FAMINE EARLY WARNING SYSTEMS NETWORK

Democratic Republic of Congo

Monthly Climate and Weather

21 November 2024

Highlights

- **El Niño Southern Oscillation (ENSO)-neutral conditions** continued during October 2024. The coupled ocean-atmosphere system, including sea-surface temperatures (SSTs), subsurface temperatures, and low-level and upper-level wind anomalies across central and eastern equatorial Pacific reflected ENSO-neutral conditions. According to the outlook, a weak and short-duration La Niña is most likely to emerge during October – December 2024 and persist through January – March 2025.

- In October, western, northern, central, and eastern regions of DRC experienced wetter than average conditions that are above the average by 10 and 300 mm. Conversely, parts of the western and southwestern regions saw below-average rainfall with deficits of 10 to over 100 mm. In December, below-average rainfall is expected in parts of the northeast and western regions, particularly in Mai-Ndombe and Kwango provinces. Meanwhile, the eastern region and some areas in the West and South are likely to see above-average rainfall.

- The Democratic Republic of the Congo (DRC) has experienced above-average **maximum temperatures** of 1°C to 3°C in many regions. The highest anomaly of 3°C was noted in parts of the central and southern regions. Most northern and central areas saw mean **minimum temperatures** of 1-2°C above average. During December 2024, much of the DRC is expected to experience above-average temperatures, particularly in the northern and central regions, with over 60% chance of above-average mean temperatures.

- The **Standardized Precipitation Inde (**SPI) analysis for October 2024 shows that much of DRC experienced drier-than-average conditions. However, wetter-than-average conditions were noted in the eastern and southern areas. The central region had the most significant deviation, with an SPI greater than 2.0 standard deviations below the mean. The SPI forecast for the November 6 to December 3, 2024, suggest drier-than-average conditions in the western and northern regions, while the central, eastern, and southern regions are expected to be wetter than average. An SPI of 2.0 or higher is predicted for the Lualaba and Haut-Katanga provinces, while eastern Nord-Ubangi and western Bas-Uele provinces may experience an SPI greater than 2.0 below the mean. Near-normal conditions are likely 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.

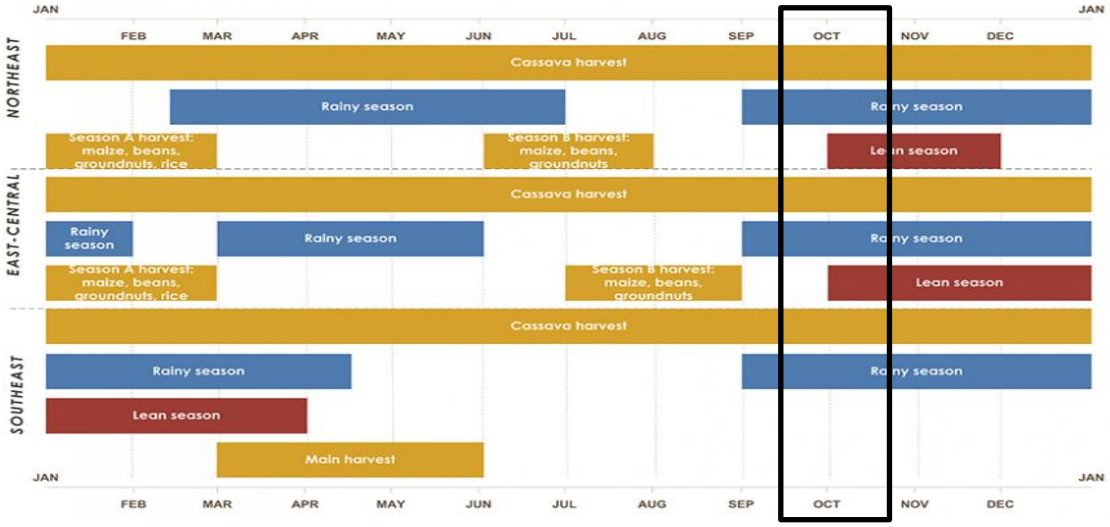


Figure 1: Seasonal calendar for DR Congo. **Source: FEWS NET**

Current Climate Modes and Teleconnections

- As of mid-November, SSTs were near-average across the central and eastern equatorial Pacific. Negative subsurface temperature anomalies persisted across the east-central and eastern Pacific. Low-level wind anomalies were easterly over a small region of the east-central equatorial Pacific, while upper-level wind anomalies were near-average, reflecting ENSO neutral conditions.

- 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 slightly above-average rainfall in northeastern DRC and above-average mean temperatures in much of DRC from December to February. The La Niña-precipitation teleconnection pattern can be found here, and the pattern for temperature can be found here.

