FAMINE EARLY WARNING SYSTEMS NETWORK

Democratic Republic of Congo

Monthly Climate and Weather

19 December 2024

Highlights

- **El Niño Southern Oscillation (ENSO)-neutral conditions** continued during November. A weak and short-duration La Niña is most likely to emerge during November 2024 – January 2025, with a transition to ENSO-neutral during March – May 2025, according to the latest ENSO outlook.

- In November, many areas in DRC saw below-average **rainfall** with deficits of 50-100 mm. Conversely, parts of the west, north and central regions had near to above-average rainfall. In January, above-average rainfall is favored in pocket areas in the northern, central, and western regions. The southern part of Haut-Katanga province will likely experience below-average rainfall with a greater than 40% probability.

- The DRC experienced above-average **maximum temperatures** of 1°C to 3°C across many regions, with a peak anomaly of 3°C in eastern Nord-Ubangi, Bas-Uele, and southern Haut-Katanga. Conversely, localized areas in Kwango had below-average maximum temperatures. The **minimum temperatures** were near-normal in much of the country. During January 2025, the DRC is expected to have above-average temperatures. Parts of the northern, central, and southern regions are favored to have greater than a 60% probability of above-average mean temperatures.

- The **Standardized Precipitation Inde (**SPI) analysis for November 2024 shows that, most parts of the DRC experienced drier-than-average conditions. In contrast, wetter-than-average conditions were observed in the eastern provinces and localized areas in the western and southern provinces. Near-normal conditions were noted over isolated areas in the country. The SPI forecast for the December 11, 2024 to January 7, 2025, suggest drier-than-average conditions will dominate over much of DRC, except in eastern provinces and isolated areas, which will experience wetter-than-average conditions. An SPI exceeding 2.0 standard deviations above the mean is expected in Nord-Ubangi, Bas-Uele, Kinshasa, and Kongo-Central provinces. Near-normal conditions are anticipated in some isolated areas.

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.

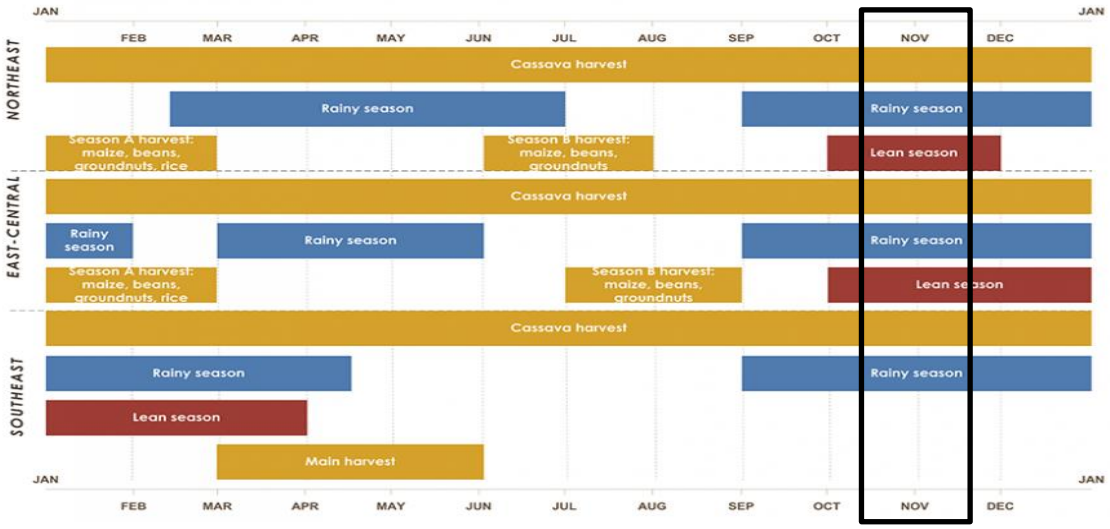


Figure 1: Seasonal calendar for DR Congo. **Source: FEWS NET**

Current Climate Modes and Teleconnections

- As of mid-December, ENSO-neutral conditions continued, with near-average sea-surface temperatures (SSTs) across the central and eastern equatorial Pacific Ocean. Below-average subsurface ocean temperatures persisted across the east-central and eastern equatorial Pacific. Low-level wind anomalies were easterly over the western and central Pacific, while upper-level wind anomalies were westerly.

- The latest outlook indicates a weak and short-duration La Niña over the upcoming few seasons. La Niña is most likely to emerge with a 57% chance during October – December 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.

- Based on historical records, La Niña conditions are associated with near-normal rainfall and above-average mean temperatures in DRC. The La Niña-precipitation teleconnection pattern can be found here, and the pattern for temperature can be found here.

