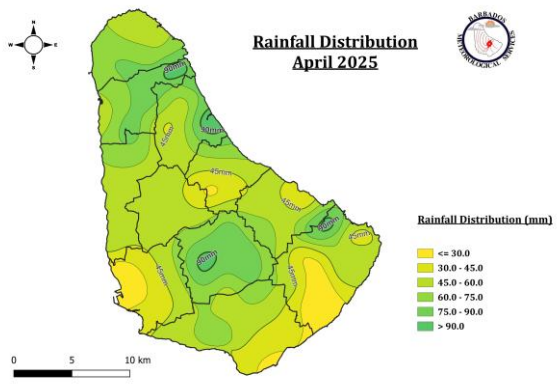
BMS MONTHLY CLIMATE OUTLOOK NEWSLETTER
April 2025|Issue No.63

Key Messages: Near to above-average rainfall is expected for much of the forecast period. The **Agricultural Drought Warning has been lifted.** A **Hydrological Drought Watch** remains in effect and persons are urged to monitor the BMS seasonal outlooks for updates. **The Heat season is evolving and warmer than normal temperatures are likely, although not as warm as 2023 and 2024**. ENSO neutral conditions are present and are likely to persist through to October. **Near normal tropical cyclone activity is expected during the 2025 Atlantic Hurricane season.**

APRIL IN REVIEW

Precipitation

Figure 1: April Rainfall Distribution



The Atlantic high pressure system maintained dry conditions for much of April. However, significant rainfall events occurred from the 20th to the 22nd and the excess rainfall alert level was elevated to yellow (be aware) during this three day period. A favourable upper-level environment, low-level convergence and light winds triggered up to 55.0mm across parts of the island. Just one day later, on the 21st, a trough aided by an upper-level jet stream triggered up to 60mm across parts of St. Philip. Light winds and daytime heating resulted in around 20mm of rainfall across some central and eastern parishes. Here at Charnocks, rainfall recorded for the month of April was 34.5mm, which was 23.6mm of rainfall less than the climatological average for April(58.1mm). Meanwhile, rainfall across the island ranged from 14.8mm to 100mm, as seen in figure 1.

Small craft and high surf warnings were also issued between the 2nd and 4th, as swells peaked around 3m. Additionally, the high wind alert level was elevated to yellow (be aware) as wind speeds peaked around 25 knots and with gusts up to 35 knots on the 4th.

Temperature

Figure 2: April Average Temperature Distribution

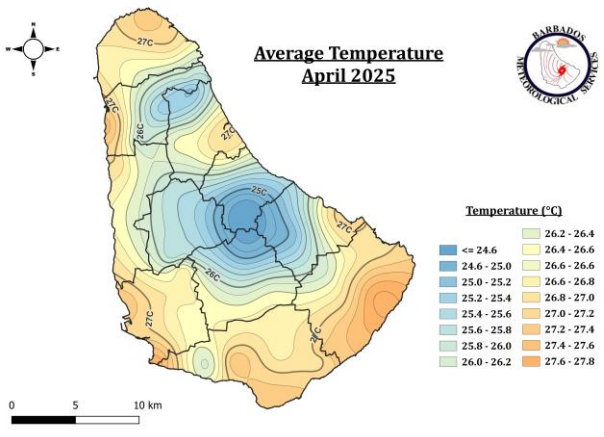
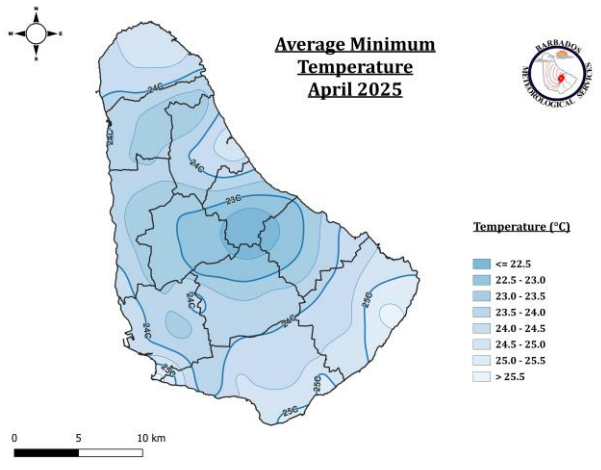


Figure 3: April Average Minimum Temperature Distribution



Nighttime temperatures during April began to increase, as compared to February and March. Here at Charnocks, the average air temperature for April 26.9°C which was 0.1°C cooler than the climatological average for the month of April (27.0°C) Across the island, average air temperatures ranged from 24.5°C to 27.8°C, as seen in Figure 2. Overnight minimum temperatures at Charnocks cooled to an average of 24.9°C which was 0.7°C warmer than the climatological average for April (24.2°C), and 0.7°C cooler than last year. As for the remainder of the island, minimum temperatures ranged between 22.2°C and 25.6°C, as seen in Figure 3.