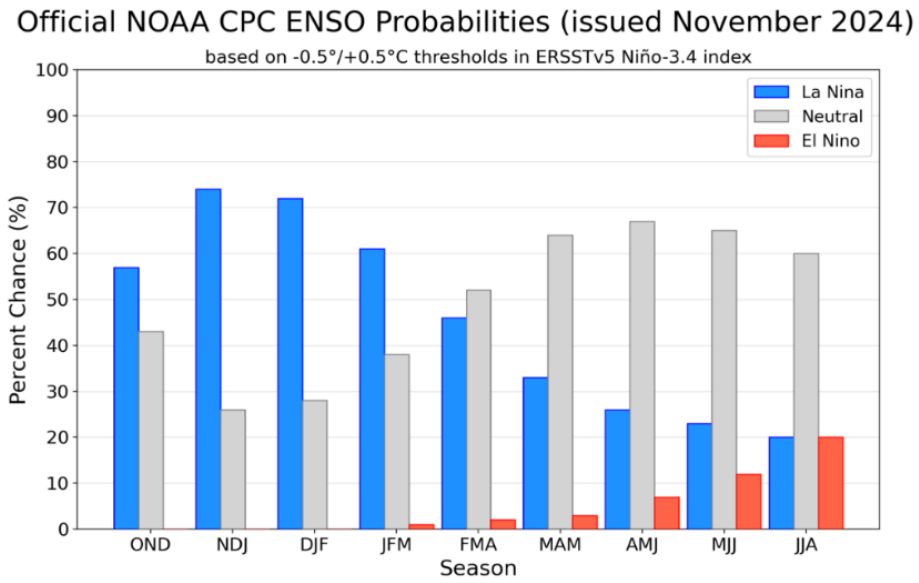


Figure 2: Official CPC ENSO probabilities outlook. **Source: NOAA/NCEP**

Extreme Events

- No widespread fires were reported in October 2024. Overall, around 99,709 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 Sankuru, with 10 fire alerts. This represents 5.0% of all alerts detected in the Democratic Republic of the Congo.

Rainfall/Precipitation

Past 3 months (August 2024 to October 2024):

- **Total:** The northern and central regions received extremely heavy rainfall between 300 and 750 mm. Part of the western and southern regions recorded rainfall ranging between 25 and 300 mm. The least rainfall (10-25 mm) was registered in Kongo-Central and Haut-Katanga provinces. In contrast, the Equateur and Haut-Uele provinces experienced the heaviest rainfall exceeding 500 mm (**Fig. 3a)**.

- **Anomalies:** Rainfall was above-average (10-100 mm) in parts of northern, western, and central DRC, with localized areas in the South also seeing high surpluses over 100 mm, particularly in Mai-Ndombe, Equateur, Mongala, Bas-Uele, Haut-Uele, and Maniema. However, the northeastern, western, and southern regions experienced deficits of 50-100 mm, with the largest deficits (100-200 mm) occurring in Lualaba and some localized areas in the northwest, northeast, and southwest (**Fig. 3b)**.

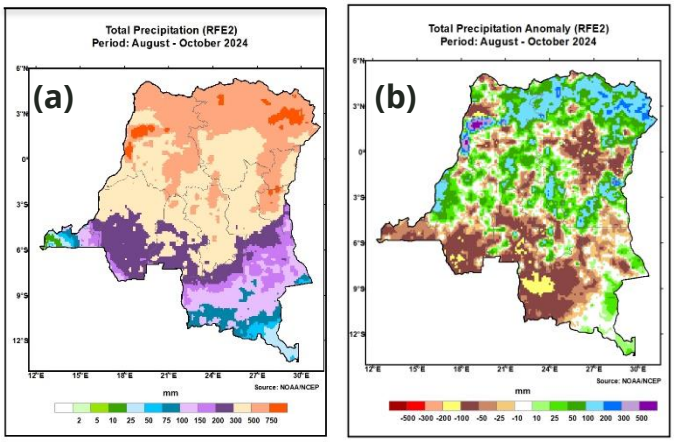


Figure 3: Spatial distribution for August-October 2024 (a) total precipitation and (b) total precipitation anomaly. **Source: NOAA/NCEP**

Past 1 Month (October 2024):

- **Totals:** The northern and central regions, along with parts of the southern region, experienced extremely heavy rainfall, with totals reaching between 100-300 mm and exceeding 300 mm in the provinces of Equateur, Haut-Uele, Nord-Kivu, and Maniema. In contrast, the provinces of Kinshasa, Kasai, Lualaba, Haut-Katanga, and southeastern Tanganyika received light to moderate rainfall, ranging from 10-75 mm, while the Kongo-Central province recorded the lowest rainfall, measuring between 5-10 mm (**Fig. 4a**).

- **Anomalies:** Parts of the western, northern, central, and eastern regions recorded above-average rainfall (10-300 mm). Equateur, Nord-Kivu, and Maniema provinces registered high rainfall surpluses of 100-300 mm with the highest (200-300 mm) surplus observed in Equateur province. However, below-average rainfall registered in parts of the western and southwestern regions with deficits of 10-100 mm and greater than 100 mm in localized places (**Fig. 4b**).

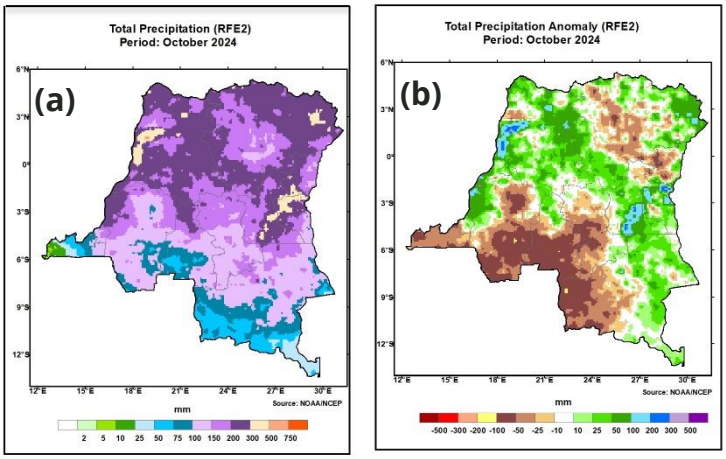


Figure 4: Spatial distribution for October 2024 (a) total precipitation and (b) total precipitation anomaly. **Source: NOAA/NCEP**

Monthly (December 2024) and Seasonal (December 2024 – February 2024) Forecasts:

- **Monthly:** In December, below-average rainfall is favored in pocket areas in the northeast and western regions. A greater than 40% probability of below-average rainfall will be favored in the Mai-Ndombe and Kwango provinces. The eastern region and pocket areas in the west and south regions will likely experience above-average rainfall **(Fig. 5a**).