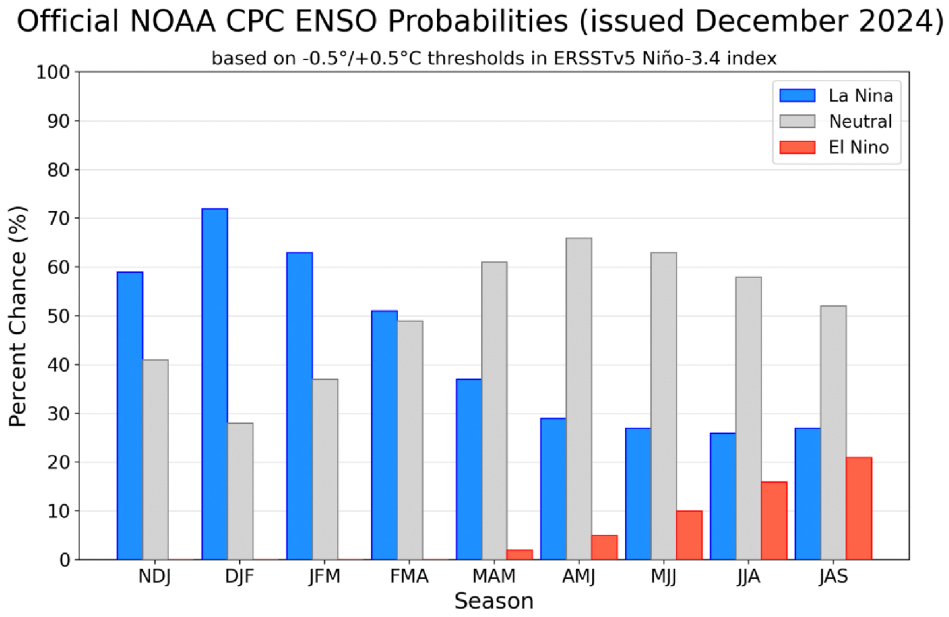


Figure 2: Official CPC ENSO probabilities outlook. **Source: NOAA/NCEP**

Extreme Events

- No widespread fires were reported in October 2024. Overall, around 100,903 high-confidence fire alerts have been reported by VIIRS so far in 2024. In the past 4 weeks, the region with the most significant number of fire alerts was Sud-Ubangi, with 206 fire alerts. This represents 19% of all alerts detected in the Democratic Republic of the Congo.

Rainfall/Precipitation

Past 3 months (September 2024 to November 2024):

- **Total:** The northern, central, and part of southern regions received extremely heavy rainfall between 300 and 750 mm. Most of the southern region registered rainfall of 100-300 mm. The heaviest rainfall (750 mm) was recorded in Equateur, Haut-Uele, Ituri, and Nord-Kivu provinces (**Fig. 3a)**.

- **Anomalies:** Rainfall was above-average by 25-500 mm in much of the north and central regions and below-average at isolated places in the north and in the far southern provinces. Equateur, Haut-Uele, and Ituri provinces recorded large rainfall surpluses (200-500 mm). In contrast, much of the south received below-average rainfall (25-200 mm), with the largest deficits of 100-200 mm occuring in Kwango, Kasai, Kasai-Central, Lualaba, Lomami, and Haut-Lomami provinces (**Fig. 3b)**.

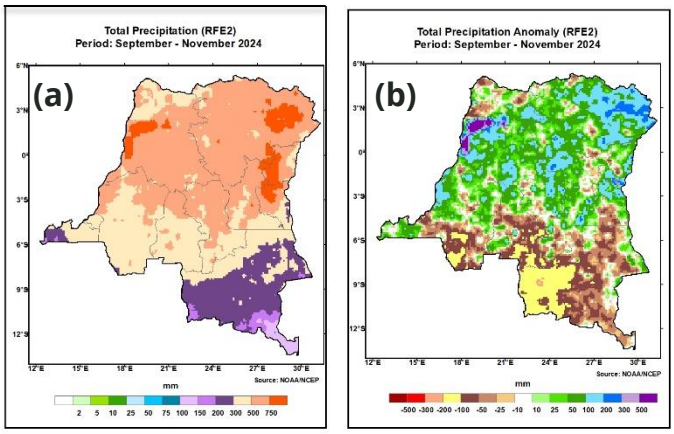


Figure 3: Spatial distribution for September-November 2024 (a) total precipitation and (b) total precipitation anomaly. **Source: NOAA/NCEP**

Past 1 Month (November 2024):

- **Totals:** Much of DRC experienced heavy rainfall reaching between 100-300 mm and exceeding 300 mm in Equateur, Tshopo, Maniema, Nord-Kivu, and Sud-Kivu provinces. Moderate to heavy rainfall (50-100 mm) was registered along the border of the northern provinces and southern part of Haut-Katanga province (**Fig. 4a**).

- **Anomalies:** Below-average rainfall (10-100 mm) was observed over many places in DRC, with large rainfall deficits of 50-100 mm over Kasai-Central, Lomami, Haut-Lomami, Lualaba, Haut-Katanga, and northern Bas-Uele provinces. In contrast, parts of the west, northern, and central regions recorded near to above-average rainfall (10-100 mm). Equateur, Mongala, Tshopo, and Kongo-Central provinces experienced large rainfall surpluses greater than 100 mm (**Fig. 4b**).

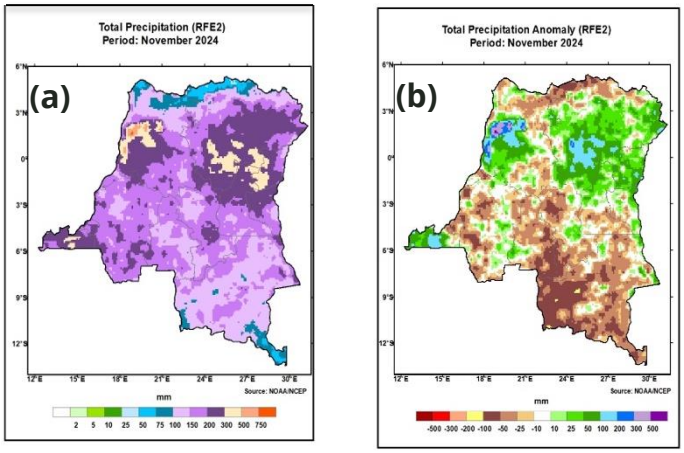


Figure 4: Spatial distribution for November 2024 (a) total precipitation and (b) total precipitation anomaly. **Source: NOAA/NCEP**

Monthly (January 2025) and Seasonal (January 2025 – March 2025) Forecasts:

- **Monthly:** In January, above-average rainfall is favored in pocket areas in the northern, central, and western regions. However, probabilities for above-average rainfall are marginal. The southern part of Haut-Katanga province will likely experience below-average rainfall with greater than 40% probability **(Fig. 5a**).

