FAMINE EARLY WARNING SYSTEMS NETWORK

# *Zimbabwe*

# Monthly Climate and Weather

**16 January 2025**

## Highlights

- La Niña conditions emerged in December 2024 and were reflected in below-average sea surface temperatures (SSTs) across the central and east-central equatorial Pacific Ocean. Subsurface cooling in the equatorial Pacific Ocean strengthened significantly, with below-average temperatures dominating the central and eastern equatorial Pacific Ocean.

- Based on dynamical models, La Niña conditions are present and are expected to persist through February-April 2025 (59% chance), with a transition to ENSO-neutral likely during March-May 2025 (60% chance).

- During December 2024, 100 to 200mm was recorded in western, central and southern Zimbabwe, with locally up to 500mm in parts of the far-western region. The remaining areas of Zimbabwe received 50-100mm.

- Maximum temperatures were 2 to 7$^{o}$C above-average across Zimbabwe in December 2024. Minimum temperatures were 1 to 2$^{o}$C below average in northern Zimbabwe and 1-3 $^{o}$C above-average in central, southern, extreme northeastern regions.

- The SPI analysis for December 2024 indicated wetter than average conditions in some parts of central-northern Zimbabwe, and drier than average condition in western, northeastern, central-eastern and southeastern regions.

- Based on the North American Multi-Model Ensemble (NMME) models, there is a slight tilt in the odds to favor above-average rainfall in parts of northern, western and southeastern Zimbabwe during February 2025 – April 2025.

- Based on the NMME models, there is a slight tilt in the odds to favor above-average temperature in northeastern Zimbabwe during February 2025 – April 2025.

*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.*

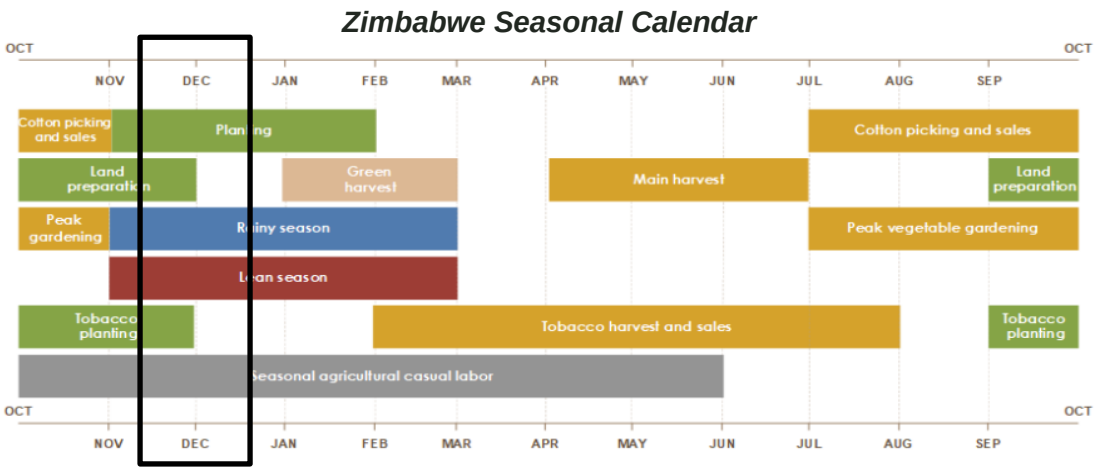


**Figure 1:** Seasonal calendar for Zimbabwe. **Source: FEWS NET**

## Current Climate Modes and Teleconnections

- As of early January 2025, equatorial SSTs were above average in the western Pacific Ocean. Below average SSTs were evident in the central and east-central Pacific Ocean, with near-average SSTs observed in the eastern Pacific Ocean in the last four weeks.

- Based on dynamical models, La Niña conditions are present and are expected to persist through February-April 2025 (59% chance), with a transition to ENSO-neutral likely during March-May 2025 (60% chance) (**Fig. 2**).

- Based on historical record, La Niña episodes are typically associated with wetter than average conditions in Zimbabwe during the seasonal mean of January-February-March (JFM) season. La Niña events are also associated with cooler than average conditions across Zimbabwe during the JFM season (**Figure S1**).