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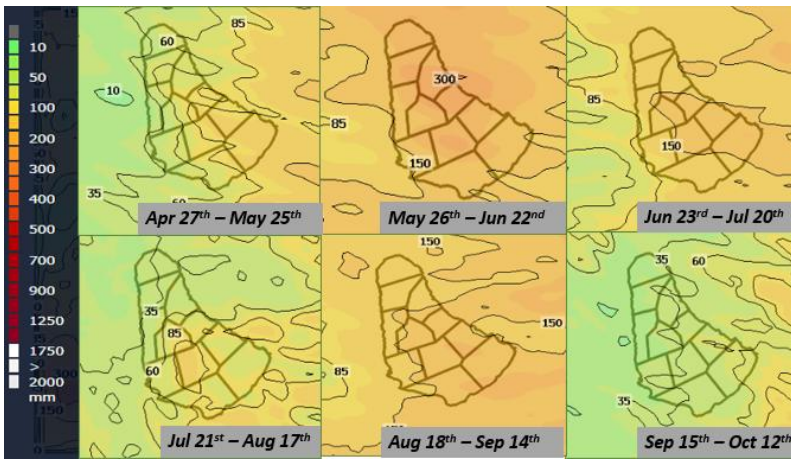
PRECIPITATION OUTLOOK

Figure 4: BMS Experimental rainfall forecast from May to September 2025



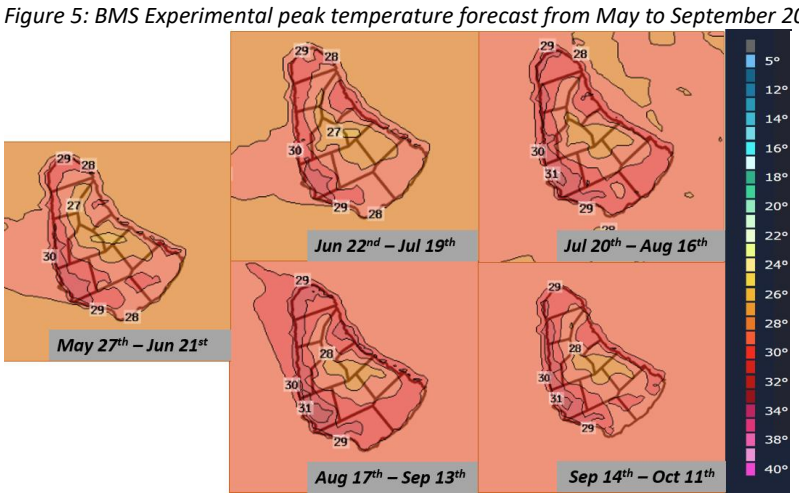
As Barbados transitions into the Wet Season, near to above-average rainfall totals are expected from May to October. Given that ENSO Neutral conditions have evolved across the tropical Pacific and are expected to persist, the main drivers of Barbados' climate for the period May to October will likely 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. However, there continues to be some uncertainty in the rainfall forecasts from the Global and Regional Climate models. One factor could be periodic intrusions of Saharan dust, which limit rainfall and are difficult to predict on a sub-seasonal timescale. These factors along with forecast from BMS Experimental Model, which did a fair job in the forecast for April (rainfall forecast 30-70mm vs observations of 14.8-100mm), the official forecast continues to call for near to above- average rainfall in the coming months. However, this forecast may be adjusted in subsequent newsletters and as a result, all forecast should be monitored for updates. Table 1 shows the projected rainfall accumulations and the deviation from the climatological average at Charnocks.