- **Seasonal:** Below-average rainfall is favored in pocket areas in Kongo-Central and Ituri provinces between January and March. Meanwhile, there are marginally weak probabilities for above-average rainfall in pocket areas in Tshopo, Haut-Uele, Ituri, and Haut-Katanga provinces (**Fig. 5b**).

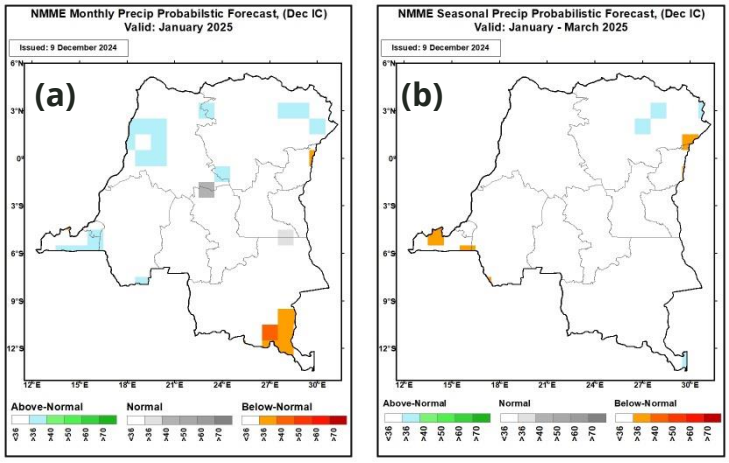


Figure 5: Rainfall forecast for (a) January 2025 and (b) January 2025 - March 2025.
Source: NOAA/NCEP

Temperature

Past 3 months (September 2024 to November 2024):

- **Maximums:** In the past three months, the DRC has experienced average maximum temperatures ranging from 20 to 35°C. Most areas of the DRC have recorded above-average temperatures, with most of the southern region recording high above-average maximum temperature anomalies reaching 3°C. Also, Kinshasa, Kongo-Central, Kwango, Ituri, and Nord-Kivu provinces experienced near-average maximum temperatures (**Fig. 6a**).

- **Minimums:** The mean minimum temperatures in the DRC over the last 3 months was 20-25°C in most northern and central regions and 10-15°C in the southern region and along the eastern border. The southern part of Haut-Katanga province and localized places in the eastern region recorded the lowest minimum temperature of 10°C. The

north, central, and southern regions recorded above-average minimum temperature anomalies of 1-2°C. The northeastern region, including northern Tshopo, Bas-Uele, and Haut-Uele provinces, recorded the highest above-average minimum temperature anomalies exceeding 2°C. Conversely, below-average minimum temperature (2-5°C) was observed in southern Haut-Katanga province. Near-normal conditions were recorded in northwest, west-central, and parts of the eastern and southern regions (**Fig. 6b)**.

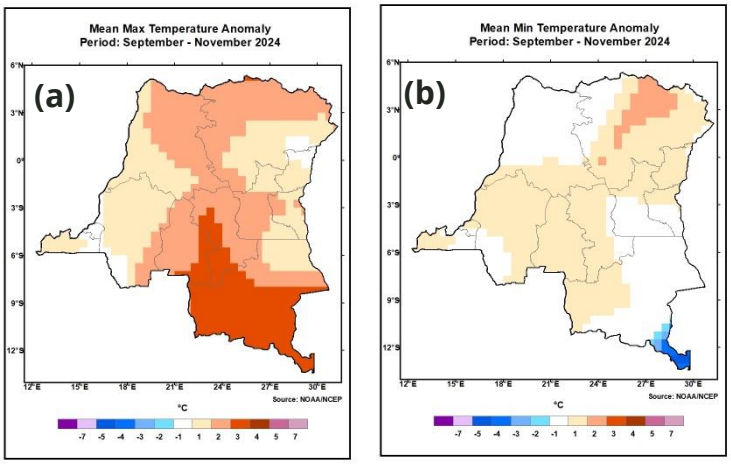


Figure 6: Spatial distribution for September – November 2024 (a) mean maximum temperature anomaly and (b) mean minimum temperature anomaly. **Source: NOAA/NCEP**

Past 1 Month (November 2024):

- **Maximums:** Mean maximum temperatures in the DRC ranged between 20°C and 35°C. The country experienced above-average maximum temperatures with anomalies ranging from 1°C to 3°C in many regions. The highest temperature anomaly exceeding 3°C was observed in eastern Nord-Ubangi, Bas-Uele, and southern Haut-Katanga provinces. Conversely, below-average maximum temperatures were observed in localized areas in Kwango province (**Fig. 7a**).

- **Minimums:** In much of the DRC, the mean minimum temperatures over the last month were 20-25°C. The southern and eastern borders experienced minimum temperatures of 10-15°C. Above-average mean minimum temperatures anomalies of 1-2°C were observed in parts of the northeastern, central, and southern regions. In contrast, below-average mean minimum temperatures were recorded in the southern Haut-Katanga province (2-5°C). Much of the country recorded near-normal minimum temperatures (**Fig. 7b)**.