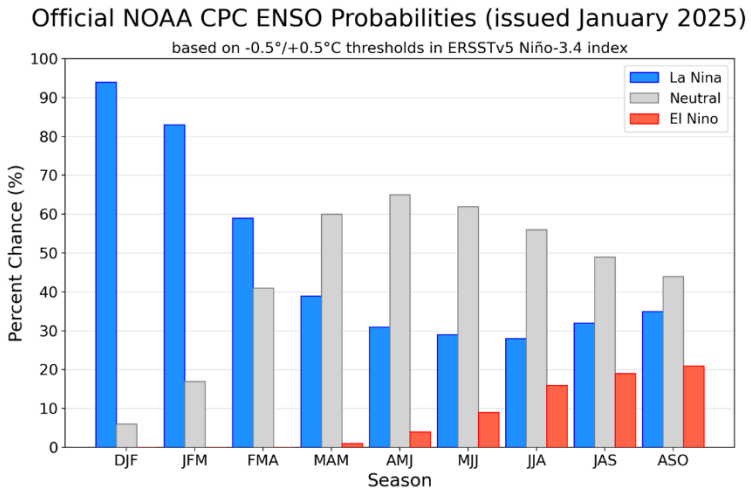


**Figure 2:** Official ENSO probabilities for the Niño 3.4 Sea surface temperature index (5°N-5°S, 120°W-170°W). **Source: NOAA/NCEP**

## Extreme Events

- Tropical Cyclone Chido formed in the southern Indian Ocean to northeast of Madagascar. It made a landfall in Mozambique and passed over Malawi and gradually dissipated on 17 December 2024 near Zimbabwe. Strong winds and heavy rainfall affected thousands of people and damaged significant infrastructure in many parts of Mozambique and Malawi.
- There were 8 notable fire alerts in Masvingo province over the past 4 weeks.
- There Anomalous lower-level cyclonic flow over the past 30-days across central Namibia, Botswana and parts of western and southwestern Zimbabwe may have contributed to the observed above-average rainfall across these regions.

## Rainfall/Precipitation

### Past 3 months (October 2024 – December 2024):

- **Totals:** Most of western, southwestern, central and eastern parts of Zimbabwe recorded 200 to 300mm total rainfall, while northern, southern and southwestern regions of Zimbabwe received 100 to 200mm total rainfall (**Fig. 3a**). Higher amount of rainfall up to 500mm was observed in some parts of central and western Zimbabwe during the past 3-months. **Table 1** shows the average rainfall for provinces of Zimbabwe.

- **Anomalies:** The observed rainfall was 50 to 100mm below average in parts of northwestern, northern, northeastern, eastern and far-western Zimbabwe (**Fig. 3b**). Rainfall was above average in some parts of central, southern and far-western Zimbabwe.

