FAMINE EARLY WARNING SYSTEMS NETWORK

Haiti

Monthly Climate and Weather

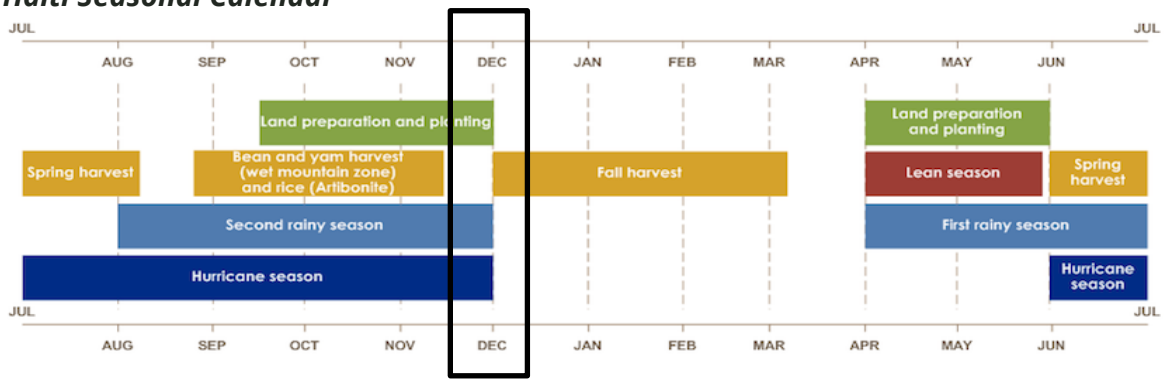
16 January 2025

Highlights

- La Niña conditions emerged in December 2024 and are expected to persist through February–April 2025 (59% chance), with a likely transition to ENSO-neutral conditions during March–May 2025 (60% chance). Historically, El Niño is associated with drier-than-average conditions, while La Niña typically brings wetter-than-average conditions to Haiti.
- December marks the beginning of Haiti's dry season, with rainfall significantly lower compared to the rest of the year.
- In December 2024, rainfall in Haiti varied significantly, ranging from 5 mm to 300 mm. Western Haiti received 25-300 mm in the north and 50-300 mm in the south, while the southeast, central-south, and central regions saw lighter rainfall, from 5 mm to 70 mm. Compared to the long-term mean, the northeast recorded 50-200 mm. Rainfall anomalies were near-average (±10 mm) and below-average (-10 mm to -200 mm) in central and southeast Haiti, while northern and southwestern regions experienced above-average rainfall, with anomalies ranging from 10 mm to 300 mm.
- The NMME models predict equal chances for above-, near-, or below-average rainfall across Haiti in February 2025. The seasonal forecast for February–April 2025 indicates a 40% to 60% in most parts of the country except in the north and northern Grand-Anse, where probabilities for above average are low (< 40%). The SPI forecast suggests wet conditions in northern, central, and southern Haiti, average conditions in the southwestern Haiti and southeastern Centre departments, and drier-than-average conditions in parts of the Centre and Ouest departments.

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.

Haiti Seasonal Calendar



Current Climate Modes and Teleconnections

- La Niña conditions are present, with below-average sea surface temperatures (SSTs) across the central and east-central tropical Pacific. According to the NOAA ENSO Diagnostic Discussion, as of early January 2025, La Niña conditions are expected to persist through the February–April 2025 season (59% chance), followed by a transition to ENSO-Neutral during March–May 2025 (60% chance, Fig. 1). For the latest update from the NOAA Climate Prediction Center (CPC) on ENSO, check here.

- Much of the Caribbean Sea and Gulf of Mexico experienced SSTs from 22°C to 29°C, where positive anomalies of 0.5–1.5°C prevailed in the region.