- **Seasonal:** Between December 2024 and February 2025, below-average rainfall is favored in parts of the western and northern regions of DRC. A greater than 40% probability of below-average will be favored in the Sud-Ubangi, Mongala, Bas-Uele, and Haut-Uele provinces. Pocket areas in Kwilu and Kwango provinces are favored to receive above-average rainfall (**Fig. 5b**).

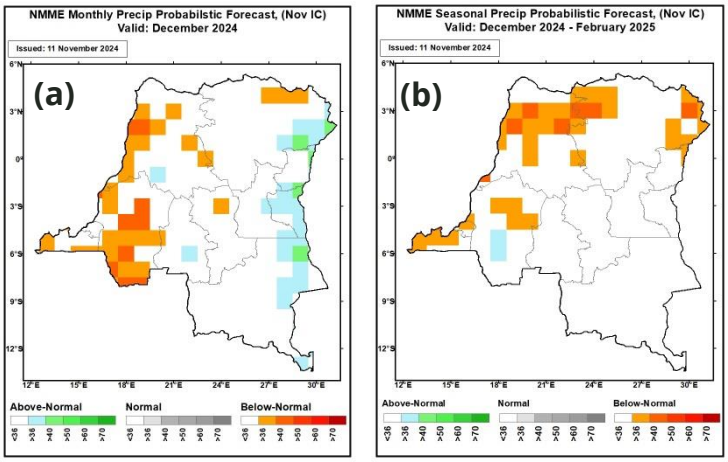


Figure 5: Rainfall forecast for (a) December 2024 and (b) December 2024 - February 2025. **Source: NOAA/NCEP**

Temperature

Past 3 months (August 2024 to October 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 the exception of certain localized areas in the Lualaba province, which have experienced below-average maximum temperatures of 5 to 7°C. Additionally, some areas in the Ituri, Nord-Kivu, and Kwango provinces reported near-normal maximum temperatures (**Fig. 6a**).

- **Minimums:** The mean minimum temperatures in the DRC over the last 3 months was 20°C in the northern and central regions and 10-15°C in the southern region and along the eastern border. The southern part of Haut-Katanga province recorded the lowest temperature of 5-10°C. Above-average minimum temperatures (1-2°C) were recorded in most of the northern and central regions. Bas-Uele and Tshopo experienced the highest anomaly of 2°C above-average minimum temperature. Conversely, below-average minimum temperature (2-3°C) was observed in southern Haut-Katanga province. Near-normal conditions were recorded in west-central, parts of the central and southern regions (**Fig. 6b)**.

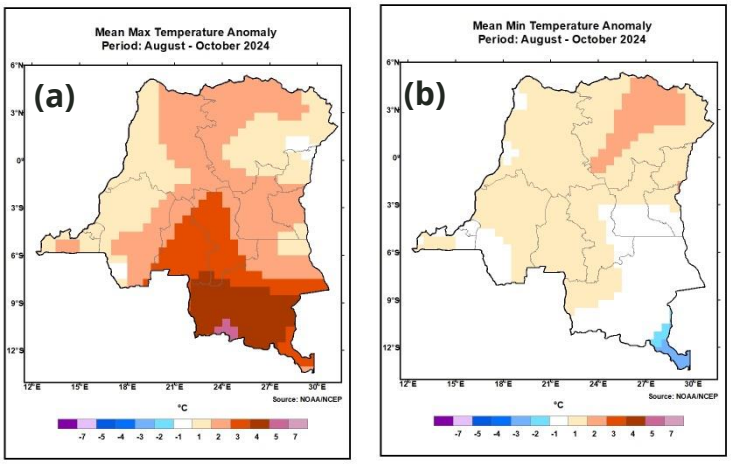


Figure 6: Spatial distribution for August – October 2024 (a) mean maximum temperature anomaly and (b) mean minimum temperature anomaly. **Source: NOAA/NCEP**

Past 1 Month (October 2024):

- **Maximums:** Mean maximum temperatures in most of the Democratic Republic of the Congo (DRC) ranged between 20°C and 30°C. The country experienced above-average maximum temperatures, ranging from 1°C to 3°C in many regions. However, Kinshasa, Kongo-Central, Mai-Ndombe, Kwango, eastern Tshopo, Ituri, southern Sud-Kivu, and northern Tanganyika provinces recorded near-normal to above-average maximum temperatures. The highest temperature anomaly, reaching 3°C, was observed in parts of the central and southern regions (**Fig. 7a**).

- **Minimums:** The mean minimum temperatures in the Democratic Republic of Congo (DRC) over the last month was 20°C in much of the country. The southern and the eastern border experienced 10-15°C of minimum temperatures. Above-average mean minimum temperatures (1-2°C) were observed in much of the northern and central regions. Conversely, below-average mean minimum temperatures were experienced in southern Haut-Katanga province. Parts of the western, eastern and southern regions recorded near-normal conditions (**Fig. 7b)**.