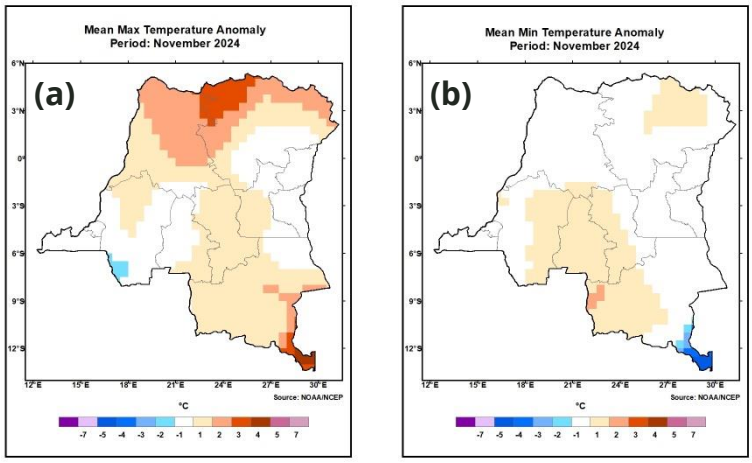


Figure 7: Spatial map for November 2024 (a) mean maximum temperature anomaly and (b) mean minimum temperature anomaly. **Source: NOAA/NCEP**

Monthly (January 2025) and Seasonal (January 2025 – March 2025) Forecasts:

- **Monthly:** In January 2025, DRC is expected to have above-average temperatures. Parts of the northern, central, and southern regions are favored to have a greater than 60% probability of above-average mean temperatures **(Fig. 8a)**.

- **Seasonal:** Above-average mean temperatures are expected in the DRC from January to March 2025. Parts of the northern and central provinces are favored to have greater than a 70% probability of above-average mean temperatures (**Fig. 8b)**.

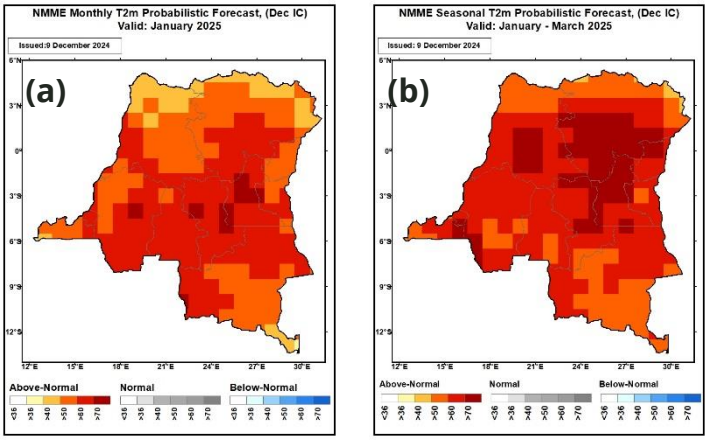


Figure 8: Spatial map for (a) January 2025 mean temperatures forecast and (b) January 2025 – March 2025 mean temperatures forecast. **Source: NOAA/NCEP**

Flooding and Areas of Inundation

- Heavy and above-average rainfall since October has caused Lake Albert to overflow, resulting in flooding in the Ituri province.

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. 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 (September 2024 to November 2024):

- From September to November 2024, parts of the north, west, central, and southern provinces in DRC experienced drier-than-average conditions. In contrast, wetter-than-average conditions were observed in parts of the central and eastern provinces and in isolated locations across the country. Near-normal conditions were reported in other isolated areas throughout the country **(Fig. 9a)**.

Past 1 Month (November 2024):

- In November, most parts of the DRC experienced drier-than-average conditions. In contrast, wetter-than-average conditions were experienced in the eastern provinces and localized places in the western and southern provinces. Near-normal conditions were experienced over isolated areas in the country **(Fig. 9b)**.

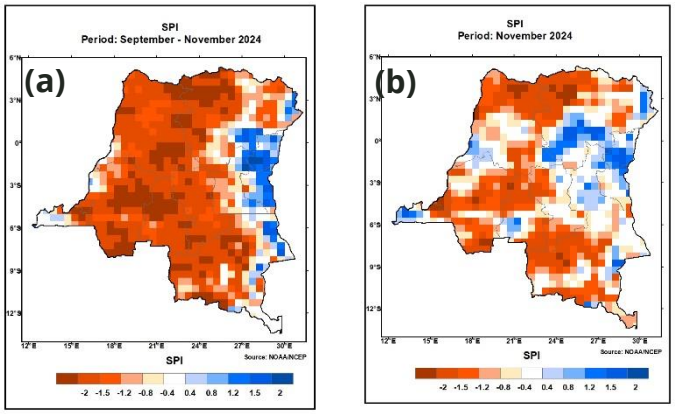


Figure 9: Spatial structure of Standardized Precipitation Index (SPI) (a) September – November 2024 (b) November 2024. Source: NOAA/NCEP. **Source: NOAA/NCEP**

Current/Forecast (10 October 2024 to 07 January 2025):

- The SPI forecast, constructed from observed precipitation from 10 October 2024 to 10 December 2024 and forecasted rainfall data from 11 December 2024 to 7 January 2025, suggests that drier-than-average conditions will prevail over much of DRC except in the eastern provinces and isolated places, which will have wetter-than-average conditions. An SPI greater than 2.0 standard deviations above the mean is expected in Nord-Ubangi, Bas-Uele Kinshasa, and Kongo-Central provinces. Near-normal conditions are expected in isolated places in the country.