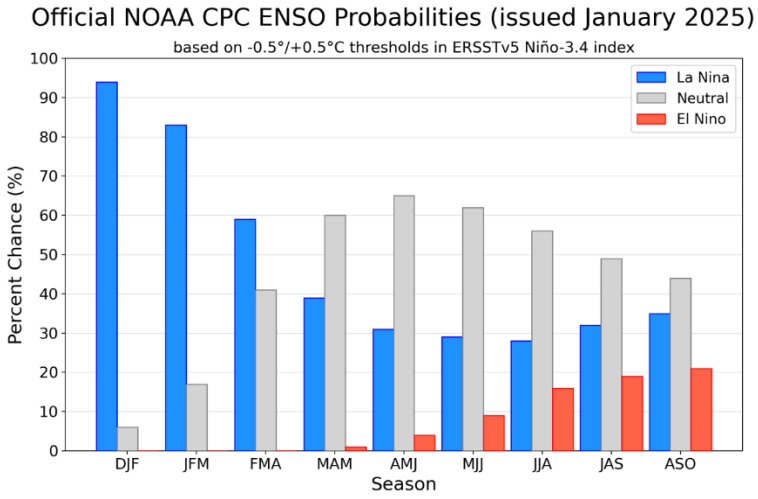


Figure 1. Official ENSO probabilities for the Niño 3.4 SST index (5°N–5°S, 120°W–170°W). Figure updated 9 January 2025. **Source: NOAA/CPC**

- Implications of ENSO conditions: Based on historical records, La Niña conditions are associated with above-average precipitation throughout most of Haiti. In addition, La Niña conditions are associated with near-average mean temperatures for most of

Haiti. The ENSO-precipitation teleconnection pattern can be found here, and the pattern for temperature can be found here.

- Highlighting analogous years/events: Composites of February–April (FMA) rainfall for eight La Niña years during the 1990–2019 period indicates that FMA seasonal rainfall totals vary from 100 mm to 400 mm across Haiti, with amounts exceeding 300 mm across most western and central Haiti (Annex **Fig. A1a**). During La Niña years, positive rainfall anomalies dominate most of Haiti (**Fig. A1b)**, with above-normal precipitation anomalies in Sud-Est, Ouest, and Gonave Island, and near-normal anomalies in the rest of the country (**Fig. A1c**).

Extreme Events

- In December 2024, weeks of relentless rainfall in Haiti's northwest department triggered catastrophic flooding and landslides, displacing thousands and leaving infrastructure in ruins. The flooding caused significant loss of life and extensive property damage.

- There have been no reports of fire activity in Haiti during December 2024.

Rainfall/Precipitation

- In December, Haiti experiences its dry season, which runs from November to April. During this month, climatological rainfall is between 80 mm and 200 mm in northern Haiti and between 80 mm and 140 mm in the southwest. Mean precipitation ranges from 40 mm to 80 mm across central and southeastern Haiti.

Past 3 months (October to December 2024):

- **Totals:** Over the last three months, rainfall accumulations ranged from 25 mm to 100 mm in eastern Central, southern Haiti, central Ouest and Sud-Est departments, and from 100 mm to 200 mm in the rest of the eastern and central Haiti. Rainfall exceeding 300 mm was recorded in Nord-Ouest, Grand-Anse, and Sud.

- **Anomalies:** Below-normal rainfall dominated southeastern and central Haiti over the past three months, with rainfall deficits ranging from 10 mm to 200 mm. Positive rainfall anomalies ranged from 10 mm to 500 mm across northern Haiti, as well as southwestern Haiti (Grand-Anse, and Sud).

Past 1 Month (December 2024):

- **Totals:** In December 2024, rainfall across Haiti ranged from 5 mm to 300 mm. Western Haiti saw rainfall totals between 25 mm and 300 mm in the north and

between 50 mm and 300 mm in the south. In contrast, the southeast, central-south, and central Haiti received lighter rainfall, ranging from 5 mm to 70 mm. In the northeast, rainfall ranged from 50 mm to 200 mm (**Fig. 2a**).

- **Anomalies:** CMORPH satellite-based rainfall estimates indicate near-average (-10 mm to 10 mm) and below-average (-10 mm to -200 mm) conditions over the central and southeast Haiti (**Fig. 2b**). Northern and southwestern departments experienced above-average rainfall, with anomalies ranging from 10 mm to 100 mm in the north, from 50 mm to 300 mm in the northwest, and from 10 mm to 200 mm in the southwest.

