FAMINE EARLY WARNING SYSTEMS NETWORK

Zimbabwe

Monthly Climate and Weather

19 September 2024

Highlights

- El Niño Southern Oscillation (ENSO)-neutral conditions continued during August 2024. Equatorial sea surface temperatures (SSTs) are above average in the western Pacific and near-to-below-average in the east-central and eastern Pacific Ocean. Based on dynamical models, La Niña is favored to emerge in September-November (71% chance) and is expected to persist through January-March 2025 (63% chance).
- Most parts of Zimbabwe are climatologically dry during August 2024 except some parts of eastern Zimbabwe which received 2 to 10mm of precipitation.
- Maximum temperatures were 2 to 5°C above-average across Zimbabwe, with the warmest anomalies of up to 5°C in western, southwestern, and east-central parts of Zimbabwe during August 2024.
- The Standardized Precipitation Index (SPI) analysis for August 2024 indicated seasonally dry conditions in much of Zimbabwe.
- Based on the North American Multi-Model Ensemble (NMME) models (using observations in September 2024 to run the models), there is a slight tilt in the odds to favor below-average rainfall in southeastern Zimbabwe and above-average rainfall in northeastern Manicaland province during October 2024 – December 2024.
- Based on the NMME models, there is a moderate tilt in the odds to favor above-average temperature during October 2024 over much of Zimbabwe.

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.

