FAMINE EARLY WARNING SYSTEMS NETWORK

# *Mozambique*

# Monthly Climate and Weather

**17 October 2024**

## Highlights

- El Niño Southern Oscillation (ENSO)-neutral conditions continued during September. Sea-surface-temperatures (SSTs) were near-average across much of the east-central and eastern Pacific Ocean. According to the outlook, La Niña is favored to emerge during September – November 2024 and is expected to persist through January – March 2025.
- During July - September 2024, rainfall was 10-50 mm below-average over central and southern Mozambique, while rainfall was 25-100 mm above-average over local areas of the central and northern regions. During November – January 2025, above-average rainfall is favored over northern and parts of central and southern Mozambique.
- During July - September 2024, maximum temperatures were 1-5°C above average across Mozambique. Minimum temperatures were 1-3°C above average in southern Mozambique but were 1-2°C below average over Niassa. During November 2024 – January 2025, above-average temperatures are expected over Mozambique.
- During the past 18 pentads (90 days), Nampula and parts of Inhambane, Gaza, and Maputo experienced drier-than-average conditions. During the next three pentads (2 weeks), drier-than-average conditions could develop over southern Mozambique.
- As of late September 2024, below-average vegetation conditions persisted across western and north-central Mozambique, whereas above-average conditions were depicted in the southern and central parts of the country.

*The FEWS NET Monthly Climate and Weather information bulletin is based on current weather and climate information and monthly and seasonal outlooks from the NOAA CPC. Information on crops, soil moisture, flooding, and evapotranspiration data were produced by FEWS NET, USGS, NASA and USDA. Various sources were used to assess impacts of extreme conditions. Questions or comments about this product may be directed to Dr. Wassila Thiaw, Head, International Desks/NOAA, wassila.thiaw@noaa.gov. Questions about the USAID FEWS NET activity may be directed to Dr. James Verdin, Program Manager, FEWS NET/USAID, jverdin@usaid.gov.*

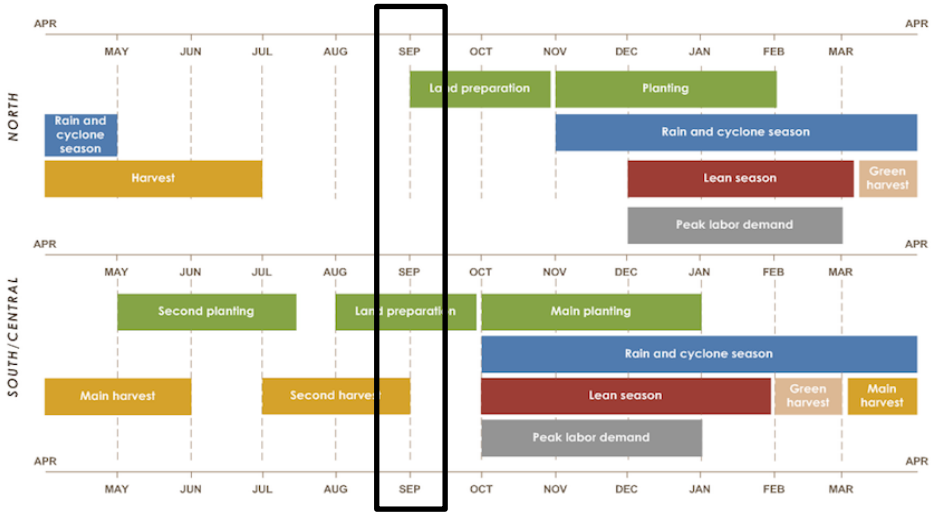



**Figure 1:** Seasonal calendar for Mozambique. **Source: FEWS NET**

## Current Climate Modes and Teleconnections

- As of mid-October, ENSO-neutral conditions continued with near-average SSTs across the east-central and eastern equatorial Pacific Ocean. Low-level wind anomalies were easterly over the east-central Pacific, whereas upper-level wind anomalies were westerly over the eastern Pacific.
- The latest outlook suggests that La Niña is favored to emerge with a 60% chance during September – November 2024 and persist through January – March 2025 (**Fig. 2**). The latest update of the NOAA Climate Prediction Center's El Niño/Southern Oscillation diagnostic discussion can be found here.