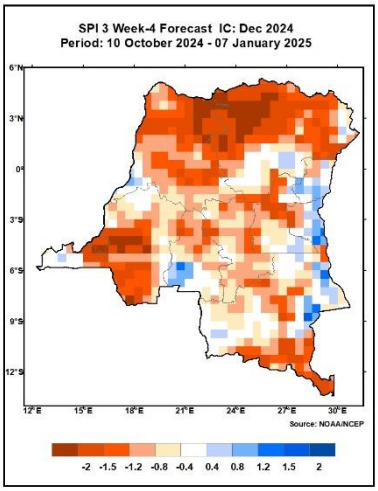


Figure 10: Spatial structure of SPI constructed from observations for 10 October to 10 December 2024 and 4 weeks forecast ending on 7 January 2025. **Source: NOAA/NCEP**

Water Requirement Satisfaction Index (WRSI)

- Not Available

GEOGLAM Crop Monitor

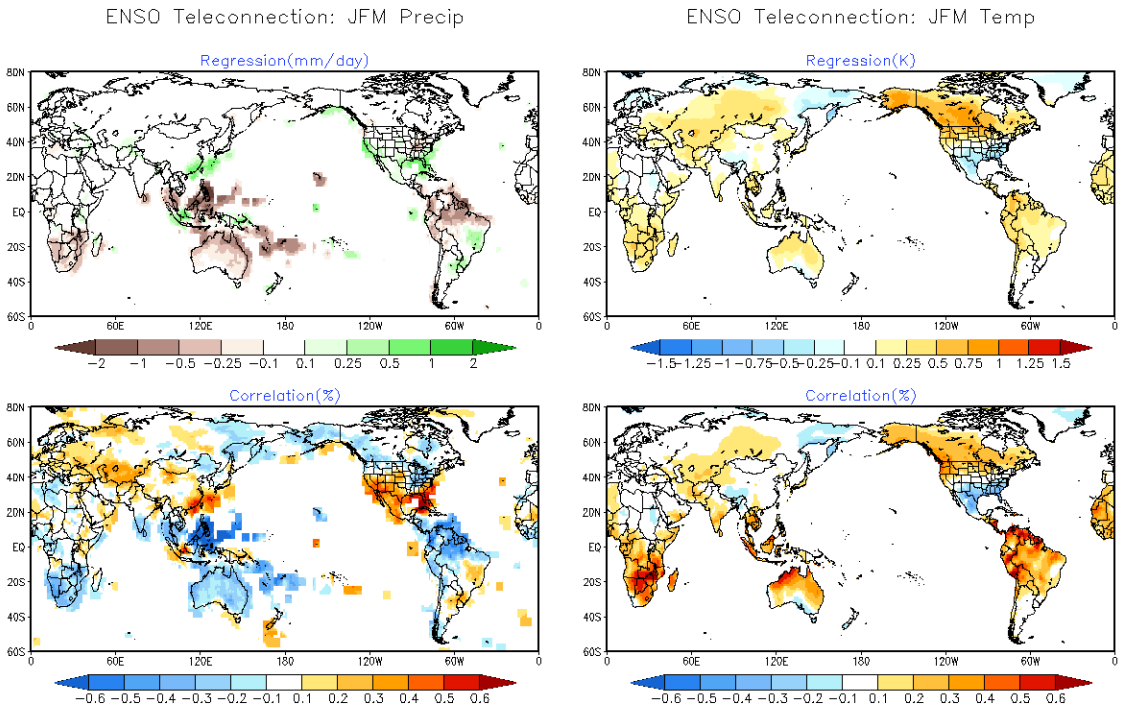
In the Democratic Republic of the Congo (DRC), harvesting of main season cereals is complete or nearing completion in the country's north, west, and center, while planting and development continue in the east and southeast. Despite below-average rainfall received over the past few months, overall conditions remain favorable, with near-normal cropping outcomes expected.