Table 1: Rainfall Projections for April to September 2025

Month	Projections (mm)	Deviation from 30-yr Average at Charnocks
May	150-250	Above Average
June	150-300	Above Average
July	100-150	Near to Above Average
August	150-200	Near to Above Average
September	150-250	Near to Above Average

TEMPERATURE OUTLOOK

Figure 5: BMS Experimental peak temperature forecast from May to September 2025



Barbados' heat season is expected to be warmer than normal, but not as warm as 2024 and 2023. The latest probabilistic and dynamic model forecasts continue to project above-normal minimum, mean and maximum temperatures for the entire forecast period (table 2). The BMS experimental WRF model (figure 5) continues to suggest that daytime temperatures will be uncomfortable and are expected to peak between 30℃ and 33℃. Although daytime temperatures are expected to be uncomfortable, the number of uncomfortable days are not expected to be as numerous as those in 2023 and 2024. The BMS urges members of the public to continue monitoring the temperature outlook for updates in the coming months and adhere to any recommendations coming from the Ministry of Health and Wellness during the heat season.

Table 2: Temperature Outlook for May to October 2025

Temperature	Season	Forecast Probability (%)		
		Below	Normal	Above
Minimum Temperature	**MJJ**	20	32	48
	ASO	25	22	53
Maximum Temperature	**MJJ**	21	22	57
	ASO	18	30	52
Mean Temperature	**MJJ**	16	24	60
	ASO	28	24	48

DROUGHT OUTLOOK

The cumulative rainfall for past three (3) months has been below average, at least for Charnocks. However, given the increase in rainfall over the last few weeks and the forecast for near to above average rainfall in the coming months the **Agricultural Drought Warning has been lifted** and **the alert level is set at yellow (be aware)** for the possibility of some short dry spells during May. Persons in the agriculture sector are urged to continue monitoring the Ministry of Agriculture, Food and Nutritional Security for updates and the BMS for updates to the seasonal drought outlook. Similarly, the alert level for hydrological drought remains elevated to a **Hydrological Drought Watch atleast for May.** 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 May to September 2025

MONTH	AGRICULTURAL	HYDROLOGICAL
MAY	Be Aware	Drought Watch
JUNE	No concern	Be Aware
JULY	No concern	No concern
AUGUST	No concern	No concern
SEPTEMBER	No concern	No concern

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Be Aware for Agricultural Drought

Responses to the predicted Drought Alert Level.

Key Messages:

- *Monitor resources*
- *Prepare the infrastructure for the possibility of drought*
- *Prepare for the possibility of increased irrigation during periods of extensive dryness*

✓ ***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 Watch

Responses to the predicted Drought Alert Level.

Key Messages:

- *Keep updated*
- *Protect resources and conserve water*
- *Implement management plans*
- *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 May to September 2025 Period

What do these forecasts mean for Barbados?

- Continue to conserve water.
- Depletion of reservoir/aquifer levels during the late dry season/ early wet season.
- Employ rainwater harvesting techniques for rain feed crops during dry periods.
- Increased likelihood of flooding during intense rainfall events as the wet season begins.
- Increase in soil moisture content and possible saturation during excess rainfall events during the wet season.
- Uncomfortable temperatures which may lead to an increased need for cooling and hydration.
- Heat stress in farm animals and pets.
- Air quality may be impacted by periodic intrusions of Saharan dust.
- 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

ENSO Neutral conditions are present across the most of the Pacific Ocean.

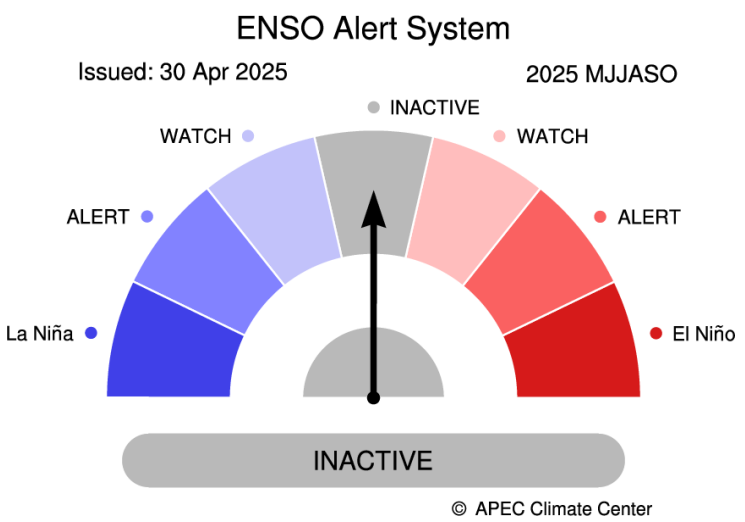
What's the Outlook?