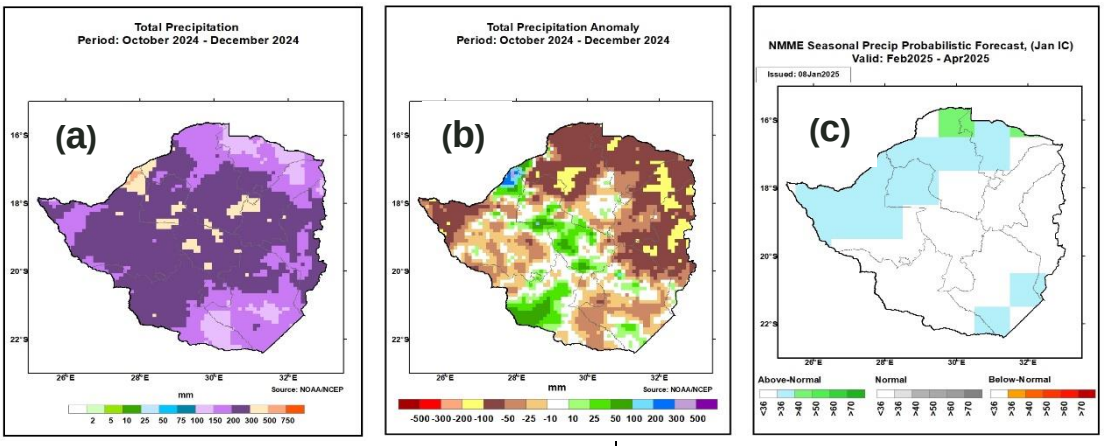


**Figure 3:** Satellite estimates of precipitation (RFE2) for the past 3 months (October 2024 – December 2024). (a) Total accumulation of precipitation and (b) precipitation anomaly. (c) Seasonal precipitation forecast for February 2025 - April 2025. **Source: NOAA/NCEP**

### Past 1 Month (December 2024):

- **Totals:** During December, 100 to 200mm total rainfall was recorded in many parts of Matabeleland North, Midlands, western, northern, central and southern Matabeleland South, southern Mashonaland West, Harare, western Mashonaland East, and northern Masvingo provinces of Zimbabwe **(Fig. 4a**). Some parts of northern Matabeleland North and western Midlands received 200mm to locally up to 500mm rainfall. The rest of Zimbabwe received 50 to 100mm during the month **(Table 1).**

- **Anomalies:** Rainfall was above average in 50 to locally up to 200mm in parts of northern and southern Matabeleland North, central and southern Matabeleland South and some parts of western Midlands (**Fig. 4b**). In contrast, rainfall was 50 to 100mm below average in northern, central and eastern Mashonaland West, Mashonaland Central, Harare, many parts of Mashonaland East and Manicaland, and eastern Masvingo.

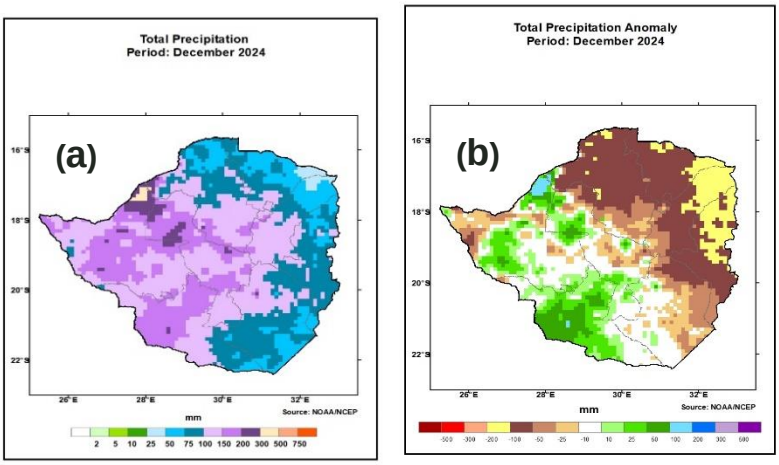


**Figure 4:** Satellite estimates of precipitation (RFE2) for December 2024. (a) Monthly total accumulation of precipitation and (b) monthly precipitation anomaly. **Source: NOAA/NCEP**

## Monthly and Seasonal Forecasts (February 2025 and Feb – Apr 2025):

- **Monthly:** Based on the North American Multi-Model Ensemble (NMME) models (using observations in January 2025 to drive the models), there is a slight tilt in the odds to favor above-average rainfall in some parts of northern, western, and southeastern Zimbabwe during February 2025. There is a slight tilt in the odds to favor below-average rainfall in parts of southern Zimbabwe during February 2025.

- **Seasonal:** Based on the NMME models, there is a slight tilt in the odds to favor above-average rainfall in northern, western, and southeastern Zimbabwe during February 2025 – April 2025 (**Fig. 3c**). **Table 1** gives the total climatological/average accumulation for 3-month forecast period and forecasted rainfall anomaly for the provinces of Zimbabwe.