Additional Resources

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

https://fews.net/node/32023/print/download

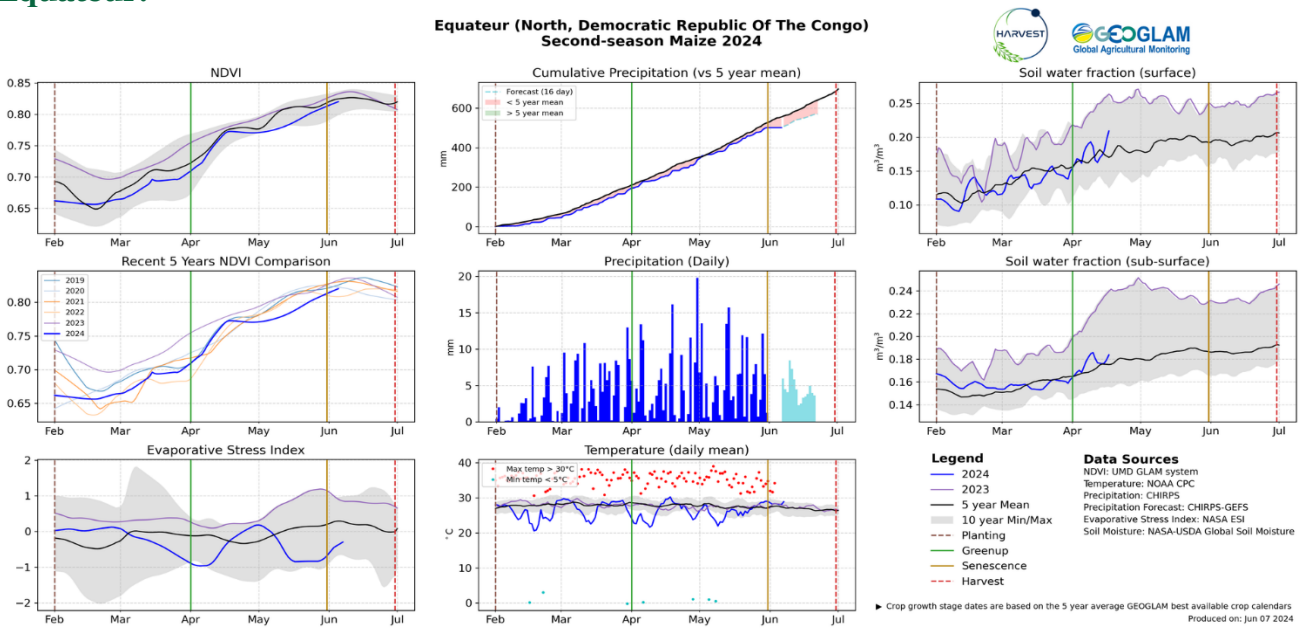
Annex



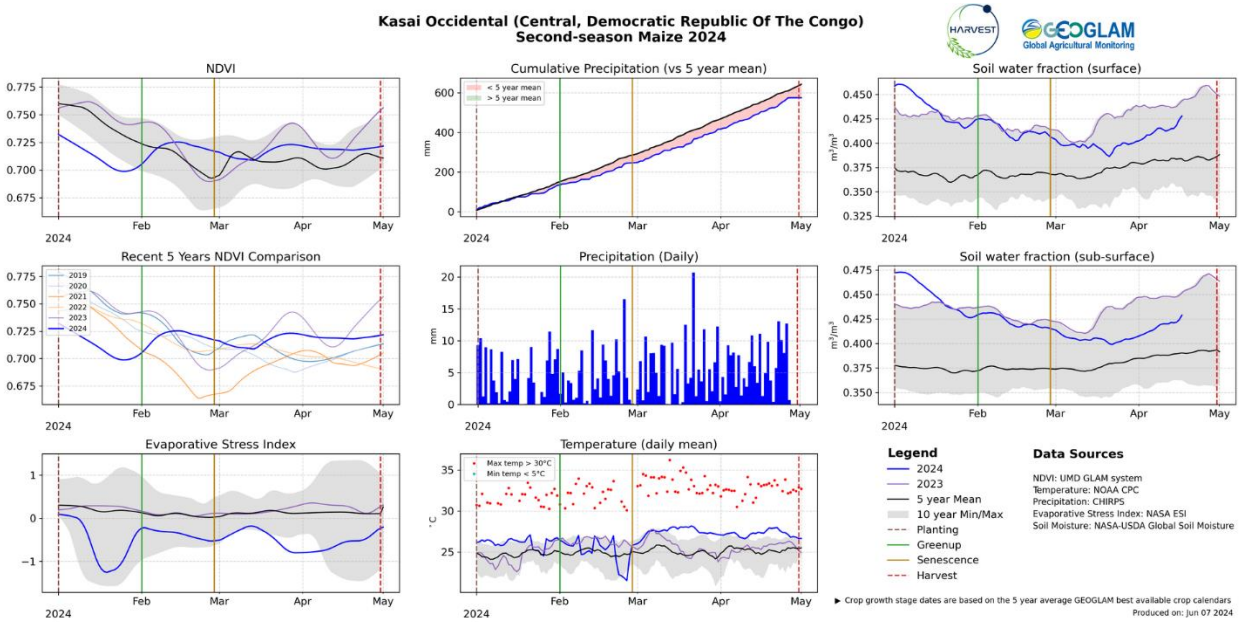
GEOGLAM Agro-meteorological Earth Observation Indicators:

Second-Season Maize

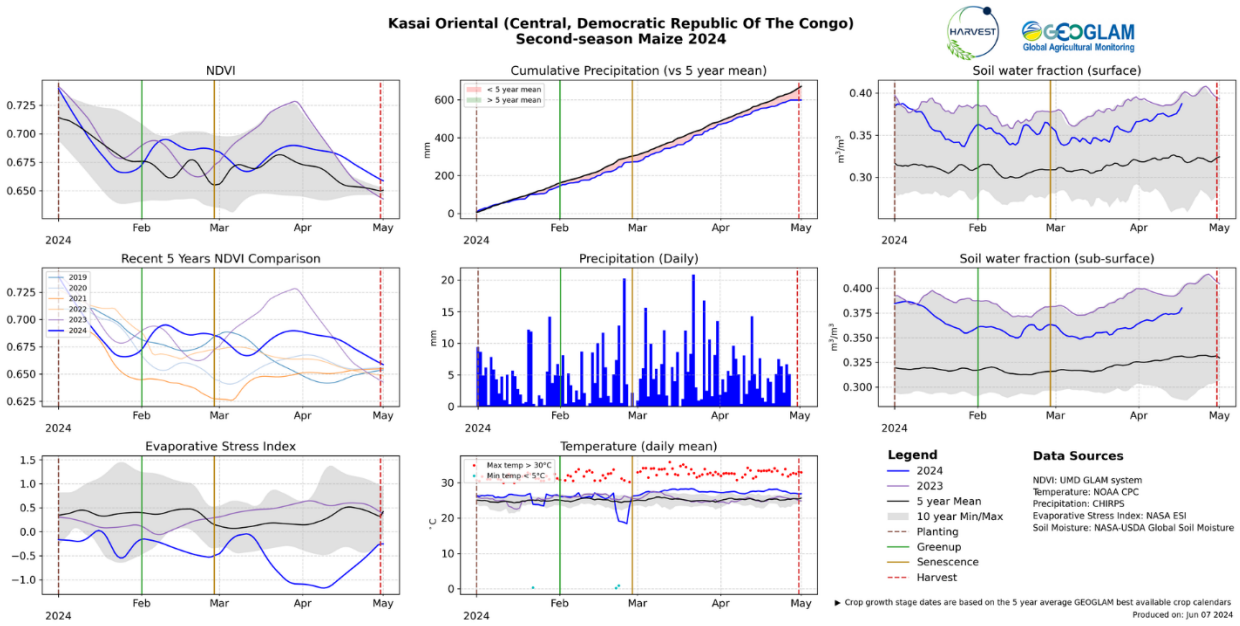
Equateur:



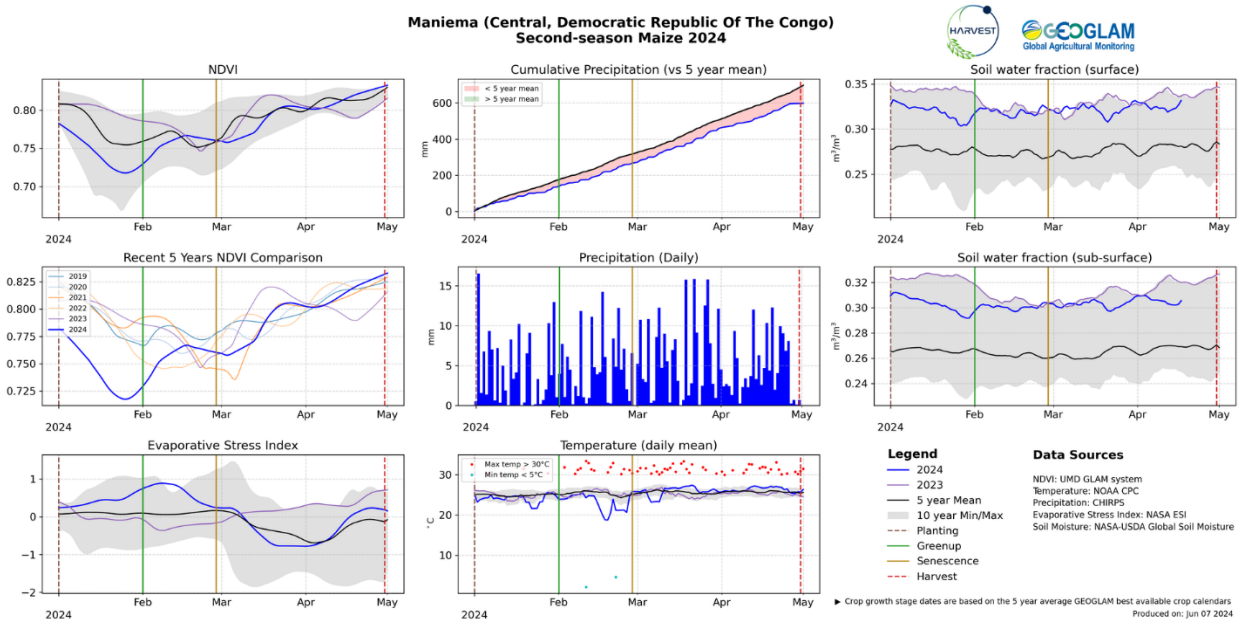
Kasai Occidental:



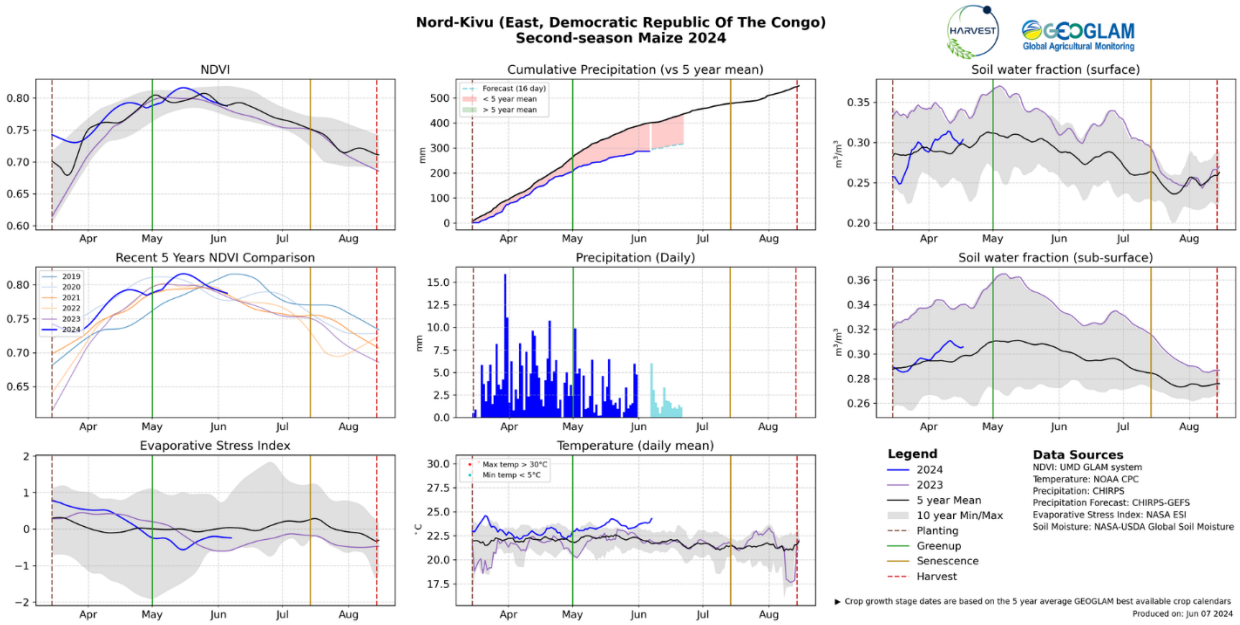
Kasai Oriental:



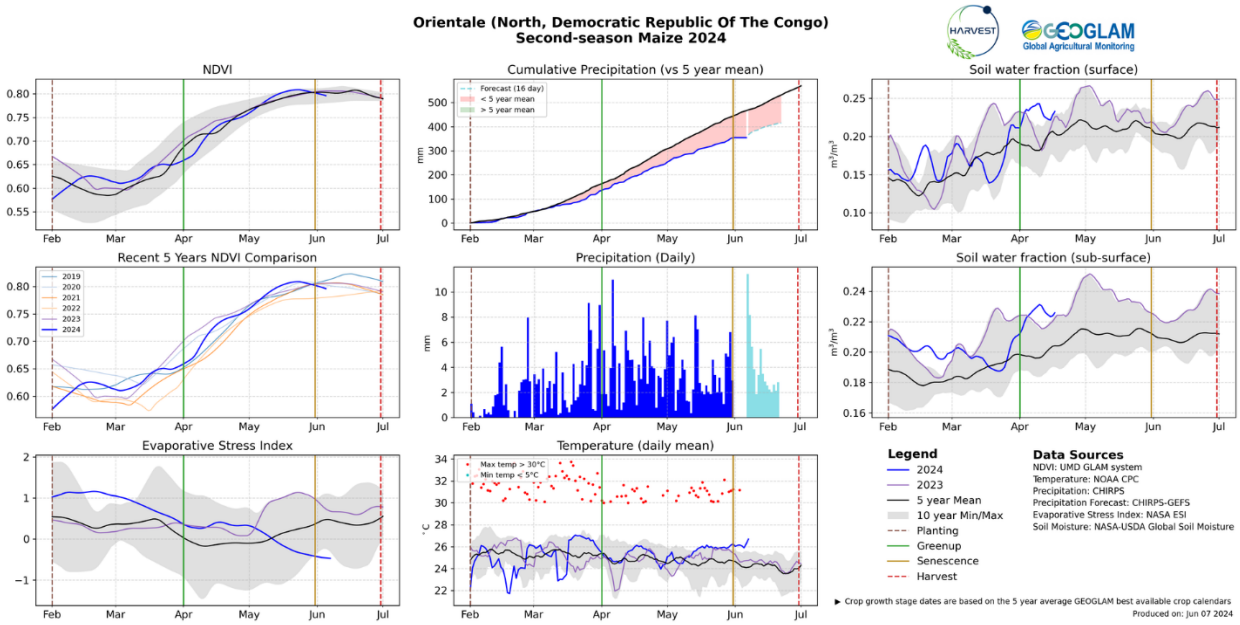
Maniema:



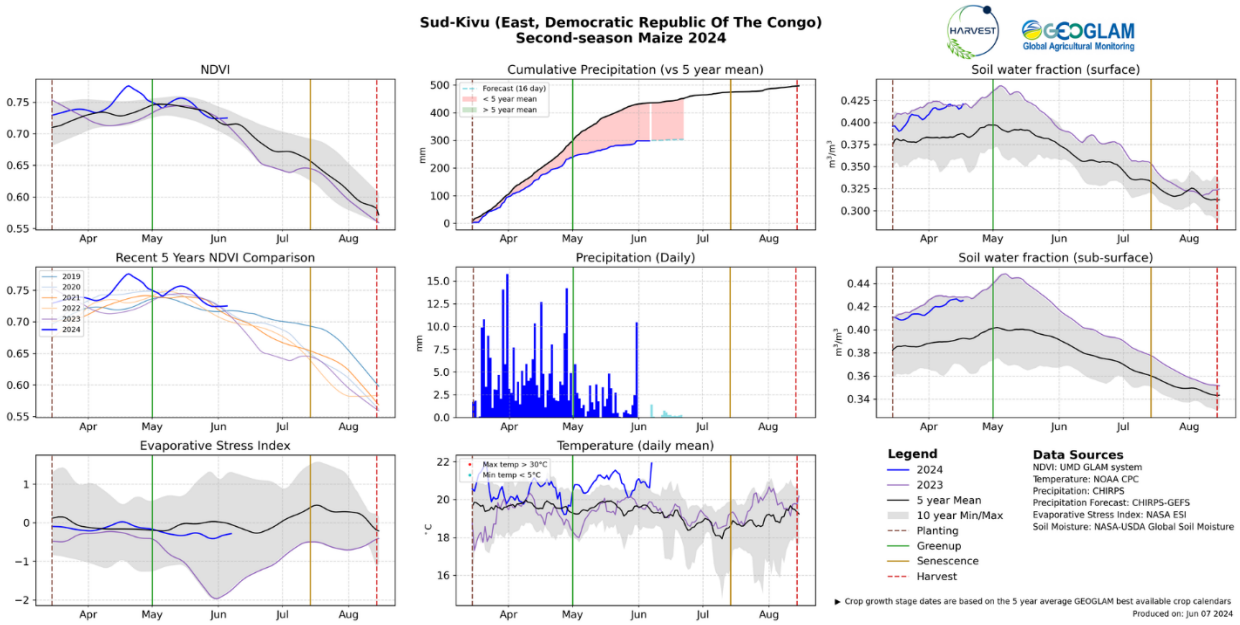
Nord-Kivu:



Oriental:



Sud-Kivu:


Sud-Kivu (East, Democratic Republic Of The Congo)
Second-season Maize 2024
HARVEST
GEOGLAM
Global Agricultural Monitoring
NDVI
Cumulative Precipitation (vs 5 year mean)
Forecast (16 day)
< 5 year mean
> 5 year mean
mm
Soil water fraction (surface)
m³/m³
Recent 5 Years NDVI Comparison
2019
2020
2021
2022
2023
2024
Precipitation (Daily)
Soil water fraction (sub-surface)
Evaporative Stress Index
Temperature (daily mean)
Max temp > 30°C
Min temp < 5°C
°C
Apr
May
Jun
Jul
Aug
Legend
2024
2023
5 year Mean
10 year Min/Max
Planting
Greenup
Senescence
Harvest
Data Sources
NDVI: UMD GLAM system
Temperature: NOAA CPC
Precipitation: CHIRPS
Precipitation Forecast: CHIRPS-GEFS
Evaporative Stress Index: NASA ESI
Soil Moisture: NASA-USDA Global Soil Moisture
► Crop growth stage dates are based on the 5 year average GEOGLAM best available crop calendars
Produced on: Jun 07 2024