

# Caribbean Climate Outlook Newsletter - February to April 2024

For climate information specific to your country, please consult with your national meteorological service.  
CariCOF outlooks speak to recent and expected seasonal climate trends across the Caribbean in general.

## BRIEF SUMMARY: October 2023 to April 2024

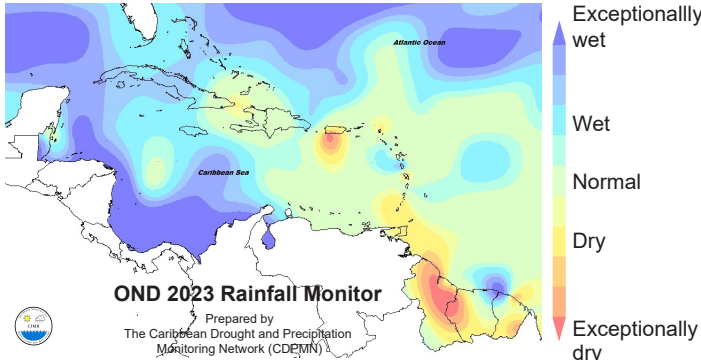
**October to December 2023:** An El Niño event and a record-warm Tropical North Atlantic have continued to fuel record-breaking seasonal temperatures in the Caribbean, combined with high humidity and heatwaves in October. Unusually high and low rainfall totals were mostly observed in northwestern and southeastern parts of the region, respectively.

**February to April 2024:** A waning El Niño event and unusually warm Tropical North Atlantic temperatures are forecast. Consequently, the transition out of the Cool and into the Heat Season in April should be warmer than usual. An intense peak of the Caribbean dry season -- especially in the northwestern Caribbean -- will, therefore, be enhanced by high evaporation rates, leading to continued drought in Puerto Rico and the northern Leeward Islands, a high frequency of short dry spells and wildfire potential building towards March. In April, rainfall intensity is set to sharply rise, with the potential for flooding, flash floods and cascading impacts rapidly becoming moderate westwards of Puerto Rico and high further east and south.

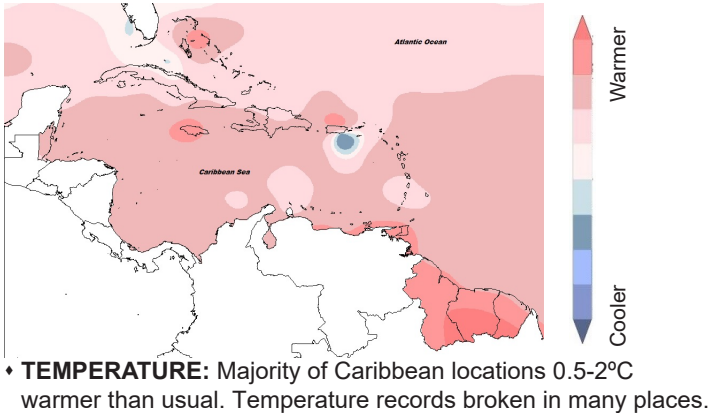
### LOOKING BACK:

#### Oct. - Nov. - Dec. (OND) 2023

##### Observations



• **RAINFALL:** SE French Guiana, N & central Guyana, S Puerto Rico very dry; NE & central Bahamas, W & S Belize, W & Central Cuba, far NW French Guiana very wet.



#### Notable Climate Records in OND 2023:

**WET:** 1 location in Barbados, 1 in Dominican Rep. reported record high rainfall (~170-265% of avg.).

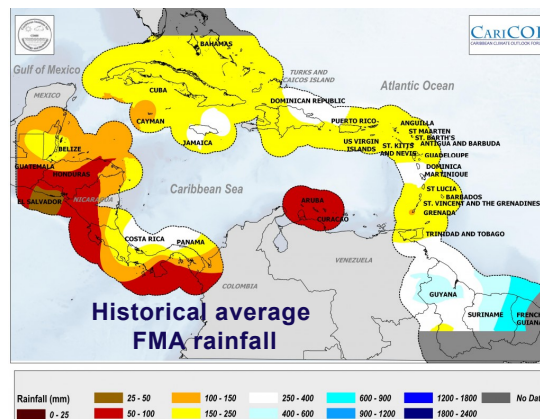
**DRY:** Tobago, 1 location in Guyana, 1 in Puerto Rico, 2 in Suriname reported record low rainfall (~10-65% of avg.).