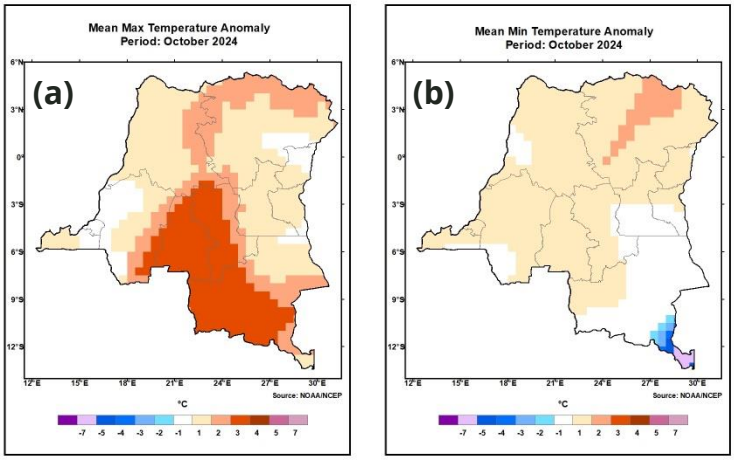


Figure 7: Spatial map for October 2024 (a) mean maximum temperature anomaly and (b) mean minimum temperature anomaly. **Source: NOAA/NCEP**

Monthly (December 2024) and Seasonal (December 2024 – February 2024) Forecasts:

- **Monthly:** In December 2024, much of DRC is expected to have above-average temperatures. Parts of the northern and central 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 DRC from December 2024 to February 2025. Parts of the north, central, and west provinces are favored to have a greater than 70% probability of above-average mean temperatures (**Fig. 8b)**.

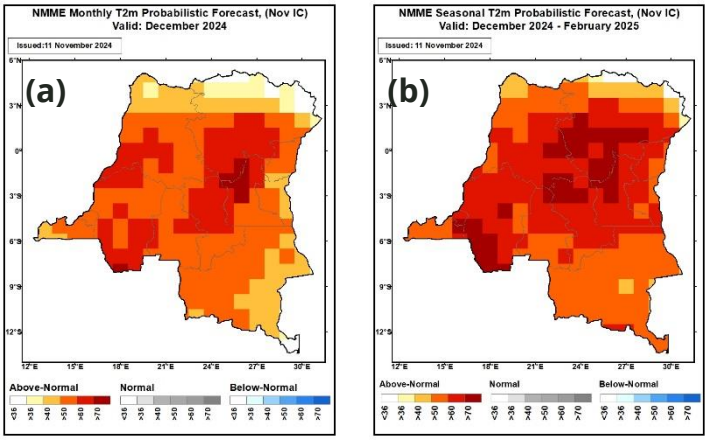


Figure 8: Spatial map for (a) December 2024 mean temperatures forecast and (b) December 2024 – February 2025 mean temperatures forecast. **Source: NOAA/NCEP**

Flooding and Areas of Inundation

- Heavy and above-average rainfall since October has caused Lake Albert to overflow, resulting in flooding in northeastern DRC.

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 (August 2024 to October 2024):

- From August to October 2024, most parts of the DRC experienced drier-than-average conditions. In contrast, wetter-than-average conditions were experienced along the eastern border and the southern parts of Haut-Katanga province. Near-normal conditions were experienced over isolated areas in the country **(Fig. 9a)**.

Past 1 Month (October 2024):

- In October, much of the DRC experienced drier-than-average conditions. However, wetter-than-average conditions were noted in the eastern regions and some parts of the western and southern areas. Isolated places in the country recorded near-normal conditions. The central region had the most significant deviation, with an SPI greater than 2.0 standard deviations below the mean **(Fig. 9b)**.

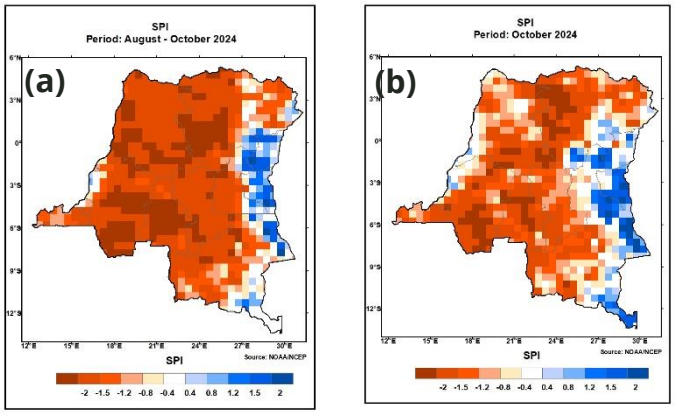


Figure 9: Spatial structure of Standardized Precipitation Index (SPI) (a) August – October 2024 (b) October 2024. Source: NOAA/NCEP. **Source: NOAA/NCEP**

Current/Forecast (05 September 2024 to 03 December 2024):

- SPI forecast, which is constructed from observed precipitation from 5 September 2024 to 5 November 2024 and forecasted rainfall data from 6 November to 3 December 2024, suggests that drier-than-average conditions will occur in the western and northern regions. Wetter-than-average conditions are expected in the central, eastern and southern regions. An SPI of 2.0 and greater than 2.0 standard deviations above the mean is expected in Lualaba and Haut-Katanga provinces. Eastern Nord-Ubangi and western Bas-Uele provinces will record an SPI greater than 2.0 standard deviations below the mean. Near-normal conditions are expected in isolated places in the country.