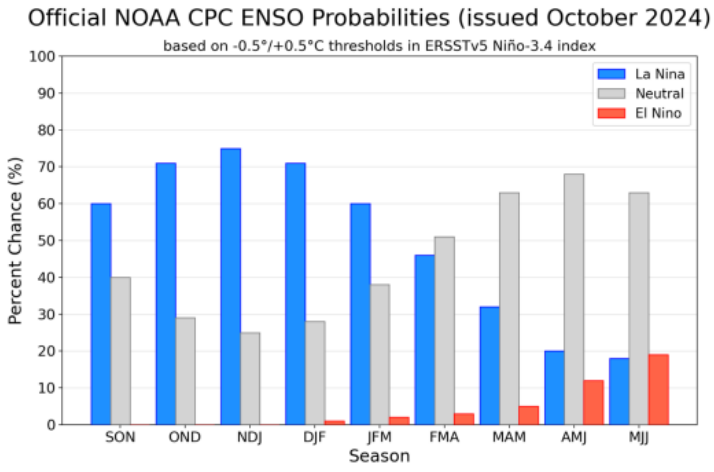



**Figure 2:** Official CPC ENSO probabilities outlook. **Source: NOAA/NCEP**

- Based on historical record, La Niña conditions are associated with near-average to above-average rainfall and below-average mean temperatures in parts of central and southern Mozambique during November – January.

## Extreme Events

- Over the past 30 days, stronger-than-average southerly winds were observed over southeastern Mozambique.

## Rainfall/Precipitation

### Past 3 months (July - September 2024):

- **Totals:** During July - September 2024, cumulative rainfall varied between 10-75 mm across central and southern Mozambique. However, pocket areas of Cabo Delgado, Nampula, and Gaza received rainfall amounts over 100 mm (**Fig. 3a**).
- **Anomalies:** During July - September 2024, while rainfall was 10-50 mm below-average over central and southern Mozambique, rainfall was 25-100 mm above-average over local areas of the central and northern provinces (**Fig. 3b**). Total rainfall was 12 mm below average over Inhambane (**Table 1**).

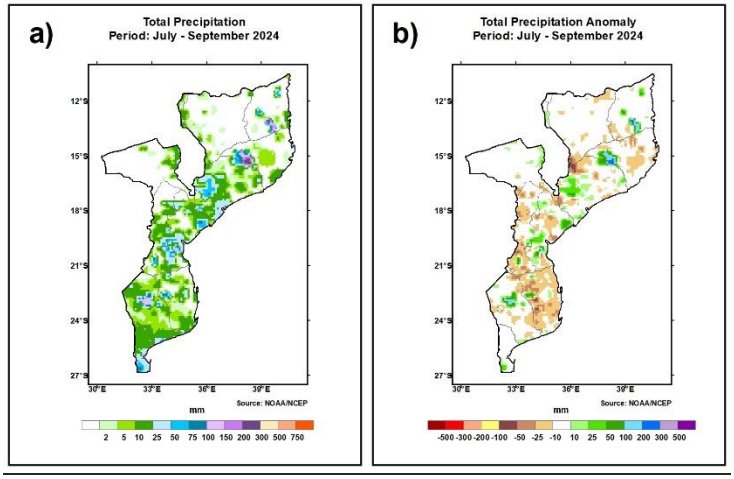



**Figure 3:** Spatial distribution for July - September 2024 (a) total precipitation and (b) total precipitation anomaly. **Source: NOAA/NCEP**

### Past 1 month (September 2024):

- **Totals:** During September, rainfall ranged between 10-75 mm over southern Mozambique and over pocket areas of the central provinces (**Fig. 4a**).
- **Anomalies:** During September, rainfall was 25-100 mm above average over pocket areas of central and southern Mozambique (**Fig. 4b**). In contrast, rainfall was 10-25 mm below-average over portions of the south-central regions.