ENSO-neutral is likely to persist through October 2025.

Impact to the Upcoming Seasons

During ENSO-neutral events there is typically no significant predictability on rainfall or temperature patterns in Barbados.

(Source: APCC/ Climate Information Services)



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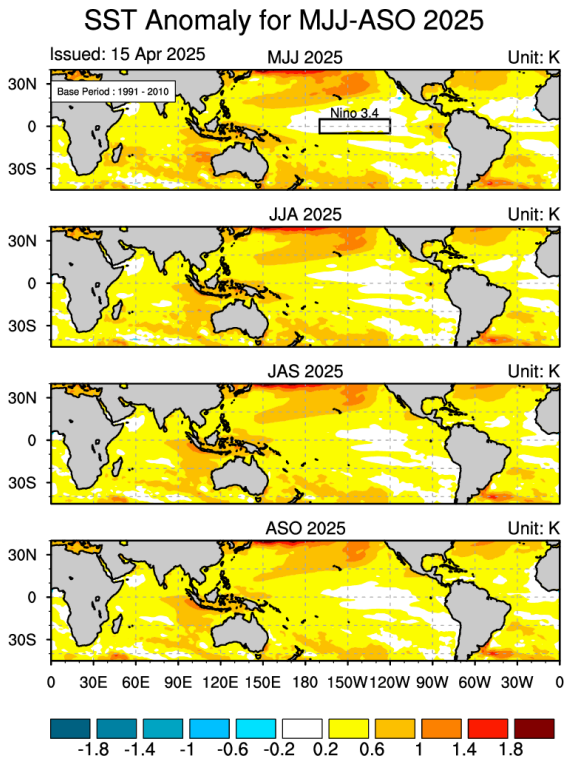
CLIMATE OUTLOOK

Sea Surface Temperatures (SSTs)

The Multi-Model Ensemble continues to forecast above-normal sea surface temperatures (SSTs) across the tropical Atlantic. Across the tropical Atlantic, SSTs are forecast to remain above normal by 0.2°C through to October. Across the eastern and central equatorial Pacific, SSTs are expected to be near normal, consistent with the projected ENSO-neutral conditions.



(Source: APCC/ Climate Information Services)

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 result in warmer-than-normal temperatures and humid conditions. Barbados is now into the Heat Season and recurrent episodes of heat stress are likely.

2025 ATLANTIC HURRICANE SEASON OUTLOOK

Forecasts for the 2025 Atlantic Hurricane season from Colorado State University and Tropical Storm Risk indicate a near normal activity for the Hurricane Season this year. Factors influencing activity are the persistently warm Sea Surface Temperatures (SSTs) that are not as warm as they were in 2024 and ENSO Neutral conditions are currently present in the Tropical Pacific and expected to persist. These factors may have a negligible to slightly favorable impact to Tropical Cyclone development over the season. The forecast from the National Oceanic and Atmospheric Administration will be released around late-May. Mr. Sabu Best developed a hybrid statistical and deterministic product to predict the activity in the Eastern Atlantic (bounded by 10°W – 65°W, 5°N – 20°N). The below table summarizes these forecasts as compared to Atlantic hurricane season Climatology.

Table 3: Atlantic Hurricane Season Forecast VS Atlantic Hurricane Season Climatology

	Atlantic Basin Climatology (1991-2020)	Cumulative Forecast Ranges for 2025 Hurricane Season	BMS 2025 Eastern Atlantic Outlook
Named Storms	14	12-17	5-8
Hurricanes	7	7-9	2-5
Major Hurricanes (Category 3 and above)	3	3-4	0-2

Date Issued: 14-05-2025

Editors: Mr. Christophe Martin (Meteorologist Ag), **Mr. Don Layne** (Senior Meteorological Assistant), **Ms. Shanice Whitehall** (Meteorologist Ag), **Ms. Cherise Brathwaite** (Meteorologist Ag), **Ms. Danielle Nurse** (Meteorologist Ag)

For more information, contact the Barbados Meteorological Services at
CAD Building Charnocks Christ Church
Tel: 535-0023|Fax: 535-0029|Email: BMS.Climat@barbados.gov.bb

CONTRIBUTORS: