FAMINE EARLY WARNING SYSTEMS NETWORK

Zimbabwe

Monthly Climate and Weather

17 October 2024

Highlights

- El Niño Southern Oscillation (ENSO)-neutral conditions continued during September 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 2024 (60% chance) and is expected to persist through January-March 2025 (60% chance).

- Most parts of Zimbabwe are climatologically dry during September 2024. However, parts of southeastern and eastern Zimbabwe received 5 to 25mm of precipitation.

- Maximum temperatures were 1 to 3^{o}C above-average in many parts of western, southwestern, northern, central, and eastern Zimbabwe, with the warmest anomalies of up to 5^{o}C in southwestern, central-northern, and eastern Zimbabwe during September 2024.

- The Standardized Precipitation Index (SPI) analysis showed seasonally dry conditions across Zimbabwe in September 2024, except over parts of eastern Manicaland where drier than average conditions were depicted and parts of southeastern Matabeleland and southeastern Masvingo where wetter than average conditions indicated.

- Based on the North American Multi-Model Ensemble (NMME) models, there is a slight tilt in the odds to favor above-average rainfall in northeastern and eastern-central Zimbabwe and below-average rainfall in eastern Matabeleland North/western Midlands provinces of Zimbabwe during November 2024 – January 2025.

- Based on the NMME models, there is a slight to moderate tilt in the odds to favor above-average temperatures across Zimbabwe during November 2024 – January 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.

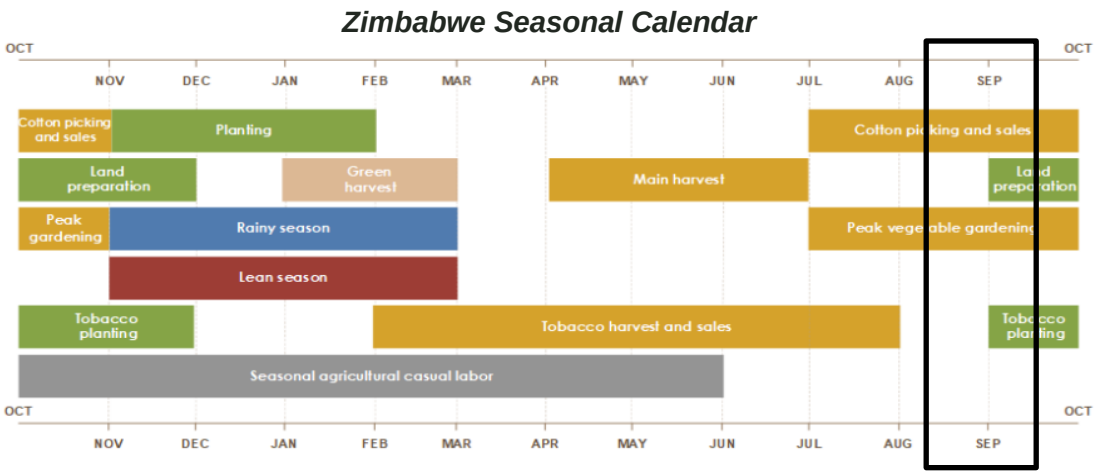


Figure 1: Seasonal calendar for Zimbabwe. **Source: FEWS NET**

Current Climate Modes and Teleconnections

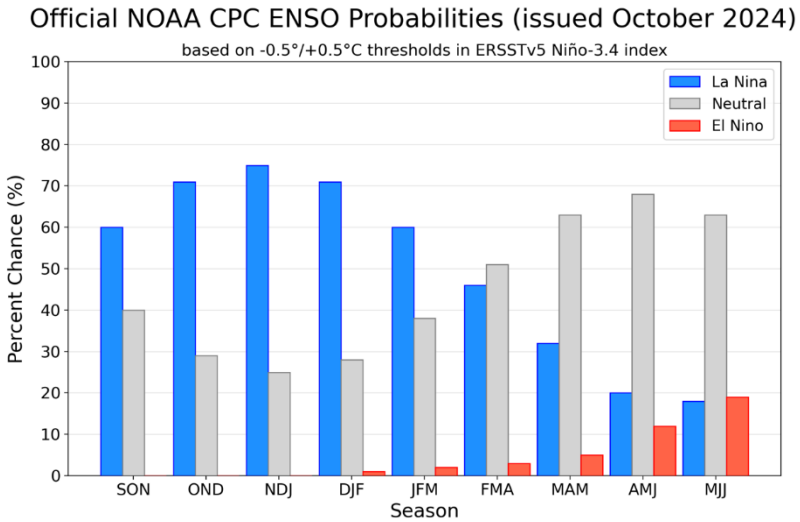


Figure 2: Official ENSO probabilities for the Niño 3.4 Sea surface temperature index (5°N-5°S, 120°W-170°W). **Source: NOAA/NCEP**

- As of early October 2024, near-to-below-average SSTs persisted in the east-central and eastern Pacific Ocean, while above-average SSTs persisted in the western Pacific.
- Based on dynamical models, La Niña is favored to emerge in September-November 2024 (60% chance) and is expected to persist through January-March 2025 (**Fig. 2**).
- Based on historical record, La Niña episodes are typically associated with wetter than average conditions in Zimbabwe during the November-December-January (NDJ) season. La Niña events are also associated with cooler than average conditions across Zimbabwe during the NDJ 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.
- Harare saw only 5 fire alerts over the past 4 weeks.
- There were no notable wind anomalies over the past 30 days across Zimbabwe.

Rainfall/Precipitation

Past 3 months (July 2024 – September 2024):

- **Totals:** Most of Masvingo and Matabeleland South and parts of southern, western and northeastern Manicaland and southwestern Mashonaland recorded 5 to 25mm total rainfall, while localized regions in eastern Masvingo/southern Manicaland and northwestern Matabeleland North received 25 to 75mm total rainfall (**Fig. 3a**). **Table 1** shows the average rainfall for provinces of Zimbabwe.

- **Anomalies:** The observed rainfall was 10 to 25mm below average in parts of eastern Zimbabwe (**Fig. 3b**). Rainfall was above average in some localized regions in eastern Masvingo/southern Manicaland provinces of Zimbabwe.

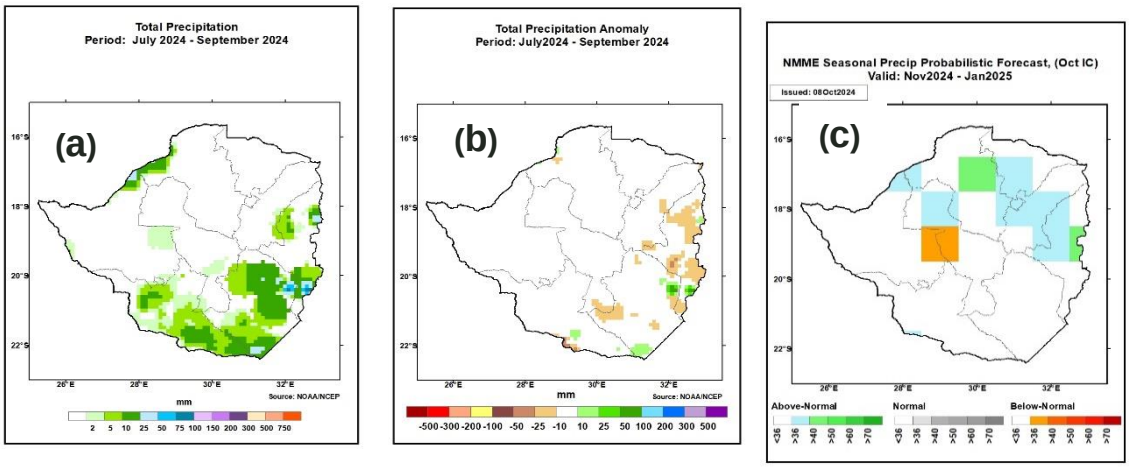


Figure 3: Satellite estimates of precipitation (RFE2) for past 3 months (July 2024 - September 2024). (a) Total accumulation of precipitation and (b) precipitation anomaly. (c) Seasonal precipitation forecast for November 2024 - January 2025. **Source: NOAA/NCEP**

Past 1 Month (September 2024):

- **Totals:** The observed rainfall total recorded was around 2 to 25mm in eastern, central and southern Masvingo, central-eastern, southern and western Matabeleland South, and some parts of southern Manicaland, southwestern Mashonaland West, and northwestern Matabeleland North regions of Zimbabwe **(Fig. 4a**). The rest of Zimbabwe remained dry during September **(Table 1).**

- **Anomalies:** Rainfall was above average in some pocket regions in eastern and southeastern Masvingo province of Zimbabwe (**Fig. 4b**).

Monthly and Seasonal Forecasts (November 2024 and Nov 2024 – Jan 2025):

- **Monthly:** Based on the North American Multi-Model Ensemble (NMME) models (using observations in October 2024 to drive the models), there is a slight tilt in the odds to favor below-average rainfall in some parts of central-northern, northeastern and southwestern Zimbabwe during November 2024 (**Fig. 4c)**.

- **Seasonal:** Based on the NMME models, there is a slight tilt in the odds to favor above-average rainfall in parts of northeastern and eastern-central Zimbabwe and below-average rainfall in some parts of eastern Matabeleland North/western Midlands provinces during November 2024 – January 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.

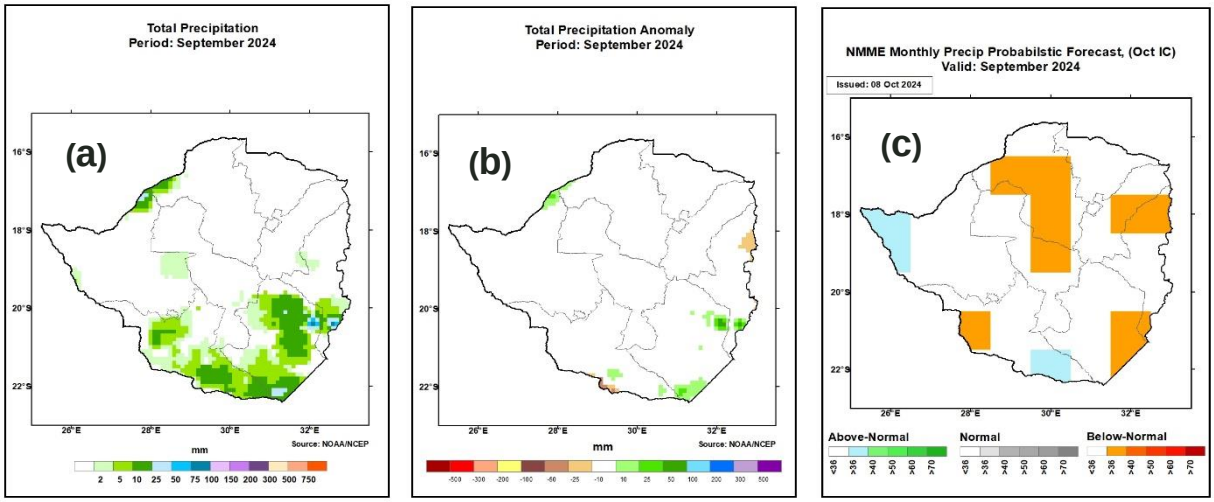


Figure 4: Satellite estimates of precipitation (RFE 2) for September 2024. (a) Monthly total accumulation of precipitation and (b) monthly precipitation anomaly. (c) monthly precipitation forecast for November 2024. **Source: NOAA/NCEP**

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 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	1	-2	0	-1	490	35
Mashonaland Central	0	-3	0	-1	536	38

Mashonaland East	**0**	**-6**	**0**	**-3**	**518**	**34**
Matabeleland North	**1**	**-2**	**1**	**-1**	**446**	**18**
Midlands	**1**	**-4**	**0**	**-3**	**490**	**13**
Manicaland	**6**	**-8**	**3**	**-3**	**543**	**62**
Harare	**0**	**-4**	**0**	**-2**	**536**	**31**
Masvingo	**10**	**-1**	**8**	**2**	**467**	**37**
Matabeleland South	**5**	**-2**	**5**	**-1**	**406**	**15**

Temperature

Past 3 months (Jul 2024 – Sep 2024):

- **Maximums:** Maximum temperatures were 2 to 4ºC above average across Zimbabwe, with the largest anomalies of 4 to 7ºC occurring in eastern Manicaland, eastern Mashonaland West, western Mashonaland Central, western Mashonaland East, southwestern Matabeleland South, and southeastern Matabeleland North (**Fig. 5a**, **Table 2**). Maximum temperatures were between 25 to 35ºC in much of Zimbabwe.

- **Minimums:** Minimum temperatures were 1 to 2ºC above average over western, central and southeastern Zimbabwe **(Fig. 5b)**, with the largest temperature anomalies of 2 to 3ºC covering eastern and southeastern parts of Masvingo province. Minimum temperature remained around 10 to 15ºC in many parts of Zimbabwe.

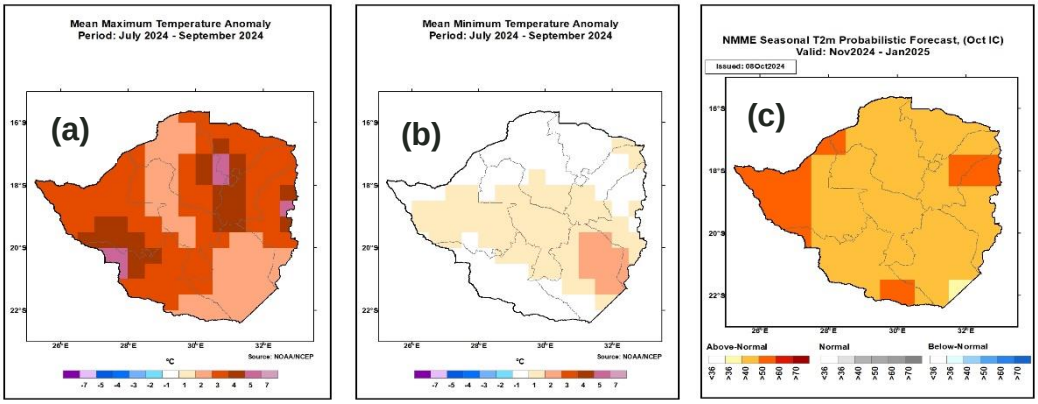


Figure 5: Spatial structure of maximum and minimum temperature anomalies for July 2024 – September 2024: **(a)** maximum temperature anomaly and **(b)** minimum temperatures anomaly. **(c)** Seasonal temperature forecast for November 2024 – January 2025. **Source: NOAA/NCEP**

Past 1 Month (September 2024):

- **Maximums:** Maximum temperatures were 1 to 3ºC above-average in many parts of western, southwestern, northern, and eastern Zimbabwe, with the warmest anomalies of up to 5ºC occurring in eastern Mashonaland West, southwestern Mashonaland Central,

northeastern Manicaland, and southwestern Matabeleland South provinces **(Fig. 6a; Table 2)**. Maximum temperatures were between 25 to 35ºC in many parts of Zimbabwe.

- **Minimums:** Minimum temperatures were 1 to 2ºC above average in many southwestern, central, and eastern Zimbabwe **(Fig. 6b)**. Minimum temperatures were 1 to 2ºC below-average in the far-northern Zimbabwe. Minimum temperatures were around 10 to 20ºC in many parts of Zimbabwe.

Monthly and Seasonal Forecasts (November 2024 and Nov 2024 – Jan 2025):

- **Monthly:** Based on the NMME models, there is a slight to moderate tilt in the odds to favor above-average temperature during November 2024 in western, northern, central, southwestern, and northeastern regions 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 Nov 2024 – Jan 2025 across Zimbabwe (**Fig. 5c, Table 2**).