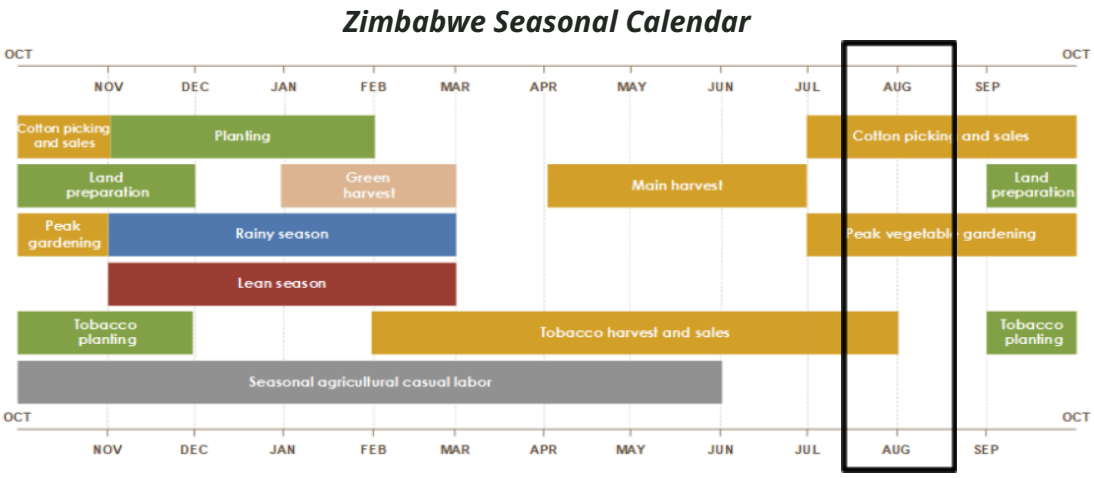


Figure 1: Seasonal calendar for Zimbabwe. **Source: FEWS NET**

Current Climate Modes and Teleconnections

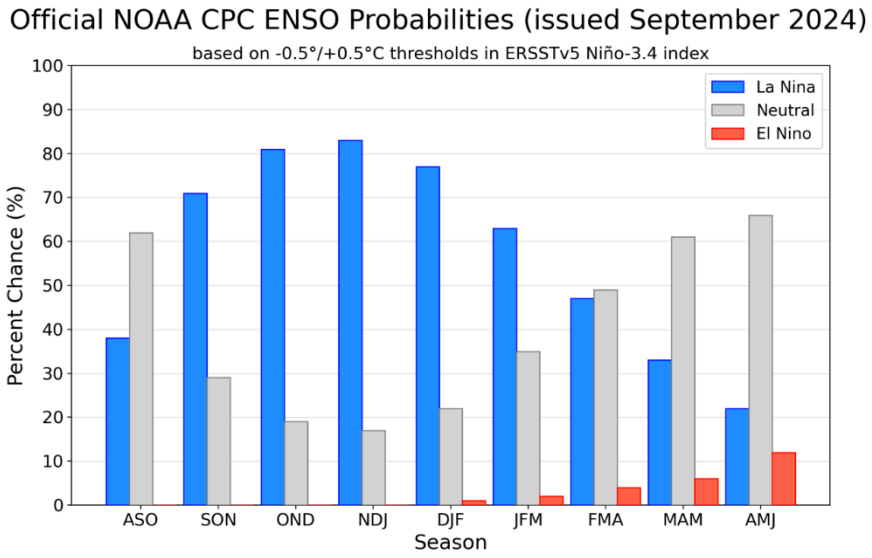


Figure 2: Official ENSO probabilities for the Niño 3.4 Sea surface temperature index (5°N-5°S, 120°W-170°W). **Source: NOAA/NCEP**

- As of early-September 2024, ENSO-neutral conditions are present over the equatorial Pacific Ocean.
- Based on dynamical models, La Niña is favored to emerge in September-November (71% chance) and is expected to persist through January-March 2025 (63% chance) (**Fig. 2**).
- Based on historical record, La Niña conditions are typically associated with above-average rainfall in Zimbabwe during the October-November-December (OND) season. La Niña conditions are also associated with below-average mean temperatures across Zimbabwe during the OND season (**Figure S1**).

Extreme Events

- There were no impacts of tropical storms over the past 30 days across Zimbabwe. Based on available data, no tropical storms are expected in the coming weeks.
- The region with the most significant number of fire alerts (**1** fire alert) was Bulawayo over the past 4 weeks in Zimbabwe.
- Stronger-than-average southeasterly winds anomalies were observed across central-eastern and northern regions of Zimbabwe over the past 30 days.

Rainfall/Precipitation

Past 3 months (Jun 2024 – Aug 2024):

- **Totals:** The observed total rainfall recorded was around 5 to 25mm in eastern, central and southern Manicaland, east-central Masvingo, southern Midlands, and eastern Matabeleland South, while it ranged between 10 to 75mm in some parts of northwestern Matabeleland North and southwestern Mashonaland West (**Fig. 3a**). Please see **Table 1** for average rainfall in the provinces of Zimbabwe.

- **Anomalies:** The observed rainfall was below average around 10 to 25mm in some parts of eastern and southeastern Zimbabwe (**Fig. 3b**). Rainfall was above average in some localized regions in southwestern parts of Mashonaland West and Mashonaland East.

