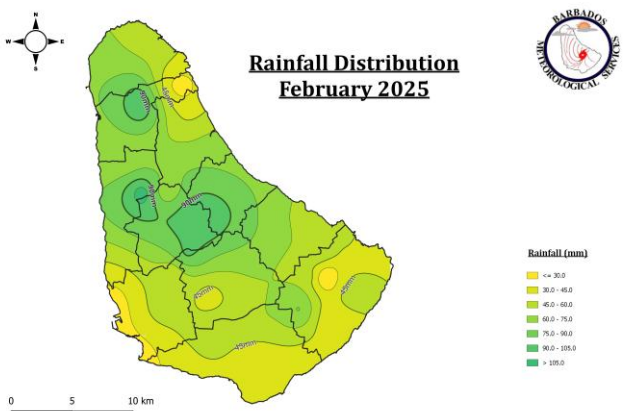
BMS MONTHLY CLIMATE OUTLOOK NEWSLETTER
February 2025|Issue No.61

Key Messages: Near to above-average rainfall is expected until July. An **Agricultural Drought Watch is now in effect for parts of Christ Church, St. Philip, St. Micheal and St Lucy. An agricultural drought warning is possible for April and May**. The longer-term alert level for Hydrological drought has been elevated to yellow for March and a hydrological drought watch may be in issued from April, persons should monitor the BMS seasonal outlooks for updates. **The Heat season is still expected to begin around late March/ early April.** Although not as warm as 2023 and 2024, warmer than normal temperatures will likely persist given that warmer than normal Atlantic SSTs are expected. Weak La Niña conditions are present however ENSO neutral conditions are expected to evolve by the MAM period.

FEBRUARY IN REVIEW

Precipitation

Figure 1: February Rainfall Distribution



The Atlantic high dominated weather conditions across Barbados during February. This resulted in strong winds and above normal swell heights. High wind advisories were issued on 11th and 13 February with winds up to 48km/hour and gusts peaking at 75 km/hour near moderate to heavy shower activity. On average, wind speeds were 31km/h exceeding the climatological average of 24km/h

Multiple marine advisories and warnings were issued throughout the month, with the maximum swell height peaking near 3.5m. At Charnocks, rainfall remained near average with 33.8mm of rainfall recorded which is 7.8mm below the climatological average of 41.7mm for February. Meanwhile, rainfall at 3dpaws stations across the island ranged from 19.4mm to 109.2mm as seen in figure 1.

Temperature

Figure 2: February Average Temperature Distribution

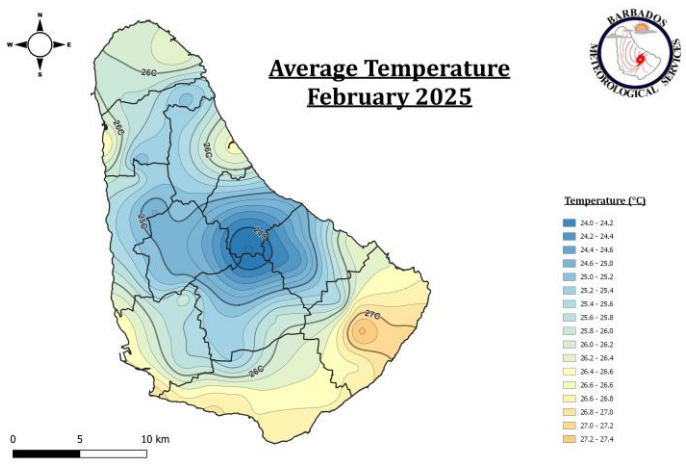
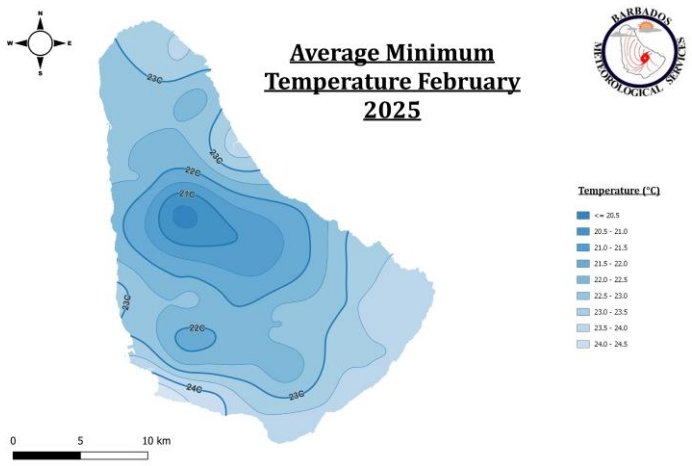


Figure 3: February Average Minimum Temperature Distribution



Atlantic SSTs have been cooling and this has caused a cooling in the average air temperatures across Barbados. Here at Charnocks, the average air temperature for February was 26.3°C which equaled the climatological average air temperature for February of 26.3°C. Meanwhile, at 3DPAWS stations across the island, average air temperatures ranged from 24.0°C to 27.4°C. Overnight minimum temperatures at Charnocks cooled to an average of 24.1°C which was 0.7°C warmer than the climatological average of 23.4°C. As for the remainder of the island, minimum temperatures ranged between 20.4°C and 24.9°C, as seen in Figure 3.

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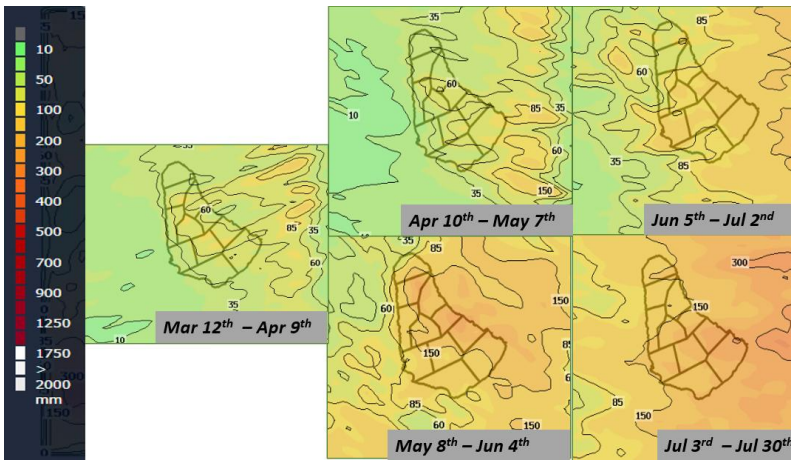
PRECIPITATION OUTLOOK

Figure 4: BMS Experimental rainfall forecast from March to July 2025



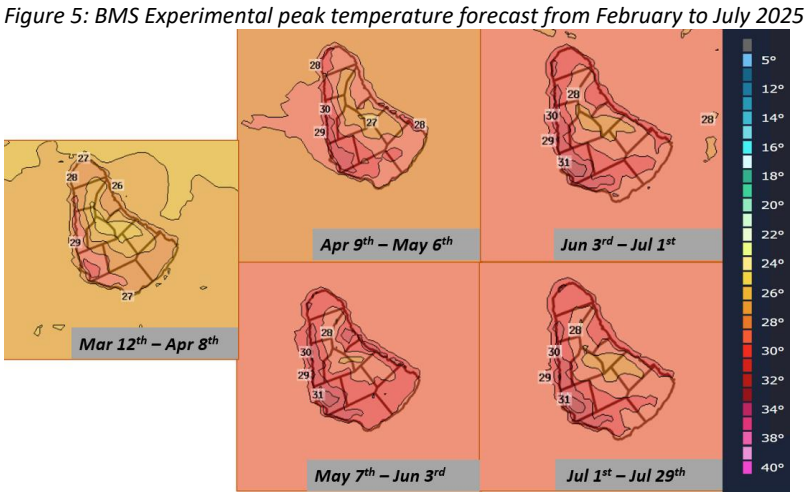
Rainfall during the second half of the Dry Season and the early Wet Season is expected to be near to above average. Given that ENSO Neutral conditions are expected to evolve in the tropical Pacific, the main drivers of Barbados' climate in the coming months will likely be a result of conditions in the Atlantic. The warmer than normal Atlantic SSTs are expected to persist which could be the source of intense rainfall events during the forecast period. However, especially for the JJA period, there is some uncertainty in regional and global climate models. One factor such as periodic intrusions of Saharan dust that limit rainfall and are difficult to forecast at this timescale, may be a source of some of the uncertainty. Therefore, the official forecast continues to call for near to above average rainfall for much of the forecast period, but may be adjusted in subsequent newsletters. All forecast should be monitored for updates in the coming months. Table 1 shows the projected rainfall accumulations and the deviation from the climatological average at Charnocks.

Table 1: Rainfall Projections for March to July 2025

Month	Projections (mm)	Deviation from 30-yr Average at Charnocks
March 2025	30-70	Near to Above Average
April 2025	50-100	Near to Above Average
May 2025	85-130	Above Average
June 2025	100-150	Near to Above Average
July 2025	120-200	Near to Above Average

TEMPERATURE OUTLOOK

Figure 5: BMS Experimental peak temperature forecast from February to July 2025



Barbados' cool season is still expected to end in late March/ early April as temperatures are expected to be warmer than normal. Given the expected persistence of the above-normal Atlantic SSTs, the latest probabilistic and dynamic model forecasts continue to project above-normal minimum and mean temperatures for the entire forecast period and near normal maximum temperatures for the MAM period and above normal maximum temperatures for the JJA period (table 2). The BMS experimental WRF model (figure 5), continues to suggest that daytime temperatures should peak between 28°C and 31°C until late March/ early April. A transition into the heat season is still expected thereafter and conditions will become uncomfortable, with daytime temperature expected to peak between 29°C and 33°C. Although daytime temperatures will become uncomfortable, daytime temperatures are not expected to be as warm as 2023 and 2024. Regardless, the BMS urges members of the public to continue monitoring the temperature outlook for updates in the coming months and adhere to the recommendations on heat ailments from the Ministry of Health and Wellness, during the heat season.

Table 2: Temperature Outlook for March to August 2025

Temperature	Season	Forecast Probability (%)		
		Below	Normal	Above
Minimum Temperature	**MAM**	15	26	59
	JJA	14	22	64
Maximum Temperature	**MAM**	18	43	39
	JJA	25	35	40
Mean Temperature	**MAM**	9	16	75
	JJA	11	26	62

DROUGHT OUTLOOK

As the dry season evolves, given the uncertainty in the rainfall forecast and the gras fires observed across some districts, the BMS has issued an **Agricultural Drought Watch for parts of St. Lucy, St. Micheal, Christ Church and St. Philip.** An **Agricultural drought warning will likely be issued in April and May.** Persons in the agriculture sector are urged to continue monitoring the Ministry of Agriculture, Food and Nutritional Security and the BMS for updates to the seasonal drought forecast for updates. Similarly, the alert level for hydrological drought has been set at be aware until March and a **Hydrological Drought Watch may be issued from April.** Members of the public are urged to take responsibility and continue to conserve water, regardless of the drought alert level and to continue monitoring the BWA and the BMS for updates. Below is a table of the forecast drought alert levels based on the forecast rainfall accumulations (Table 1).

Table 3: Drought Outlooks for March to July 2025

MONTH	AGRICULTURAL	HYDROLOGICAL
MARCH 2025	Drought Watch	Be Aware
APRIL 2025	Drought Warning	Drought Watch
MAY 2024	Drought Warning	Drought Watch
JUNE 2025	Be Aware	Drought Watch
JULY 2025	No concern	Drought Watch

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Agricultural Drought Watch

Responses to the predicted Drought Alert Level.

Key Messages:

- *Keep updated*
- *Protect resources*
- *Update and ratify management plans*
- *Implement irrigation plans*
- *Monitor and repair infrastructure*

- ✓ ***Continue to monitor for updates from the Barbados Water Authority and Ministry of Agriculture, Food and Nutritional Security.***
- ✓ ***Continue to monitor the BMS Climate Outlook for monthly updates.***

Hydrological Drought: Be Aware

Responses to the predicted Drought Alert Level.

Key Messages:

- *Encourage water conservation through public awareness campaigns*
- *Monitor resources and upgrade infrastructure*
- *Update and ratify management plans for the possibility of drought*

- ✓ ***Continue to monitor for updates from the Barbados Water Authority.***
- ✓ ***Continue to monitor the BMS Climate Outlook for monthly updates.***

Likely Impacts for the March to August 2025 Period

What do these forecasts mean for Barbados?

- Continue to conserve water.
- Depletion of reservoir/aquifer levels as the dry season progresses.
- There may be inadequate soil moisture at times for certain crops.
- Employ rainwater harvesting techniques for rain feed crops.
- It is recommended to have an irrigation plan and systems to ensure the best crop yield during periods of dryness.
- More comfortable days and nights until late March/ early April.
- A transition into the Heat Season and uncomfortable temperatures around April.
- Air quality may be impacted by periodic intrusions of Saharan dust and grass fires.
- Keep updated with daily weather as well as seasonal forecasts issued by the BMS.

CLIMATE OUTLOOK

ENSO (El Niño Southern Oscillation)

ENSO is the interaction between the ocean and atmosphere in the equatorial Pacific which results in periodic departures from the expected sea surface temperatures. There are two phases of ENSO, the cold phase of sea surface temperatures, La Niña and the warm phase, El Niño. La Niña conditions usually results in higher rainfall for Barbados. El Niño conditions usually result in lower rainfall for the island. Neutral conditions which are close to average or what is normally expected. These are the general conditions associated with each phase however, there are other factors which influence the rainfall patterns across Barbados which may result in a deviation from the norm.

Current state

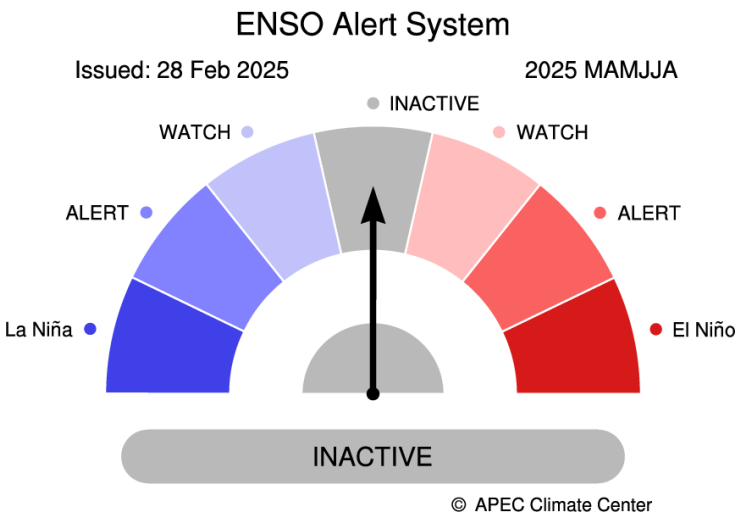
Weak la Niña conditions are present as below-average sea surface temperatures (SSTs) are present across the eastern and central equatorial Pacific Ocean.

What's the Outlook?

ENSO-neutral is likely for much of the forecast period (March through August) with 66% chance for the MAM period and 58% chance thereafter.

Impact to the Upcoming Seasons

ENSO-neutral conditions usually aren't a determining factor in Barbados' weather and climate.



(Source: APCC/ Climate Information Services)

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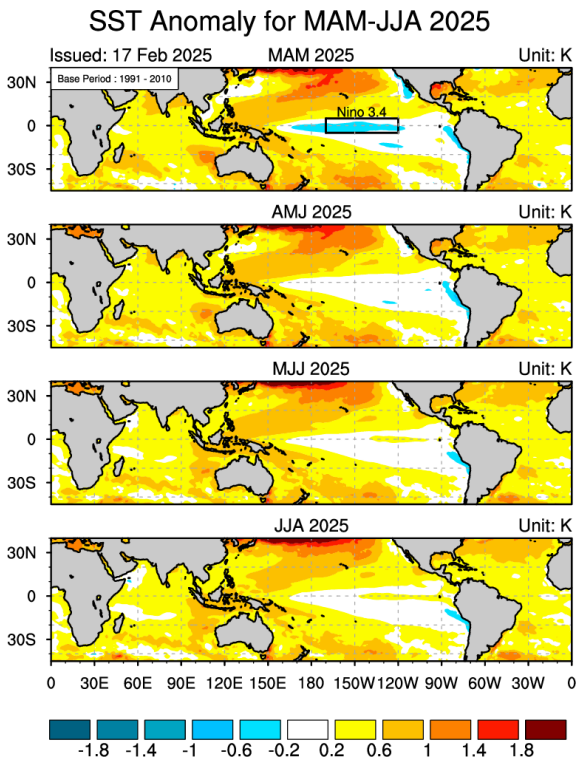
CLIMATE OUTLOOK

Sea Surface Temperatures (SSTs)

The Multi-Model Ensemble continues to forecast above-normal sea surface temperatures (SSTs) across the tropical Atlantic. Across much of the tropical Atlantic, SSTs are forecast to remain above normal by 0.2°C – 0.6°C through the entire forecast period (March to August). Across the eastern and central equatorial Pacific, SSTs are expected to be near normal, consistent with ENSO-neutral for the entire forecast period.



Impact on Rainfall

Warmer than normal SSTs may favour increased rainfall characterized by intense rainfall events. This may result in flash flooding across the island, especially during the late dry season and early rainy season.

Impact on Temperatures

Warmer-than-normal SSTs across the tropical Atlantic will cause warmer-than-normal temperatures to persist. The degree of warmness in the Atlantic SSTs are not expected to be as great as 2023 and 2024. Temperatures during the cooler months are not expected to result in significant heat stress. However, Barbados will likely transition into the Heat Season early and recurrent episodes of heat stress are likely to increase as the Heat Season evolves.

(Source: APCC/ Climate Information Services)

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