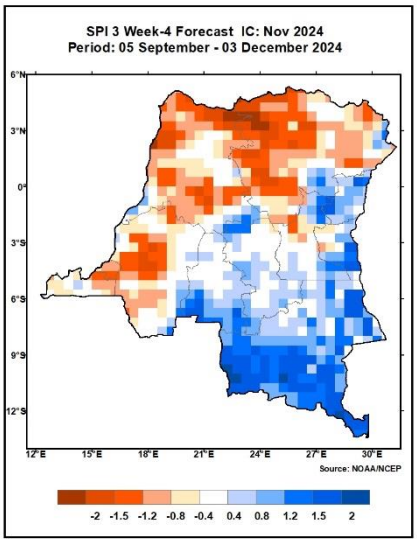


Figure 10: Spatial structure of SPI constructed from observations for 5 September to 5 November 2024 and 4 weeks forecast ending on 3 December 2024. **Source: NOAA/NCEP**

Water Requirement Satisfaction Index (WRSI)

- Not Available

GEOGLAM Crop Monitor

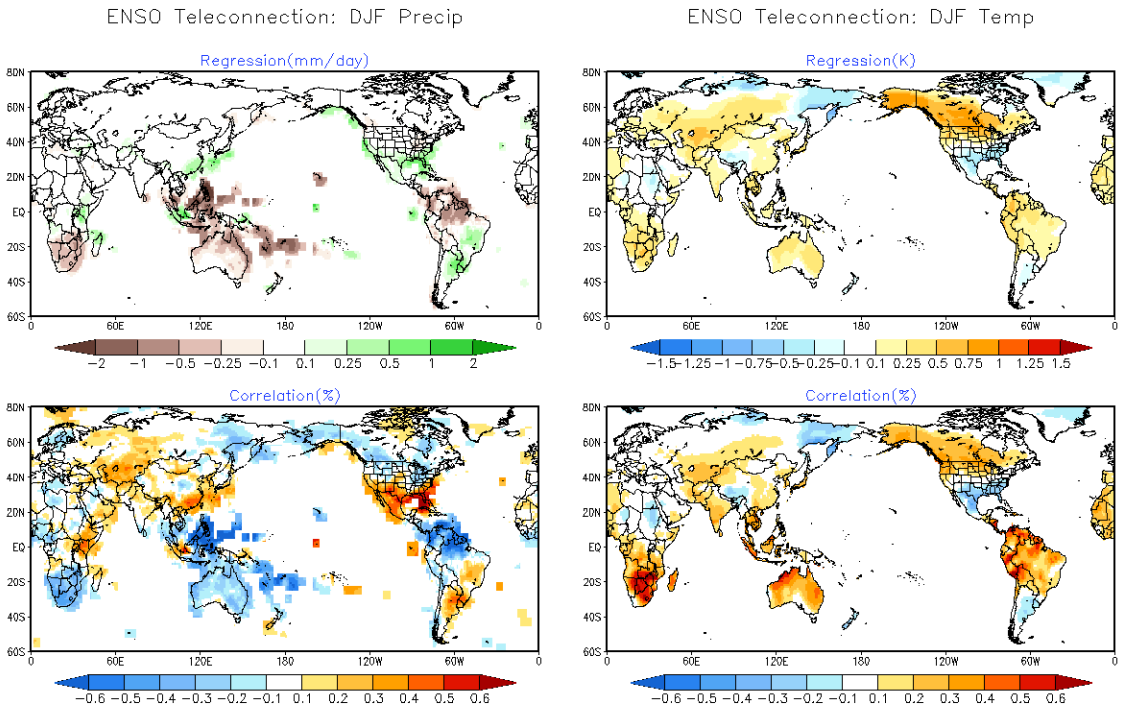
In the Democratic Republic of the Congo (DRC), harvesting of main season maize is currently underway in the north and west regions while planting and development of main season cereals continue in other areas. Overall, conditions remain favorable.