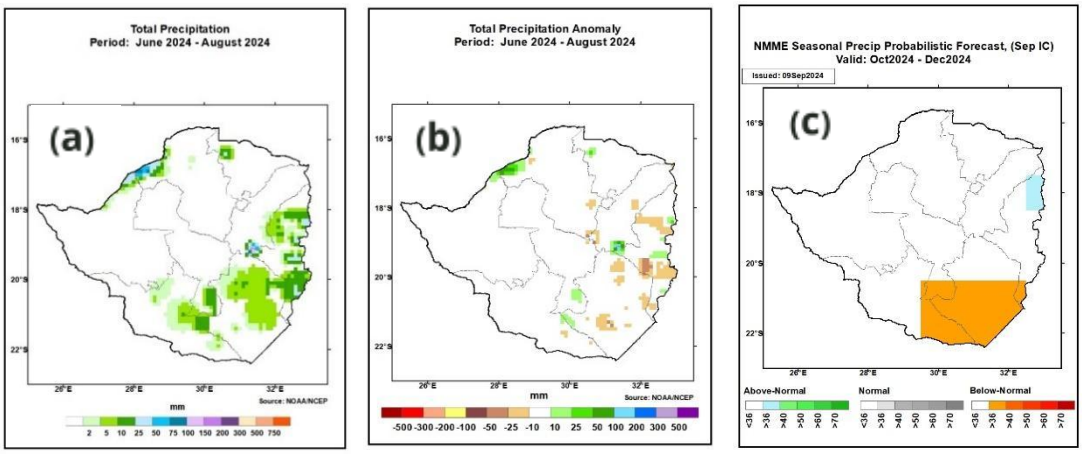


Figure 3: Satellite estimates of precipitation (RFE 2) for past 3 months (June 2024 - August 2024). (a) Past 3 months total accumulation of precipitation, (b) precipitation anomaly, and (c) Seasonal precipitation forecast for October 2024 - December 2024. **Source: NOAA/NCEP**

Past 1 Month (August 2024):

- **Totals:** The observed rainfall total recorded was around 2 to 10mm in parts of southern, western and eastern Manicaland and southwestern Mashonaland West, and central Masvingo **(Fig. 4a).** The rest of the country remained dry during August **(Table 1).**

- **Anomalies:** Rainfall was above average in pocket areas in eastern Manicaland province of Zimbabwe (**Fig. 4b**).

Monthly and Seasonal Forecasts (October 2024 and Oct 2024 – Dec 2024):

- **Monthly:** Based on the North American Multi-Model Ensemble (NMME) models (using observations in September 2024 to drive the models), equal chances of below-, near-, and above-normal categories are forecasted during October 2024 across Zimbabwe (**Fig. 4c)**.

- **Seasonal:** Based on the NMME models, there is a slight tilt in the odds to favor below-average rainfall in southeastern Zimbabwe and above-average rainfall in northeastern Manicaland province of Zimbabwe during October 2024 – December 2024 (**Fig. 3c**). Please see **Table 1** for total climatological/average accumulation for 3-month forecast period and forecasted rainfall anomaly for the provinces of Zimbabwe.

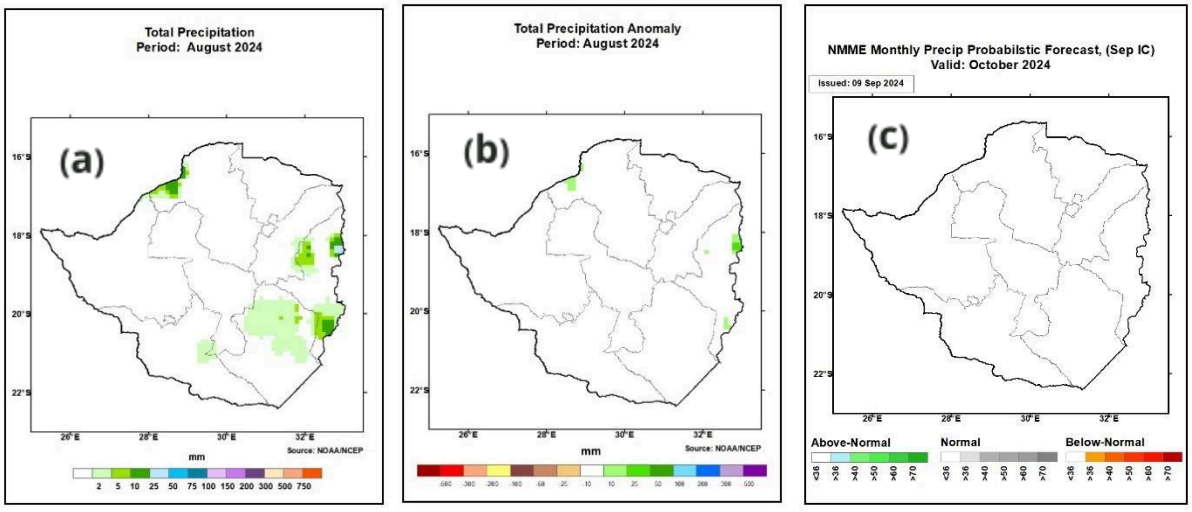


Figure 4: Satellite estimates of precipitation (RFE 2) for August 2024. (a) Monthly total accumulation of precipitation, (b) monthly precipitation anomaly, and (c) monthly precipitation forecast for October 2024. **Source: NOAA/NCEP**

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

Location	Past 3-Month		Past 1-Month		Seasonal Forecast	
	Total (mm)	Anomaly (mm)	Total (mm)	Anomaly (mm)	Climatology (mm)	Anomaly (mm)
Mashonaland West	3	0	1	0	295	21
Mashonaland Central	1	-2	0	0	317	21
Mashonaland East	3	-2	0	0	332	14
Matabeleland North	1	-2	0	0	292	18
Midlands	1	-2	0	0	331	8
Manicaland	8	-4	3	2	376	15
Harare	0	-4	0	-1	343	9
Masvingo	4	-5	1	0	339	-1
Matabeleland South	2	-2	0	0	298	6

Temperature

Past 3 months (Jun 2024 – Aug 2024):

- **Maximums:** Maximum temperatures were 2 to 5°C above-average across Zimbabwe, with the largest anomalies of 4 to 5°C occurring in eastern Mashonaland West, southwestern Mashonaland Central, western Mashonaland East, central Manicaland, and northern Matabeleland South regions of Zimbabwe (**Fig. 5a**, **Table 2**). Maximum temperatures were between 25 to 30°C in most areas.

- **Minimums:** Minimum temperatures were 1 to 2°C above-average in western, central and eastern Zimbabwe **(Fig. 5b)**, with largest temperature anomalies of 2 to 3°C in central-southeastern parts of Zimbabwe. Minimum temperature remained around 5 to 15°C in many parts of Zimbabwe.

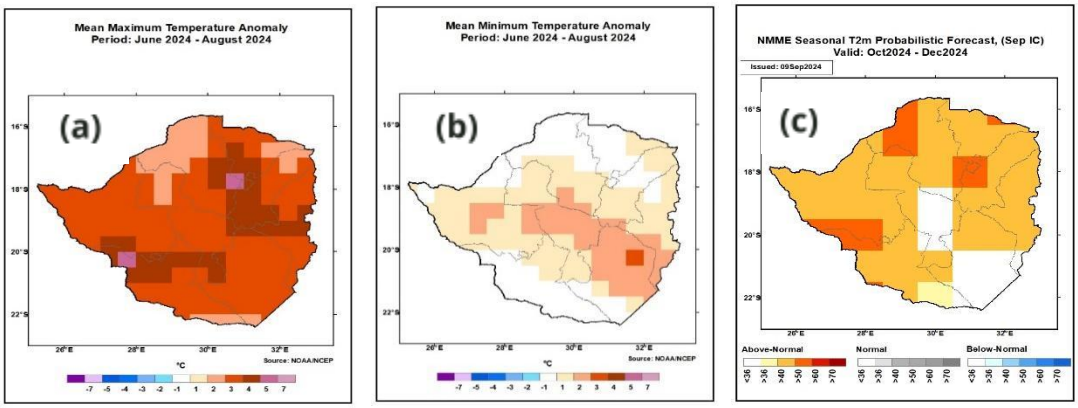


Figure 5: Spatial structure of June 2024 – August 2024 (a) maximum temperature anomaly and (b) minimum temperatures anomaly. (c) Seasonal temperature forecast for October 2024 – December 2024. **Source: NOAA/NCEP**

Past 1 Month (August 2024):

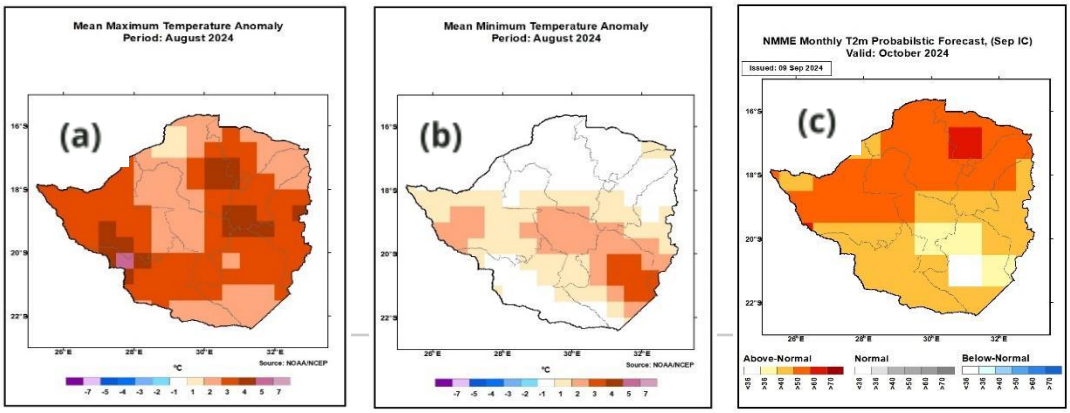
- **Maximums:** Maximum temperatures were 2 to 5°C above-average across Zimbabwe, with the warmest anomalies of up to 5°C in western, southwestern, and east-central parts of Zimbabwe **(Fig. 6a; Table 2)**. Maximum temperatures were between 25 to 30°C in many parts of Zimbabwe. The highest maximum temperature of 35°C was observed in some parts of western and southeastern Zimbabwe.

- **Minimums:** Minimum temperatures were 1 to 3°C above-average in many parts of western, central and eastern Zimbabwe, with the largest anomalies of 3 to 4°C occurring in central and southeastern Masvingo **(Fig. 6b)**. Minimum temperatures were around 5 to 15°C in many parts of Zimbabwe. The highest minimum temperature was 20°C in southeastern Masvingo region of Zimbabwe.

Monthly and Seasonal Forecasts (October 2024 and Oct 2024 – Dec 2024):

- **Monthly:** Based on the NMME models, there is a moderate tilt in the odds to favor above-average temperature during October 2024 over much of Zimbabwe **(Fig. 6c)**.

- **Seasonal:** Based on NMME forecasts, there is a slight to moderate tilt in the odds to favor above-average temperature during October 2024 – December 2024 in



northern, western, southwestern, northeastern and central-eastern regions of Zimbabwe (**Fig. 5c. Table 2**).

Figure 6: Spatial structure of average August 2024 (a) maximum temperature anomaly and (b) minimum temperature anomaly. (c) Monthly temperature forecast for October 2024.
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 (°C)	Max/Min Anomaly (°C)	Max/Min Temperature (°C)	Max/Min Anomaly (°C)	Temperature Climatology (°C)	Above/Below Average
Mashonaland West	27.8/11.6	3.4/1.1	29.2/12.4	3.4/0.6	26.0	0.8
Mashonaland Central	27.7/11.0	3.7/0.8	28.8/11.8	3.7/0.4	24.0	0.7
Mashonaland East	25.8/10.4	3.7/1.3	27.0/11.1	3.7/1.1	23.2	0.8
Matabeleland North	27.6/10.9	3.5/1.5	29.7/12.4	3.5/1.6	26.3	0.8
Midlands	27.0/11.3	3.4/1.7	28.5/12.5	3.4/1.7	24.2	0.8
Manicaland	25.0/10.9	3.9/1.6	26.3/11.8	3.9/1.6	23.4	0.7
Harare	24.9/8.4	4.4/0.8	26.1/8.9	4.4/0.4	22.6	0.8
Masvingo	28.4/12.4	3.5/2.0	29.4/13.9	3.5/2.4	24.7	0.7
Matabeleland South	27.2/8.5	3.8/0.5	28.8/10.2	3.8/0.8	24.7	0.8

Flooding and Areas of Inundation

- Currently there is no flooding in Zimbabwe.
- Flooding is not expected in the next 3 weeks according to climate model forecasts for Zimbabwe.