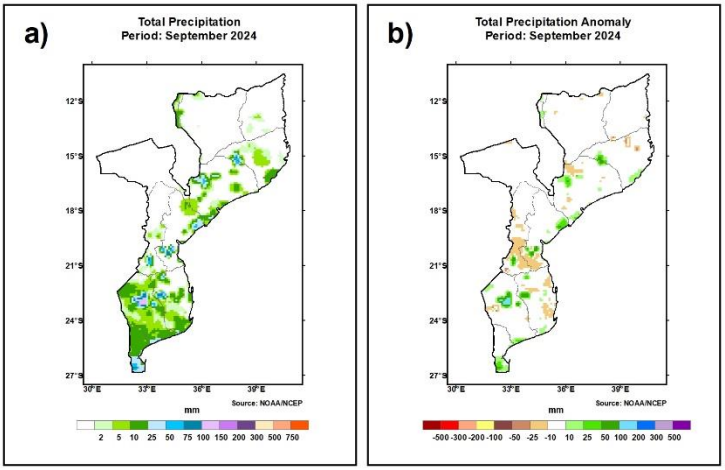



**Figure 4:** Spatial distribution for September 2024 (a) total precipitation and (b) total precipitation anomaly. **Source: NOAA/NCEP**

## Monthly and Seasonal Forecasts (November 2024 and November 2024 – January 2025):

- **Monthly:** During November 2024, rainfall forecasts indicate an increased chance for below-average rainfall over southern Mozambique and local areas of Manica, Nampula, and Cabo Delgado (**Fig. 5a**). In contrast, there is an increased chance for above-average rainfall over Niassa, parts of Gaza, and Nampula.
- **Seasonal:** During November 2024 – January 2025, rainfall outlooks suggests an increased chance for above-average rainfall across northern Mozambique and over pocket areas in the central and southern regions (**Fig. 5b**).

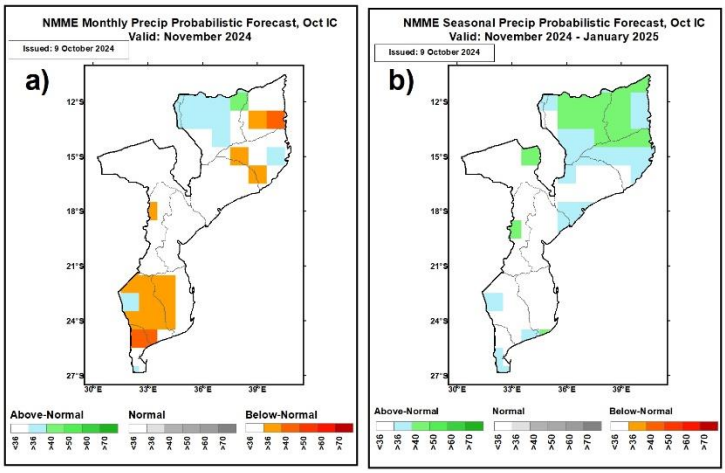



**Figure 5:** Rainfall forecast for (a) November 2024 and (b) November 2024 – January 2025. **Source: NOAA/NCEP**

**Table 1:** Total rainfall and anomalies for the past three months and one month and seasonal rainfall climatology and anomaly forecast over provinces of Mozambique.

| Location | Past 3-Month | | Past 1-Month | | Seasonal Forecast | |
|---|---|---|---|---|---|---|
| | Total (mm) | Anomaly (mm) | Total (mm) | Anomaly (mm) | Climatology (mm) | Anomaly (mm) |
| **Cabo Delgado province** | 10 | 4 | 0 | -1 | 427 | 44 |
| **Gaza province** | 17 | 1 | 16 | 8 | 346 | 35 |
| **Inhambane province** | 10 | -12 | 8 | -1 | 332 | 40 |
| **Manica province** | 10 | -8 | 3 | -5 | 497 | 50 |
| **Maputo province** | 26 | 1 | 24 | 9 | | |
| **Nampula province** | 14 | 4 | 4 | 1 | 473 | 33 |
| **Niassa province** | 2 | -5 | 0 | -2 | 506 | 51 |
| **Sofala province** | 21 | 3 | 7 | 1 | 419 | 47 |
| **Tete province** | 2 | -1 | 0 | -1 | 490 | 30 |
| **Zambézia province** | 18 | 2 | 5 | 0 | 486 | 17 |

## Temperature

### Past 3 months (July - September 2024):

- **Maximums:** During July - September 2024, maximum temperatures were 1-5°C above average across Mozambique with the hottest conditions over the western and central parts of the country (**Fig. 6a**). Maximum temperatures averaged 3.8°C above average over Tete (**Table 2**).
- **Minimums:** During July - September 2024, minimum temperatures were 1-3°C above average over Inhambane, Gaza, and parts of Manica (**Fig. 6b**). In contrast, minimum temperatures were 1-2°C below average over western Niassa.