Additional Resources

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

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

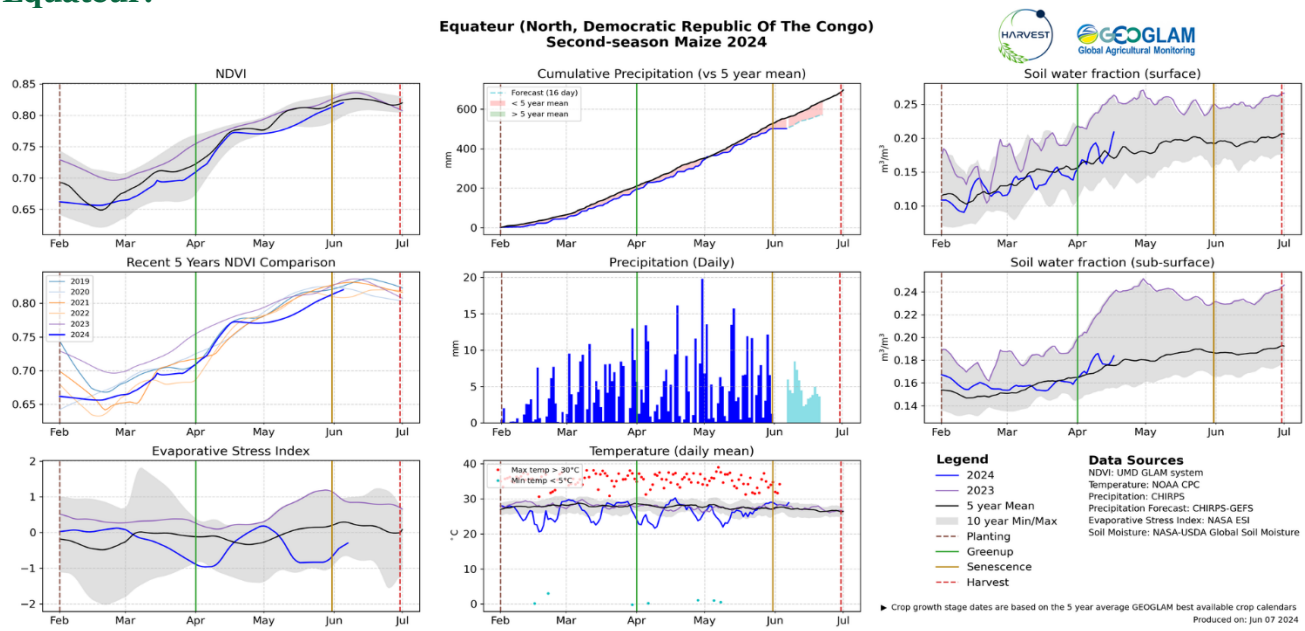
Annex



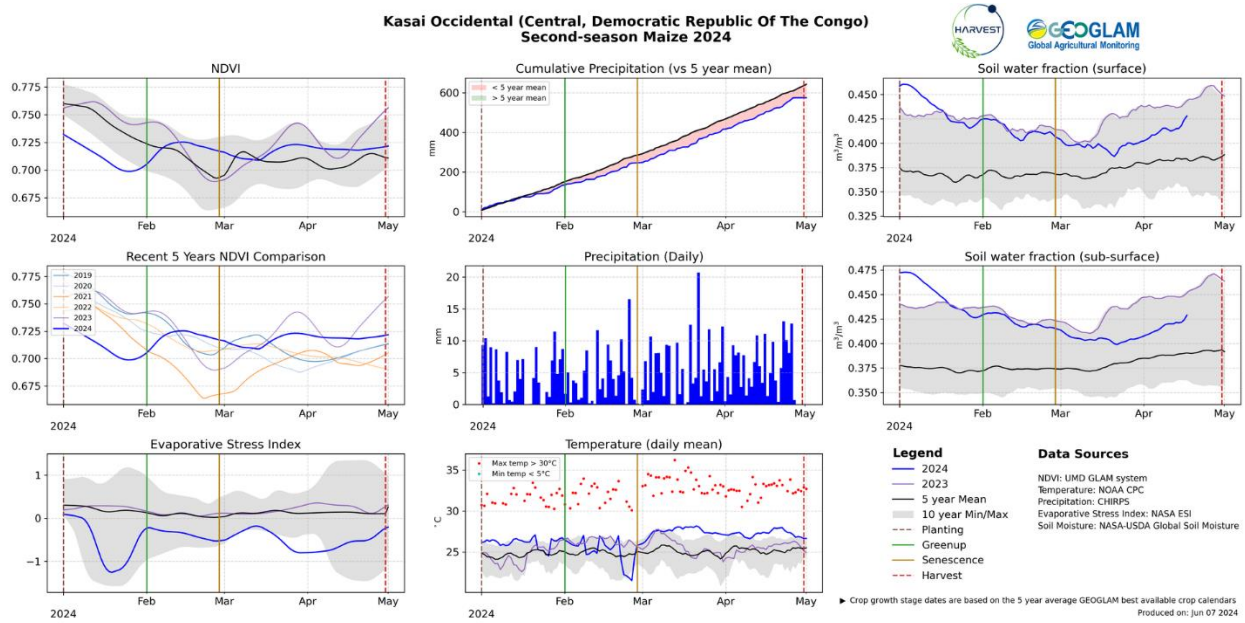
GEOGLAM Agro-meteorological Earth Observation Indicators:

Second-Season Maize

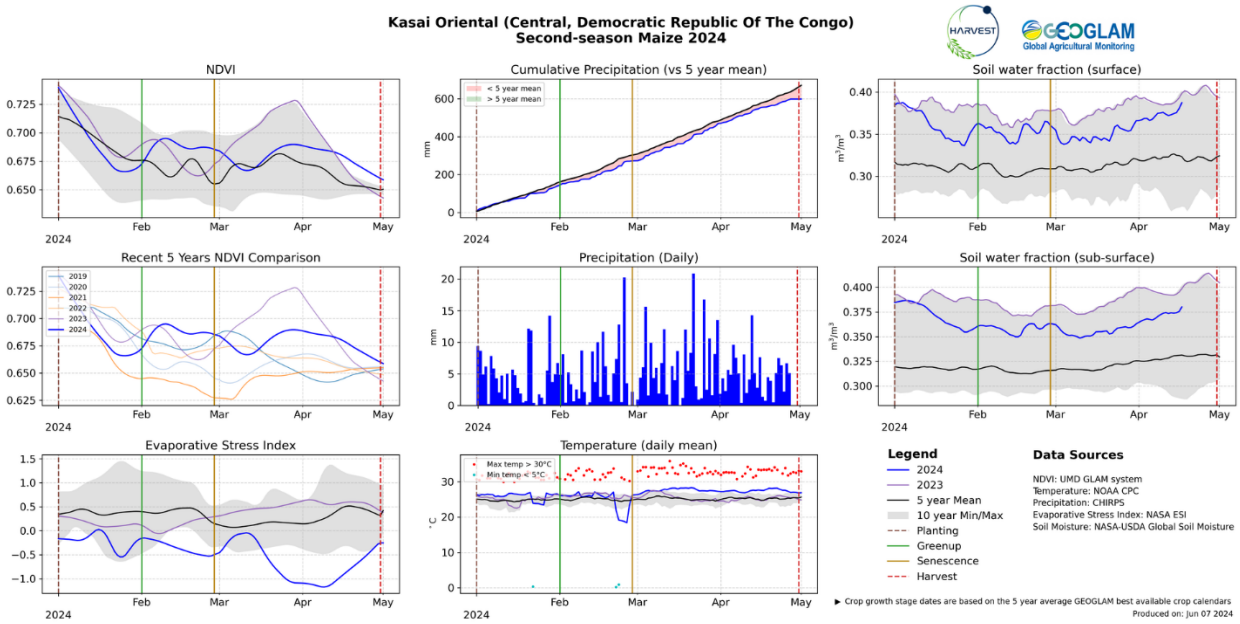
Equateur:



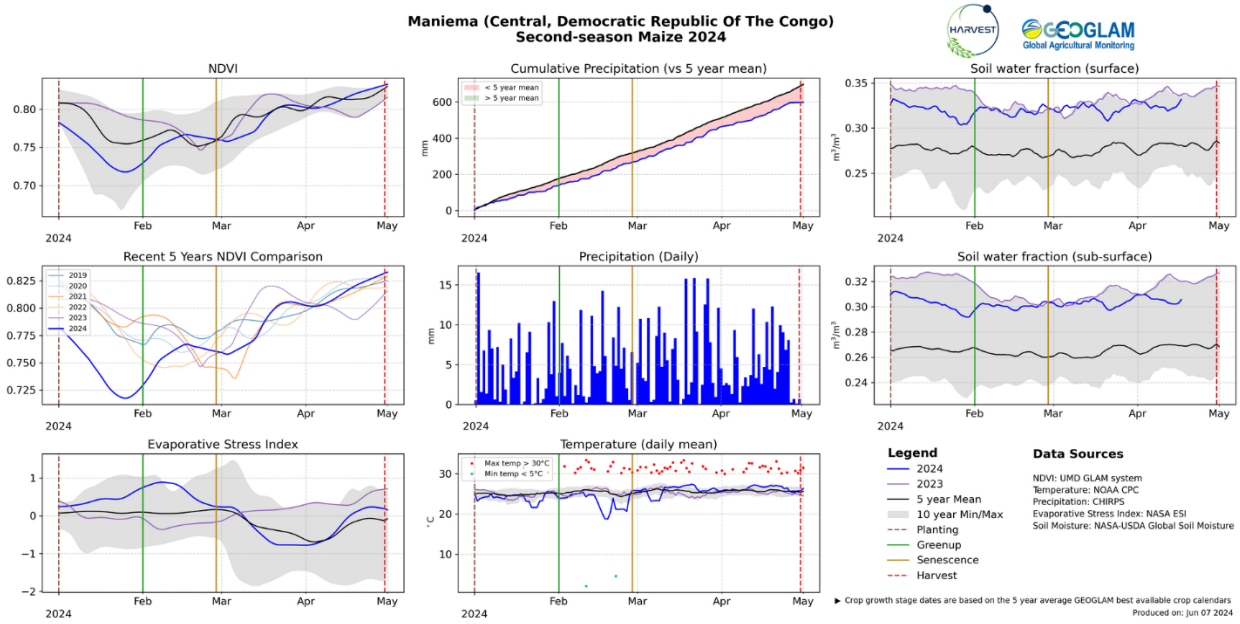
Kasai Occidental:



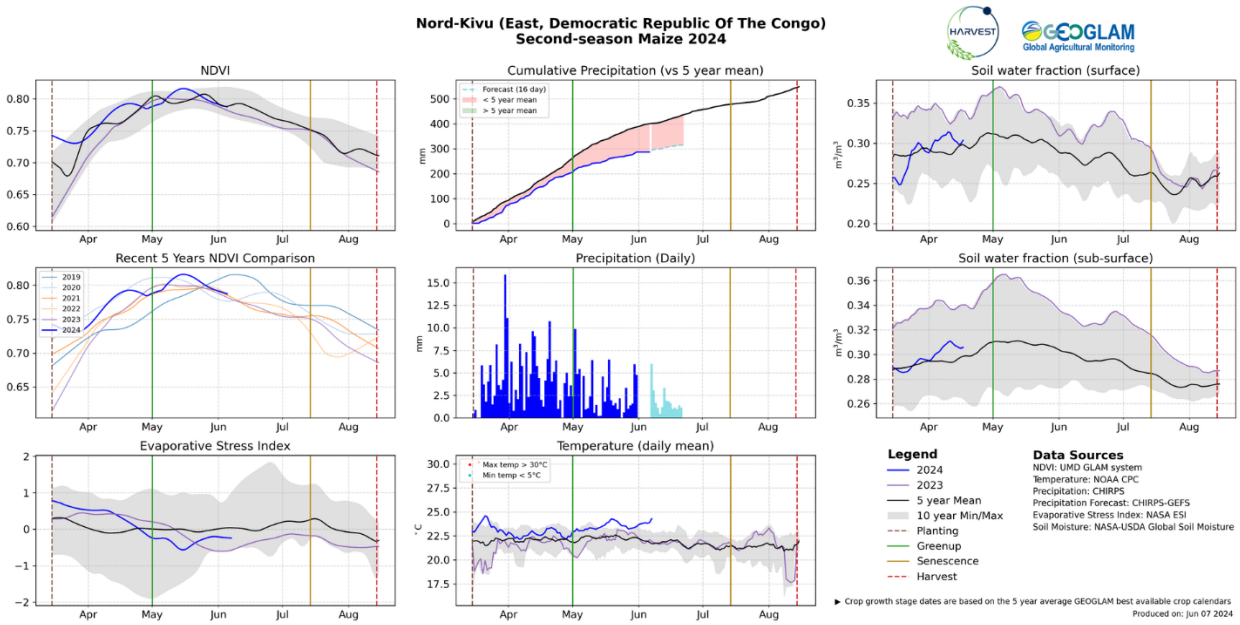
Kasai Oriental:



Maniema:



Nord-Kivu:


Nord-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
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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

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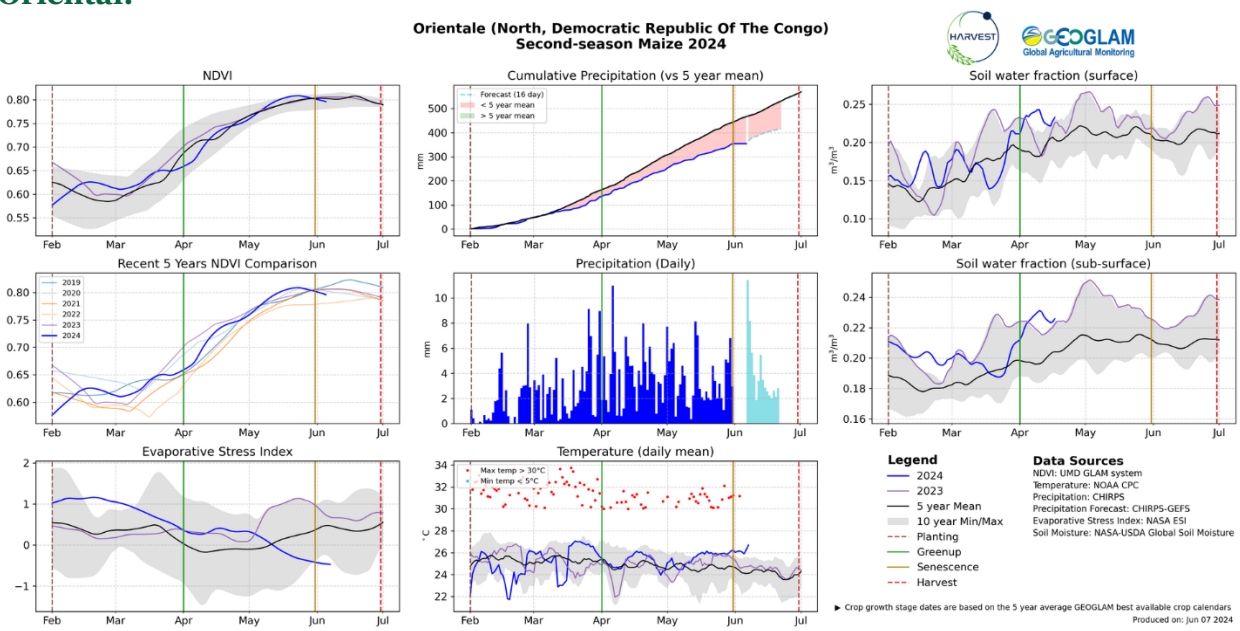
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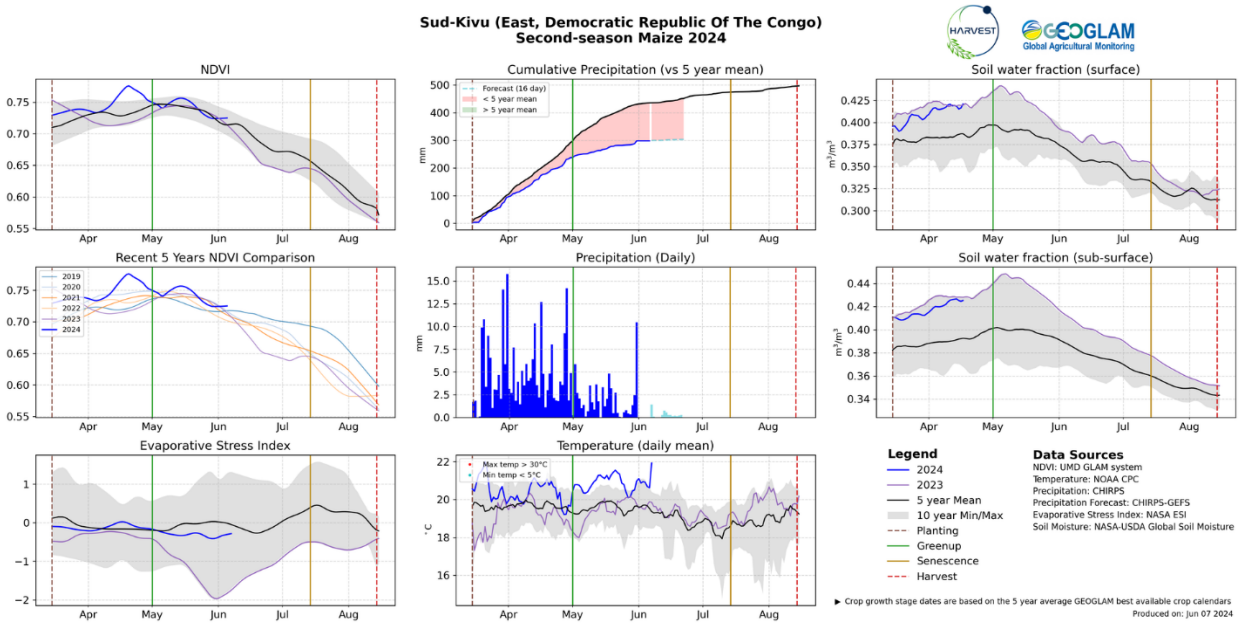
Sud-Kivu:


Sud-Kivu (East, Democratic Republic Of The Congo)
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