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 (Jun 2024 – Aug 2024):

- The SPI analysis indicated drier than average conditions in some parts of central and eastern regions of Zimbabwe (**Fig. 7a**).

Past 1 Month (August 2024):

- The SPI analysis for August 2024 indicated seasonally dry conditions in much of Zimbabwe **(Fig. 7b)**.

Current/Forecast (07 August 2024 – 03 September 2024):

- he SPI forecast suggests seasonally dry conditions could be expect during this period in much of Zimbabwe **(Fig. 7c)**.

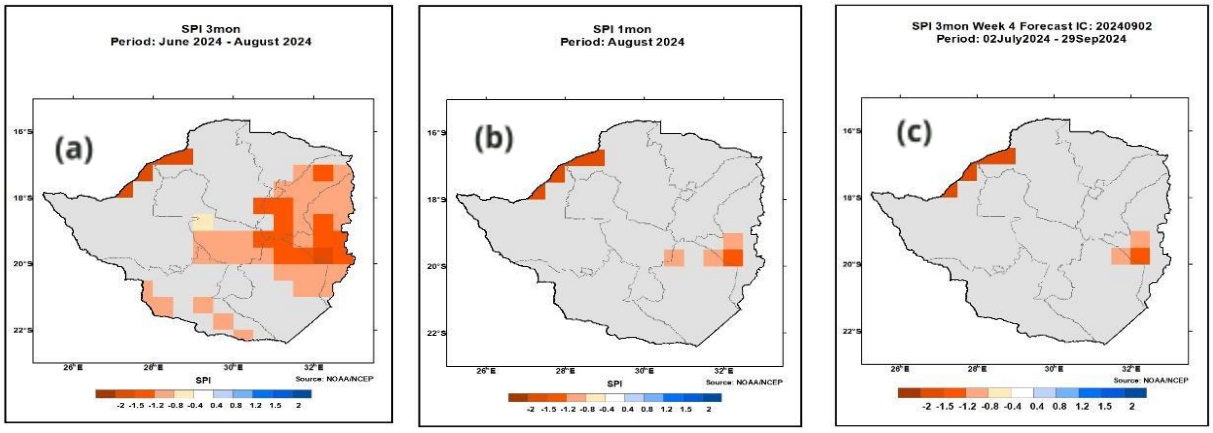


Figure 7: Spatial structure of the Standardized Precipitation Index (SPI) for **(a)** Jun 2024 - Aug 2024, **(b)** August 2024, and **(c)** Spatial structure of SPI constructed from observations for 02Jul 2024 to 01Sep2024 and 4 weeks forecast ending on 29Sep2024. **Source: NOAA/NCEP**

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 August 2024):

- From 21 – 31 August 2024, vegetation conditions accounting for 60-90% across Zimbabwe suggest deteriorated vegetation health relative to the long-term average (**Fig. 8**).

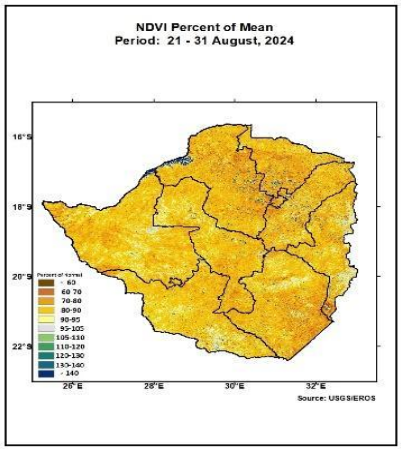


Figure 8: Spatial structure of the Normalized Difference Vegetation Index (NDVI) for period 21-31 August, 2024. **Source: USGS/EROS**

Water Requirement Satisfaction Index (WRSI)