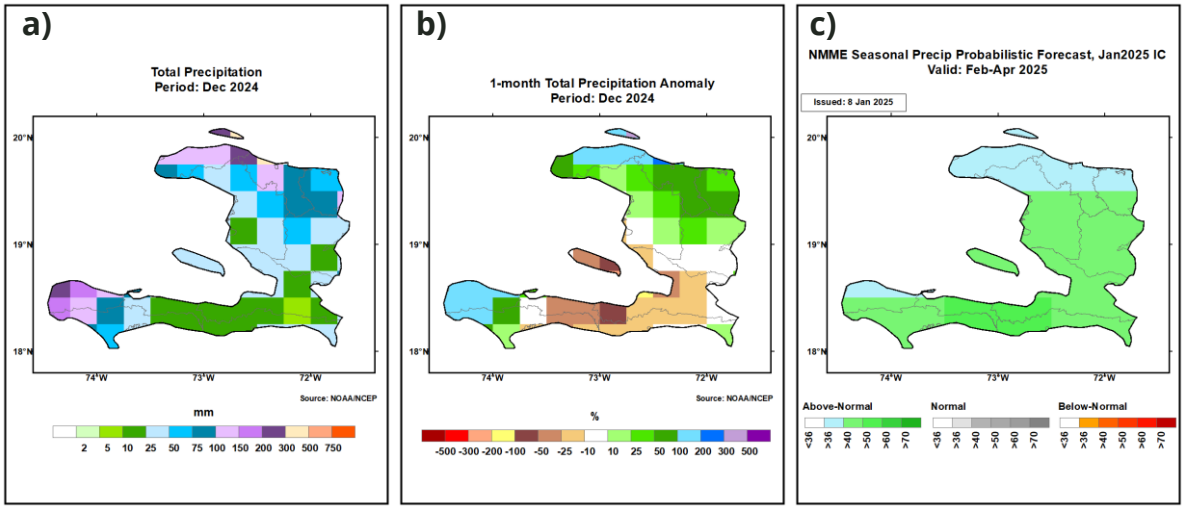


Figure 2. Satellite estimates of precipitation (CMORPH) for December 2024. **(a)** 1-month total accumulation and **(b)** 1-month anomaly. **(c)** NMME seasonal rainfall probabilistic forecast for February–April 2025. **Source: NOAA/NCEP**

Monthly and Seasonal Forecasts (February 2025 and February–April 2025):

- **Monthly:** Based on the North American Multi-Model Ensemble (NMME) models, utilizing observations from January 2025 for model initialization, the forecast indicates that there are equal chances for above-, near-, or below-average rainfall during February 2025 across the country.

- **Seasonal:** The NMME seasonal forecast for February–April 2025 suggests a 40% to 60% chance for above-average rainfall to occur over most parts of the country, except in the north and northern Grand-Anse where probabilities for above average rainfall are low (< 40%) (**Fig. 2c**).

Temperature

Past 3 months (October to December 2024):

- **Maximums:** Most of Haiti experienced maximum temperatures ranging from 25°C to 35°C. Temperature anomalies were near normal between -1°C and 1°C across the country, with slightly above-normal anomalies between 1°C and 2°C in the northwest and southwest.
- **Minimums:** Minimum temperatures across Haiti ranged from 15°C to 25°C. Most of the country recorded temperatures between 20°C and 25°C, while the East and Southeast saw temperatures between 15°C and 20°C. Overall, near-average temperatures were observed across Haiti, with minimum temperature anomalies ranging from -1°C to 1°C.

Past 1 Month (December 2024):

- **Maximums:** Maximum temperatures ranged from 25°C to 35°C across Haiti, with near-normal temperature anomalies of -1°C to 1°C in northern Haiti (north of 19°N) and slightly above-normal anomalies between 1°C and 2°C in the northwest and central-west Haiti department, and southern Haiti (south of 19°N, **Fig. 3a**).
- **Minimums:** Minimum temperatures ranged from 15°C to 25°C across Haiti. Southeastern and eastern central Haiti recorded lower minimums between 15°C and 20°C, while the northern, northwestern and southwestern Haiti experienced higher temperatures ranging from 20°C to 25°C. Overall, Haiti registered near-average minimum temperatures anomalies of -1°C to 1°C (**Fig. 3b**).

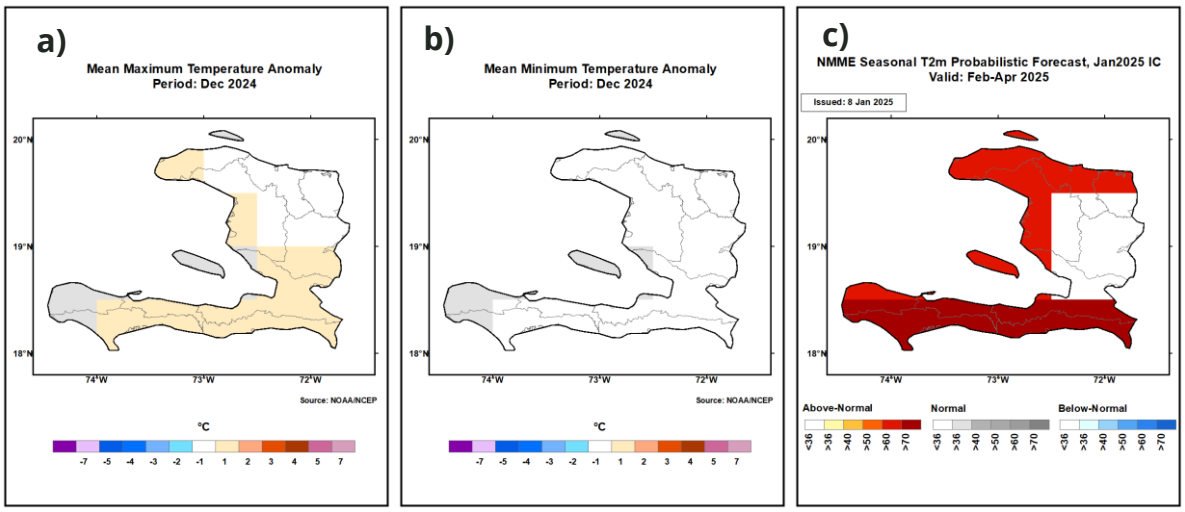


Figure 3. Spatial structure of temperature for December 2024. **(a)** Maximum temperature anomaly and **(b)** minimum temperature anomaly. **(c)** NMME probabilistic forecast of seasonal 2-m temperature anomaly for February–April 2025. **Source: NOAA/NCEP**

Monthly and Seasonal Forecasts (February 2025 and February–April 2025):

- **Monthly:** The NMME forecast shows no clear dominant signal for either below- or above-average temperatures across Haiti during February 2025.

- **Seasonal:** For the February–April 2025 season, there is an increased likelihood (over 70%) of above-average temperatures in the southern regions of Haiti, and 60% to 70% changes of above-average temperatures in the northern, west-central, and southern regions, as well as Gonave Island. In contrast, there is no clear signal for near-, above- or below-average temperatures in the central part of the country (**Fig. 3c**).

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 (October – December 2024):

- During the past 18 pentads (90 days), Haiti showed wet conditions (SPI values of 0.5 to 2.0 standard deviations above the mean) in northern and southwestern Haiti. Near-average conditions (SPI values of -0.5 to 0.5 standard deviations) were observed in the southeast and central east and west Haiti. Dry conditions (SPI values of -0.5 to -2 standard deviations) were found in central regions.

Past 1 Month (December 2024):

- During the past six pentads (30 days), most of Haiti experienced wetter-than-average conditions (SPI values of 0.5 to 2.0 standard deviations above the mean), except for the southwestern Haiti, central Sud-Est, Ouest and Centre departments where near-average conditions (SPI values of -0.5 to 0.5 standard deviations) were observed. Dry conditions (SPI values of -0.5 to -2 standard deviations) were recorded in central south, northwest Ouest and Gonave Island.

Current/Forecast (11 October 2024 – 25 January 2025):

- SPI forecast, which is constructed from observed precipitation from 11 October 2024 to 10 January 2025 and forecasted rainfall data from 11 January to 25 January 2025

suggests that wetter-than-average conditions may prevail in northern, central, and southern Haiti, with SPI values ranging from 0.5 to 2.0. Average conditions (SPI values of -0.5 to 0.5 standard deviations) are indicated in the southwestern Haiti and .southeastern Centre departments and drier-than-average conditions (SPI values of –1.0 to 2 standard deviations) are expected in parts of Haiti, Centre and Ouest departments.

Water Requirement Satisfaction Index (WRSI)

- USGS/EROS crop WRSI Current conditions during the 3rd Dekad of September 2024 depicted '*Average*' to '*Good*' crop conditions across much of the country. Local areas of Centre and southern Ouest departments depicted '*Very good*' conditions, while areas in Nord-Ouest, northwestern Artibonite, and northern Ouest departments depicted '*Mediocre*' conditions.

GEOGLAM Crop Monitor

- GEOGLAM Crop Monitor synthesis indicated 'Favorable' conditions across Haiti during November 2024.

Additional Resources

- https://protectioncivile.gouv.ht/
- https://www.meteo-haiti.gouv.ht/

Annex

- La Niña precipitation composites.

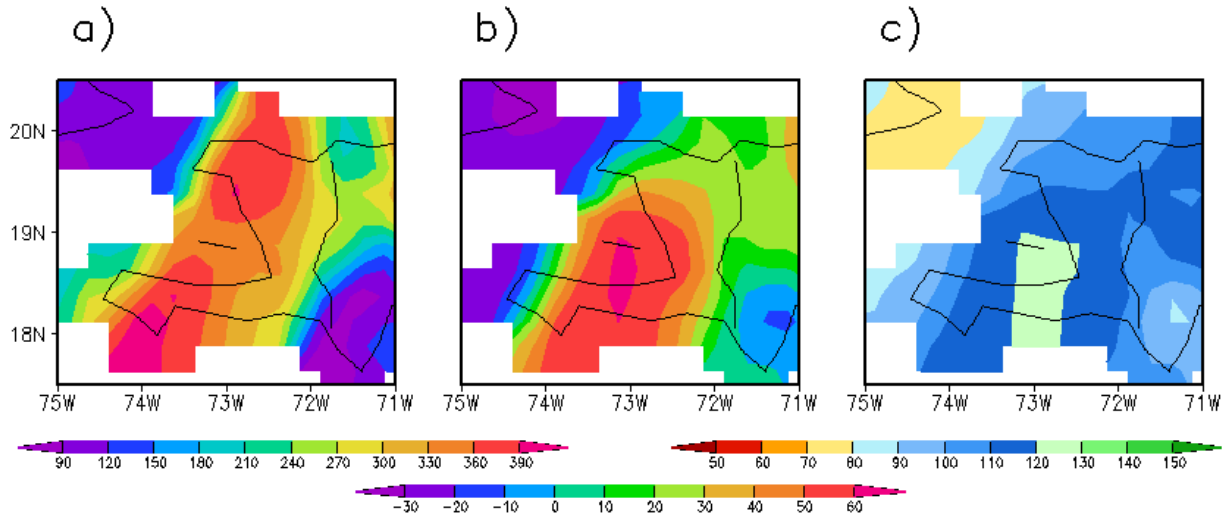


Figure A1. Composite maps of February–April (FMA) precipitation based on eight La Niña years during 1990 – 2019 using the Global Precipitation Climatology Centre (GPCC) dataset (0.25° resolution). (a) FMA total rainfall (mm), (b) FMA rainfall anomalies (mm), and (c) FMA total rainfall expressed as a percentage (%) of mean precipitation.