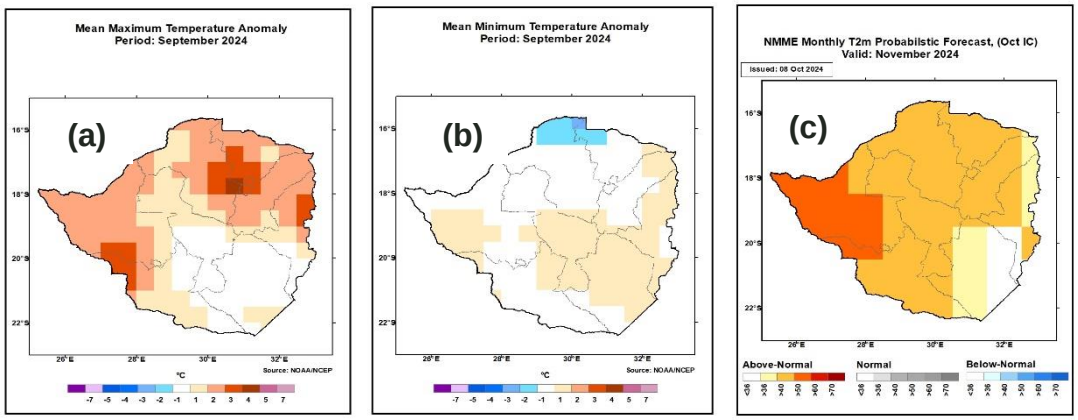


Figure 6: Spatial structure of average September 2024 **(a)** maximum temperature anomaly and **(b)** minimum temperatures anomaly. **(c)** Monthly temperature forecast for November 2024. **Source: NOAA/NCEP**

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 (ºC)	Max/Min Anomaly (ºC)	Max/Min Temperature (ºC)	Max/Min Anomaly (ºC)	Temperature Climatology (ºC)	Above/Below Average
Mashonaland West	29.8/12.9	3.4/0.6	31.2/15.4	2.4/-0.2	25.0	0.7
Mashonaland Central	29.6/12.2	3.8/0.2	31.5/15.0	2.6/-0.2	23.2	0.7
Mashonaland East	27.6/11.5	3.7/1.0	29.0/14.1	2.3/1.0	22.8	0.7

Matabeleland North	30.0/12.6	3.7/1.2	32.2/16.0	2.4/0.9	25.4	0.7
Midlands	28.8/12.7	3.1/1.3	27.3/15.4	1.1/0.9	23.6	0.7
Manicaland	26.5/11.9	3.8/1.3	28.7/14.0	1.8/1.1	23.3	0.6
Harare	26.9/9.5	4.4/0.6	28.7/12.0	3.2/0.4	22.1	0.6
Masvingo	29.2/13.6	2.8/1.7	29.3/16.0	0.3/1.3	24.6	0.6
Matabeleland South	29.0/10.2	3.6/0.3	30.1/14.1	1.5/0.7	23.3	0.7

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 (July 2024 – September 2024):

- The SPI analysis indicated seasonally dry conditions in much of Zimbabwe except over parts of eastern Manicaland province where wetter than average conditions existed.

Past 1 Month (September 2024):

- The SPI analysis for September 2024 indicated seasonally dry conditions in much of Zimbabwe except over parts of eastern Manicaland province of Zimbabwe where drier than average conditions were depicted and in parts of southeastern Matabeleland South/southeastern Masvingo provinces where wetter than average conditions indicated.

Current/Forecast (06Oct2024 – 20Oct2024):

- The SPI forecast suggests drier than average conditions in parts of eastern Zimbabwe. The rest of the country expects seasonally dry conditions.

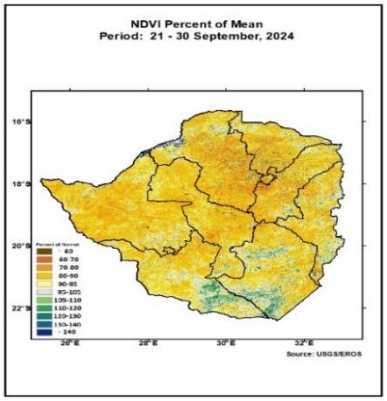
Normalized Difference Vegetation Index (NDVI)

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 (21-30 September 2024):

- From 21 – 30 September 2024, vegetation conditions accounting for 60-90% in many parts of Zimbabwe suggest deteriorated vegetation health relative to the long-term average (**Fig. 7**). Southeastern parts of Zimbabwe depict healthy vegetation conditions.

