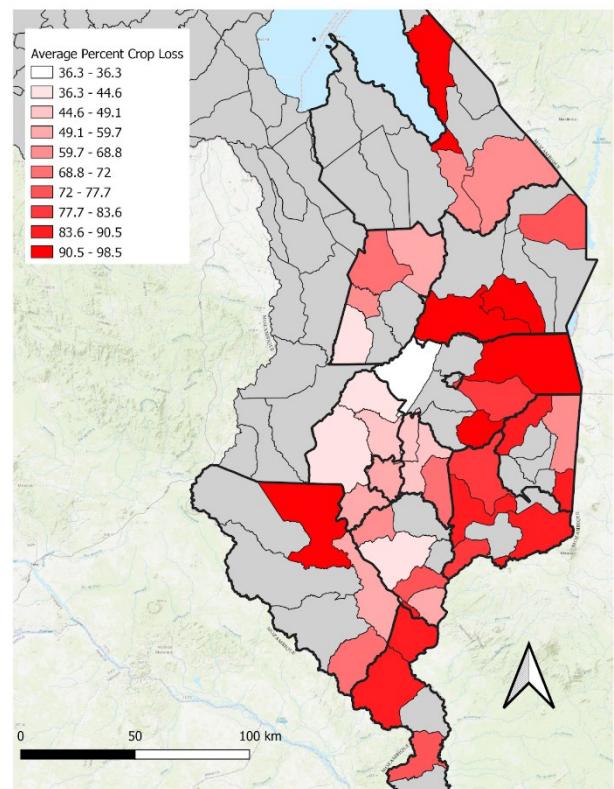


Figure 2. Average percent reported crop loss per EPA in Southern Region, Malawi. Source: Malawi MoA/FAO/NASA Harvest field data collection campaign from April 3 to 7.

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**EC contribution is provided by the Joint Research Centre of the European Commission.*



Prepared by members of the GEOGLAM Community of Practice Coordinated by the University of Maryland with funding from NASA Harvest The Crop Monitor is a part of GEOGLAM, a GEO global initiative.

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