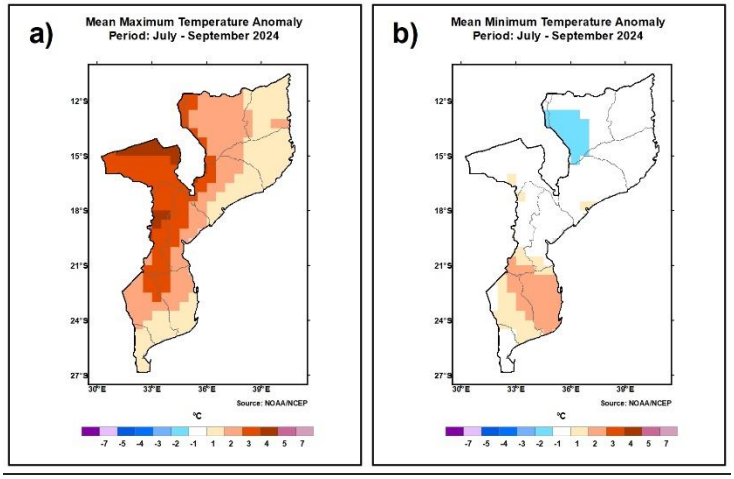



**Figure 6:** Spatial map for July - September 2024 (a) mean maximum temperature anomaly and (b) mean minimum temperature anomaly. **Source: NOAA/NCEP**

### Past 1 month (September 2024):

- **Maximums:** During September, maximum temperatures were 1-4°C above average over much of Mozambique with the western regions experiencing the hottest conditions (**Fig. 7a**).
- **Minimums:** During September, minimum temperatures were 1-3°C above average over southern Mozambique and over pocket areas of the western region, while minimum temperatures were 1-3°C below average over parts of Tete and Niassa (**Fig. 7b**).

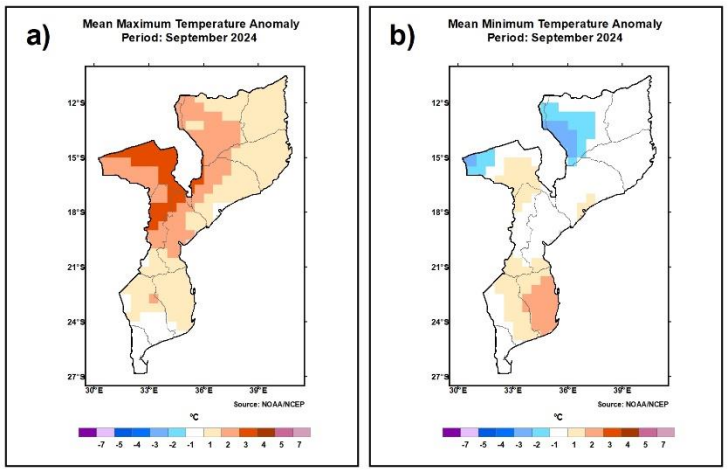



**Figure 7:** Spatial map for September 2024 (a) mean maximum temperature anomaly and (b) mean minimum temperature anomaly. **Source: NOAA/NCEP**

### Monthly and Seasonal Forecasts (November 2024 and November 2024 – January 2025):

- **Monthly:** During November 2024, climate model forecasts indicate above-average temperatures over the northern half of Mozambique (**Fig. 8a**).
- **Seasonal:** During November 2024 – January 2025, outlooks call for above-average temperatures across Mozambique (**Fig. 8b**).

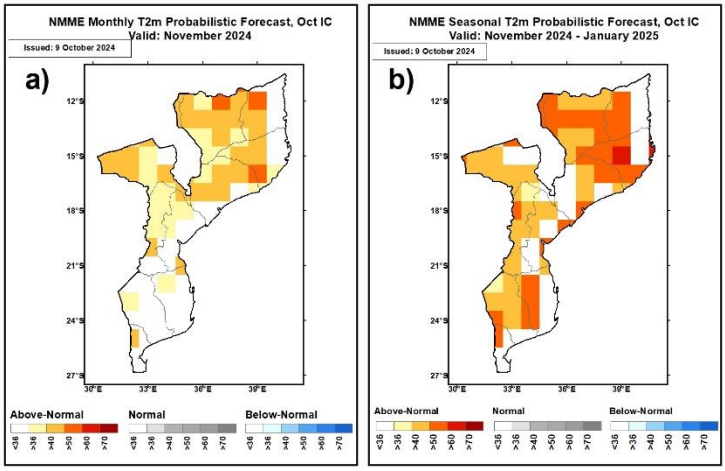



**Figure 8:** Spatial map for (a) November 2024 mean temperatures forecast and (b) November 2024 – January 2025 mean temperatures forecast. **Source: NOAA/NCEP**

**Table 2:** Maximum temperature and minimum temperature and anomaly for the past three months and one month and seasonal mean temperatures and anomaly forecast over provinces of Mozambique.

| Location | Past 3-Month | | Past 1-Month | | Seasonal Forecast | |
|---|---|---|---|---|---|---|
| | Max/Min Temp (°C) | Max/Min Anomaly (°C) | Max/Min Temp (°C) | Max/Min Anomaly (°C) | Temp (°C) | Above/Below-average (°C) |
| **Cabo Delgado province** | 30/18 | 1.7/0.4 | 31/19 | 1.6/0.6 | 27 | 0.6 |
| **Gaza province** | 30/15 | 2.4/1.6 | 30/17 | 1.1/1.2 | 27 | 0.5 |
| **Inhambane province** | 28/18 | 2.3/2.4 | 28/20 | 1.4/2.3 | 27 | 0.5 |
| **Manica province** | 29/15 | 3.5/0.9 | 31/17 | 2.4/0.8 | 26 | 0.6 |
| **Maputo province** | 28/14 | 1.4/0.5 | 28/16 | 0.1/0.2 | | |
| **Nampula province** | 29/17 | 1.8/0.2 | 31/19 | 1.4/0.4 | 27 | 0.6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Niassa province** | 29/14 | 2.6/-0.7 | 30/16 | 2/-1.2 | 26 | 0.6 |
| **Sofala province** | 30/17 | 3/0.1 | 31/19 | 2.2/0.4 | 28 | 0.6 |
| **Tete province** | 31/16 | 3.8/0.3 | 33/18 | 3.1/0.3 | 27 | 0.7 |
| **Zambézia province** | 29/16 | 2.2/0.4 | 31/18 | 1.7/0.5 | 27 | 0.7 |

## Flooding and Areas of Inundation

- Currently, there is no flooding in Mozambique.
- Concerns for flooding are nonexistent or minimal for Mozambique over the next 30 days.

## Drought and Dryness

The Standardized Precipitation Index (SPI) is used to characterize meteorological drought. SPI compares the precipitation over a specific period of time with the climatology from that same period. Therefore, the SPI values can be thought of as the number of standard deviations that the observed anomaly deviates from the climatology. The 1-month SPI values are a good representation of the monthly precipitation anomaly as well as the soil moisture and vegetation health. The 3-month SPI values are a good representation of seasonal precipitation anomalies. The Standardized Precipitation Evapotranspiration Index (SPEI) is similar to the SPI, but it also takes evapotranspiration into account (and therefore the impact of temperatures on water demand).

### Past 3 months (11 July – 10 October 2024):

- During the past 18 pentads (90 days), while western and northern Mozambique were mostly seasonally dry, Nampula and portions of Inhambane, Gaza, and Maputo experienced drier-than-average conditions.

### Past 1 month (11 September – 10 October 2024):

- During the past six pentads (30 days), local areas of Manica experienced drier-than-average conditions.

### Current/Forecast (11 July – 25 October 2024):

- SPI forecast, which is constructed from observed precipitation from 11 July 2024 to 10 October 2024 and forecasted rainfall data from 11 October to 25 October 2024 suggests

that while drier conditions could persist over Nampula, drier-than-average conditions may develop over the southern provinces.

## Normalized Difference Vegetation Index (NDVI)

NDVI is a measure of vegetation health, where high NDVI values are indicative of healthy, dense vegetation, and low NDVI values are indicative of less or no vegetation. Therefore, negative NDVI anomalies suggest deteriorated vegetation health relative to the long-term average.

### Current (21 – 30 September 2024):

- From 21 – 30 September, below-average (NDVI values between 60-90% of the average) vegetation conditions persisted over the western and north-central regions of Mozambique, while above-average conditions were depicted in the southern and central parts of the country (**Fig. 11**).

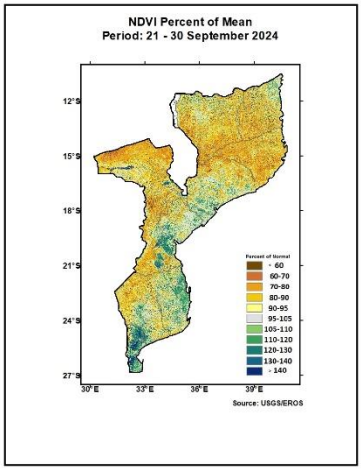



**Figure 11:** Spatial structure of NDVI anomaly for 21 – 30 September 2024. **Source: USGS/EROS**

## Water Requirement Satisfaction Index (WRSI)

- NA

## GEOGLAM Crop Monitor

- NA

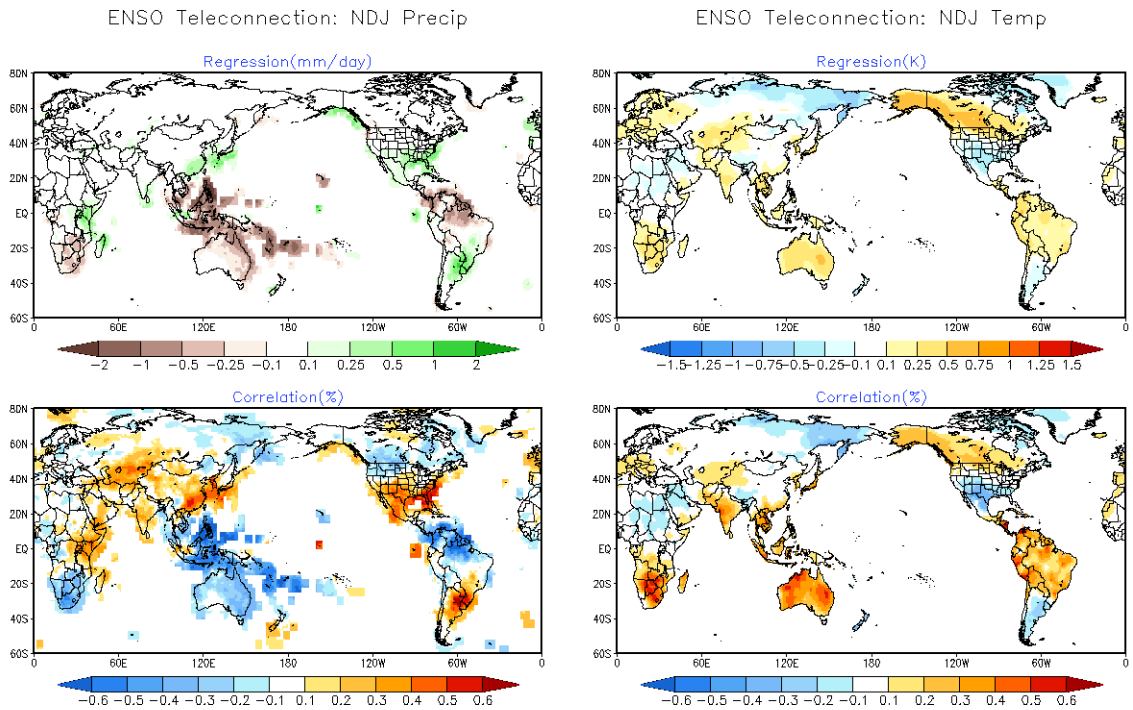
## Additional Resources

https://www.inam.gov.mz/index.php/pt/

https://www.sadc.int/pillars/meteorology

https://fews.net/southern-africa/mozambique

# Annex




## GEOGLAM Agro-meteorological Earth Observation Indicators:

### [Crop Type]

**[Location]:**