Figure 7: Spatial structure of the Normalized Difference Vegetation Index (NDVI) for period 21-30 September, 2024. **Source: USGS/EROS**



Water Requirement Satisfaction Index (WRSI)

- Not applicable

GEOGLAM Crop Monitor

- In Zimbabwe, land preparation is underway for the 2024/25 main agricultural season. Conditions remain favorable for development of ongoing wheat production in Zimbabwe.

Additional Resources

- Crop Monitor for Early Warning — GEOGLAM Crop Monitor
- https://fews.net/sites/default/files/2024-10/Global-Weather-Hazards-10102024.pdf

Annex

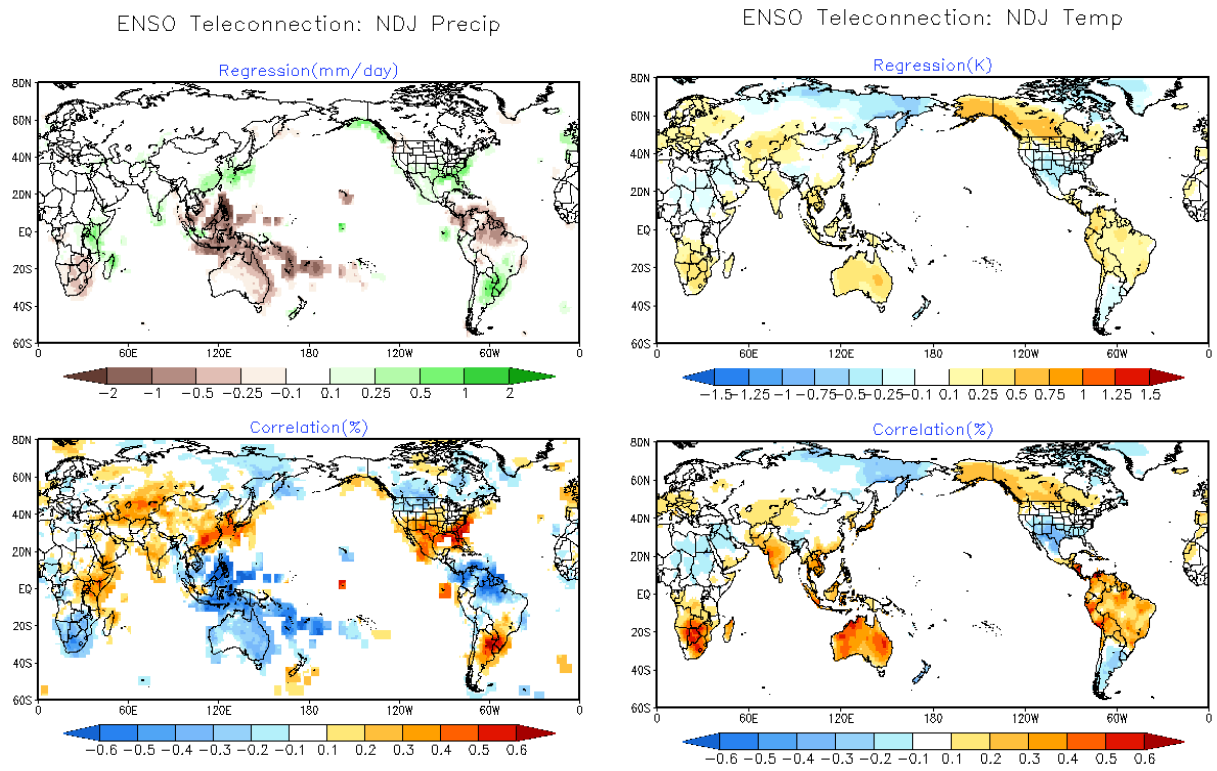


Figure S1: For three month season (November-January; NDJ), precipitation and temperature anomalies are regressed onto the standardized Niño-3.4 index (upper panel). In the bottom panel, the correlation is calculated between Nino-3.4 and the anomalies.