- Not applicable

GEOGLAM Crop Monitor

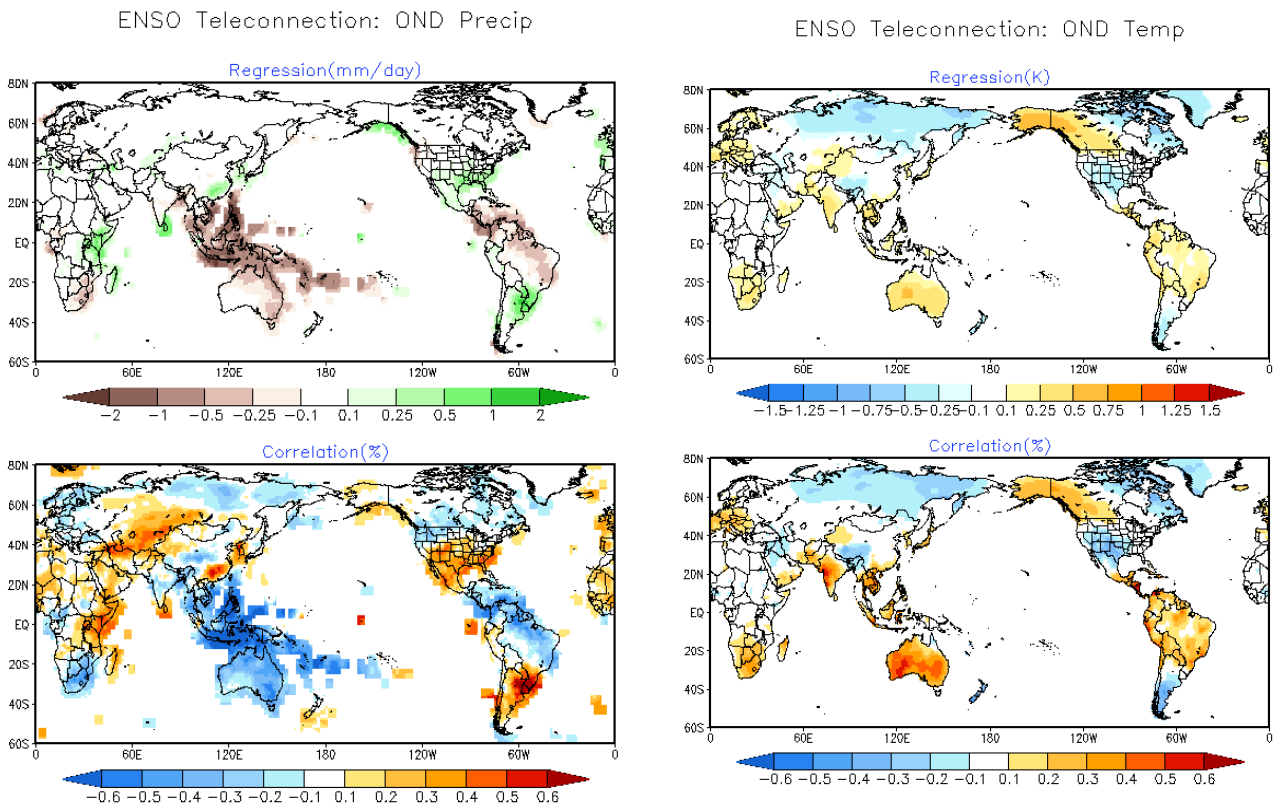
- In Zimbabwe, aggregate cereal production is estimated to 14 percent below-average, with significant reductions in **Zimbabwe** due to El Niño-induced drought and high temperatures conditions throughout the season. Conversely, conditions remain favorable for ongoing wheat production in Zimbabwe due to increased government support in the form of subsidized seed and fertilizer.

Additional Resources

- Crop Monitor for Early Warning — GEOGLAM Crop Monitor
- https://fews.net/sites/default/files/2024-09/Global-Weather-Hazards-09122024.pdf
- https://fews.net/southern-africa/zimbabwe/key-message-update/july-2024
- https://iris.who.int/handle/10665/378731

Annex

Figure S1: For three month season (OND), 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.