**Table 1:** The total observed rainfall and anomaly from climatology for the past 1- and 3-months for the provinces of Zimbabwe. For seasonal forecast, the total climatological accumulation for the 3-month forecast period and forecasted rainfall anomaly are shown.

| Location | Past 3-Month | | Past 1-Month | | Seasonal Forecast | |
|---|---|---|---|---|---|---|
| | Total (mm) | Anomaly (mm) | Total (mm) | Anomaly (mm) | Climatology (mm) | Anomaly (mm) |
| **Mashonaland West** | 231 | -47 | 111 | -62 | 308 | 41 |
| **Mashonaland Central** | 170 | -74 | 76 | -88 | 345 | 56 |
| **Mashonaland East** | 228 | -65 | 99 | -81 | 307 | 34 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Matabeleland North** | 237 | -14 | 160 | 9 | 250 | 26 |
| **Midlands** | 257 | -2 | 153 | -3 | 264 | 27 |
| **Manicaland** | 212 | -74 | 87 | -89 | 359 | 49 |
| **Harare** | 287 | -22 | 136 | -49 | 311 | 35 |
| **Masvingo** | 187 | -19 | 93 | -18 | 276 | 38 |
| **Matabeleland South** | 213 | 7 | 140 | 32 | 206 | 16 |

## Temperature

### Past 3 months (October 2024 – December 2024):

- **Maximums:** Maximum temperatures were 1 to 2ºC above average in western, central and southeastern Zimbabwe, with the largest anomalies of 2 to 4ºC occurring in the northern, southwestern, southern, and far-eastern Zimbabwe (**Fig. 5a**, **Table 2**). Maximum temperatures were between 25 to 35ºC across much of Zimbabwe.

- **Minimums:** Minimum temperatures were 1 to 3ºC below average in northern and northwestern Zimbabwe and above average by 1 to 2ºC in southeastern Zimbabwe **(Fig. 5b)**. Minimum temperature remained between 15 to 20ºC in many parts of Zimbabwe, with 20 to 25ºC occurring in southwestern and western Zimbabwe.

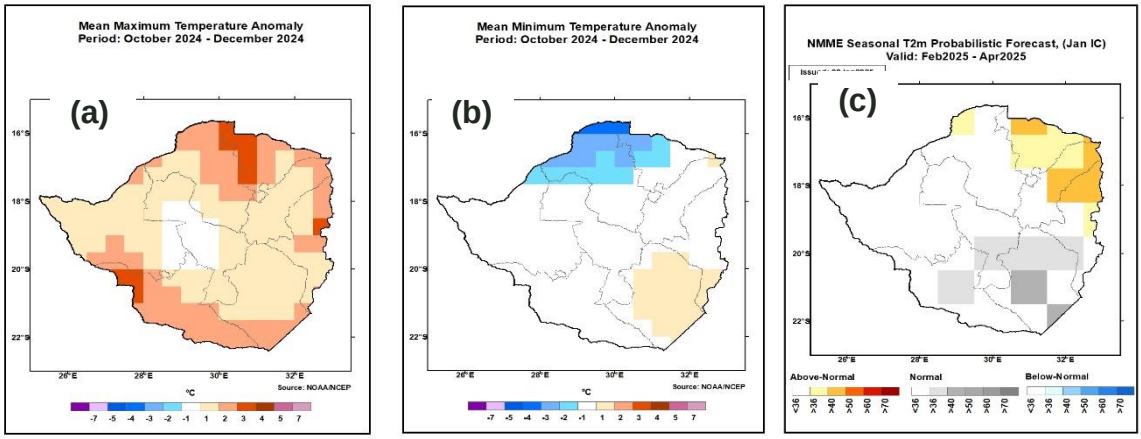


**Figure 5**: Spatial structure of maximum and minimum temperature anomalies for October 2024 – December 2024: **(a)** maximum temperature anomaly and **(b)** minimum temperatures anomaly. **(c)** Seasonal temperature forecast for February 2025 – April 2025. **Source: NOAA/NCEP**

### Past 1 Month (December 2024):

- **Maximums:** Maximum temperatures were 4 to 7ºC above average in northern, northwestern, eastern, southwestern, southern, and southeastern Zimbabwe (**Fig. 6a; Table 2**), and 3 to 4ºC above-average in parts of western and central Zimbabwe. Maximum temperatures were between 30 to 35ºC in many parts of Zimbabwe, but reaching 40ºC in parts of southern, southeastern and for-northern regions of Zimbabwe.

- **Minimums:** Minimum temperatures were 1 to 2ºC below average in northern Zimbabwe **(Fig. 6b)**. Minimum temperatures were 1 to 3ºC above average in parts of central, southwestern, southern, and southeastern and some parts of northeastern Zimbabwe. Minimum temperatures were between 15 to 25ºC in many parts of Zimbabwe.

## Monthly and Seasonal Forecasts (February 2025 and Feb 2025 – Apr 2025):

- **Monthly:** Based on the NMME models, there is a slight tilt in the odds to favor near-average temperature in parts of western, central and southeastern Zimbabwe during February 2025.

- **Seasonal:** Based on NMME forecasts, there is a slight tilt in the odds to favor above-average temperature in northeastern Zimbabwe during February– April 2025 (**Fig. 5c, Table 2**). There is a slight tilt in the odds to favor near-average temperature in some parts of southern and southeastern Zimbabwe.

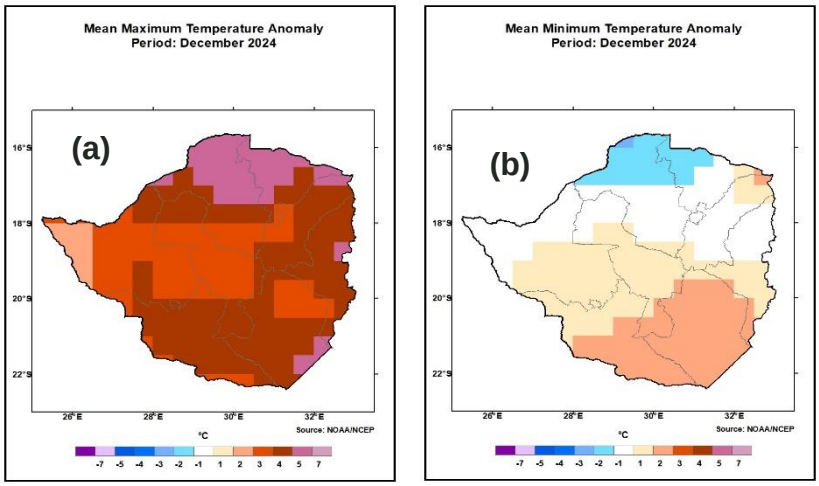


**Figure 6**: Spatial structure of average December 2024 **(a)** maximum temperature anomaly and **(b)** minimum temperatures anomaly. **Source: NOAA/NCEP**

**Table 2:** The average maximum temperature and deviations from climatology for the past 1- and 3-months for the provinces of Zimbabwe. For seasonal forecast, the climatological/average temperatures values and forecasted temperature anomalies are provided.

| Location | Past 3-Month | | Past 1-Month | | Seasonal Forecast | |
|---|---|---|---|---|---|---|
| | Max/Min Temperature (ºC) | Max/Min Anomaly (ºC) | Max/Min Temperature (ºC) | Max/Min Anomaly (ºC) | Temperature Climatology (ºC) | Above/Below Average |
| **Mashonaland West** | 32.6/18.1 | 2.1/-1.5 | 33.7/19.0 | 5.1/-0.8 | 22.5 | 0.1 |
| **Mashonaland Central** | 32.9/18.2 | 2.7/-1.2 | 34.2/19.4 | 5.7/-0.4 | 20.8 | 0.1 |
| **Mashonaland East** | 29.9/17.4 | 1.8/0.4 | 31.3/18.7 | 4.4/0.9 | 20.6 | 0.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Matabeleland North** | 32.3/19.4 | 1.7/0.2 | 32.6/20.1 | 3.6/0.8 | 23.3 | -0.1 |
| **Midlands** | 30.8/18.4 | 1.1/0.2 | 32.3/19.9 | 3.9/1.3 | 21.4 | -0.1 |
| **Manicaland** | 28.9/17.1 | 2.1/0.6 | 30.9/18.6 | 4.5/1.2 | 21.3 | 0.2 |
| **Harare** | 28.6/15.6 | 1.8/-0.1 | 29.7/17.2 | 3.9/0.5 | 19.8 | 0.2 |
| **Masvingo** | 32.2/20.2 | 1.6/1.2 | 34.8/22.5 | 4.3/2.4 | 22.7 | 0.1 |
| **Matabeleland South** | 32.2/18.6 | 2.3/0.6 | 33.6/20.7 | 4.2/2.0 | 22.5 | -0.1 |

## Flooding and Areas of Inundation

- Currently there is no flooding in Zimbabwe.
- The probabilistic forecasts call for above 80% chance for weekly rainfall to be above-normal (above the upper tercile) over southern Zimbabwe during the period 08 - 14 January 2025. There is above 65% chance for above-normal rainfall over much of Zimbabwe during the period 15 - 21 January 2025.

## 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 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.

### Past 3 Months (October 2024 – December 2024):

- The SPI analysis for the past 3-months indicated drier than average conditions in western, southern, northeastern and some parts of central Zimbabwe (**Fig. 7a**). Wetter than average conditions existed in parts of central-northern and far-eastern Zimbabwe.

### Past 1 Month (December 2024):

- The SPI analysis for December 2024 indicated wetter than average conditions in central and eastern Mashonaland West, western Mashonaland Central and southern Matabeleland South provinces of Zimbabwe (**Fig. 7b**). The SPI analysis indicated drier than average conditions in western, northeastern, central-eastern and southeastern regions of Zimbabwe.

### Current/Forecast (06 January 2025 – 02 February 2025):

- The SPI forecast suggests drier than average conditions in western, northwestern, northern and northeastern Zimbabwe, and wetter than average conditions in parts of western and southern Matabeleland South, western Masvingo and eastern Mashonaland West provinces of Zimbabwe (**Fig. 7c**).

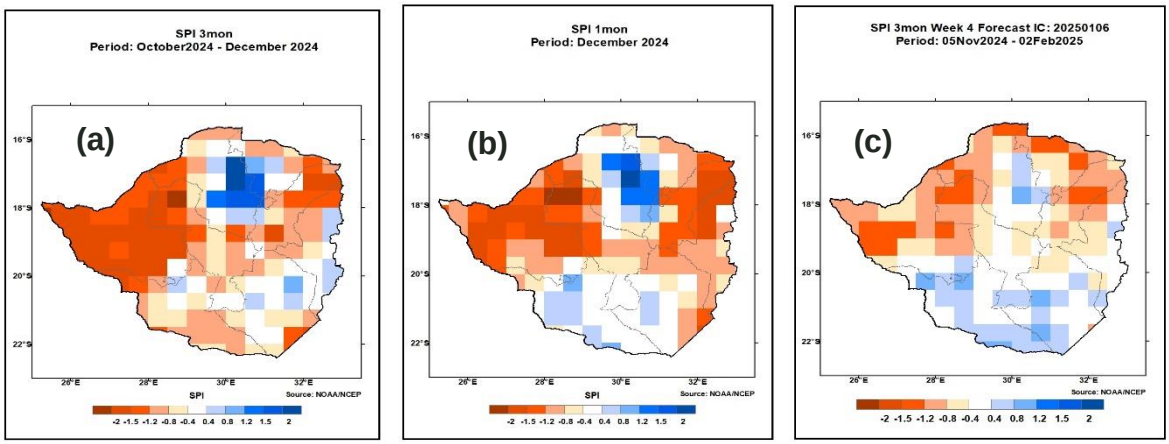


**Figure 7:** Spatial structure of the Standardized Precipitation Index (SPI) for **(a)** October 2024 - December 2024, **(b)** December 2024, and **(c)** Spatial structure of SPI constructed from observations for 05 November 2024 to 05 January 2025 and 4 weeks forecast ending on 02 February 2025. **Source: NOAA/NCEP**

## 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.

### Past 1 Decadal period (21-31 December 2024):

- From 21 – 30 December 2024, the observed NDVI is 60-90% of the long-term average in parts of western, southern, southeastern and northern Zimbabwe, and 105-130% of the long-term average in some parts of southwestern and central Masvingo, central Midlands, central and southern Mashonaland East provinces of Zimbabwe (**Fig. 8**).

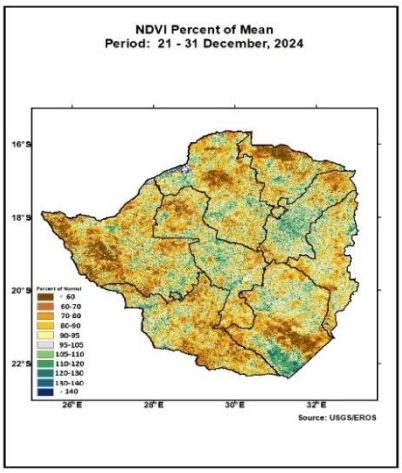


**Figure 8:** Spatial structure of the Normalized Difference Vegetation Index (NDVI) for period 21-31 December, 2024. **Source: USGS/EROS**

## Water Requirement Satisfaction Index (WRSI)

- During the third dekad (10-day period) of December 2024, maize crops conditions were “average to good” in parts of western, northern, central, eastern and southeastern regions of Zimbabwe according to the WRSI analysis.

## GEOGLAM Crop Monitor

- In Zimbabwe, planting of main season cereals is now underway and conditions are mostly favourable.

## Additional Resources

- https://fews.net/sites/default/files/2025-01/Global-Weather-Hazards-01092025.pdf
- https://www.cpc.ncep.noaa.gov/products/international/africa/expert/week1.jpg
- https://www.cpc.ncep.noaa.gov/products/international/africa/expert/week2.jpg

# Annex

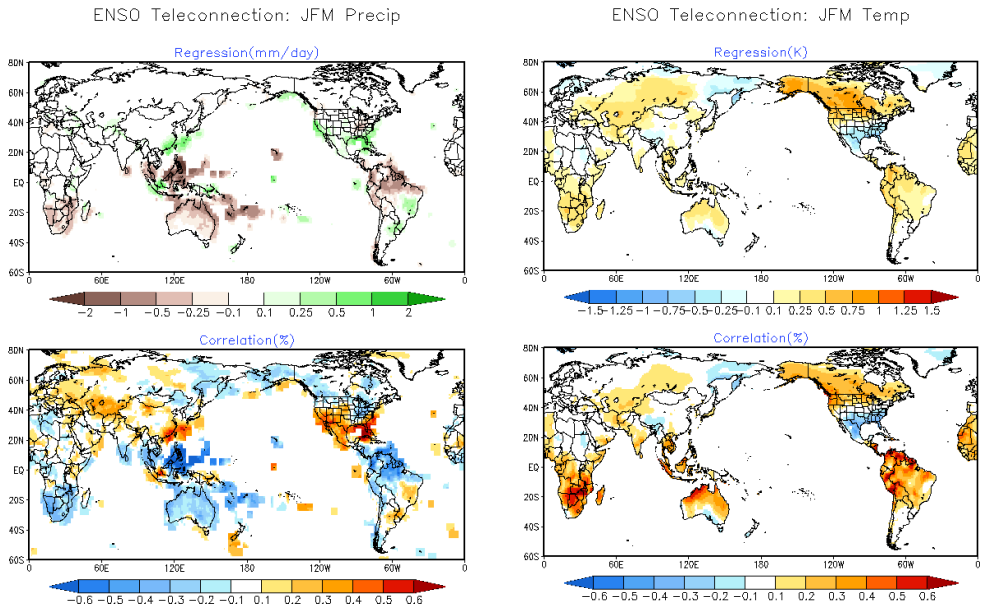


**Figure S1:** For three month season (January-March; JFM), precipitation and temperature anomalies are regressed onto the standardized Niño-3.4 index (upper panel). In the bottom panel, the correlation is calculated between Nino-3.4 and the anomalies.