**HOT:** Grand Cayman, French Guiana, Grenada, Trinidad & Tobago, 1 location in Barbados, 1 in Belize, 5 in Guyana, 1 in Jamaica, 3 in Puerto Rico and 2 in Suriname all reported record-high mean temp. Martinique and 4 locations in Guyana reported both record-high min. & max. temps.

More at <https://carogen.cimh.edu.bb/index.php/component/countrydata/>

### WHAT NEXT?

#### Rainfall patterns February-March-April (FMA)



**Belize:** Feb to Apr - dry season. Mostly without heavy rainfall.

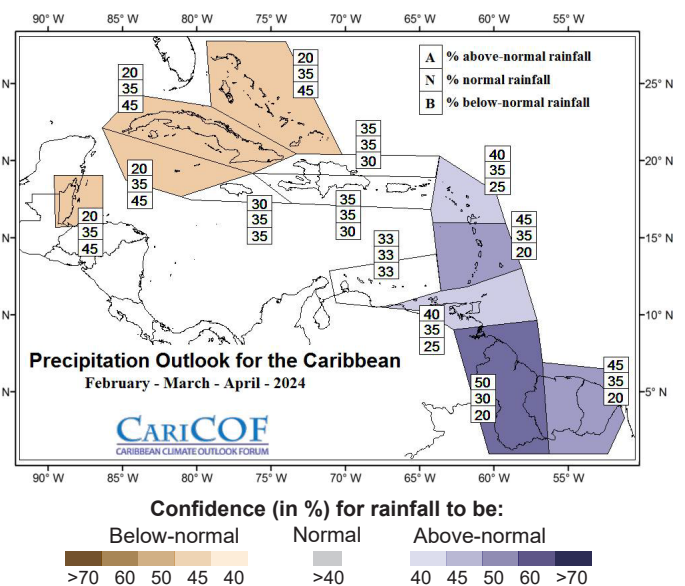
**C'bean Islands north of 16°N:** Feb to Apr - sunny days and some days with showers.

**C'bean Islands south of 16°N (except ABC Islands):** Feb to Apr - sunny days and some days with showers.

**ABC Islands:** Feb to Apr - generally dry.

**Guianas:** Feb to Apr - End of dry season with occasional heavy showers and thunderstorms.

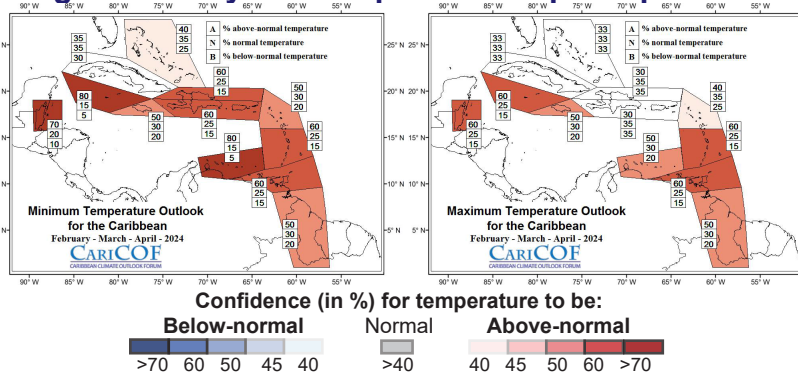
#### FMA 2024 Rainfall Outlook



Rainfall totals from February to April are likely to be the usual or even less in The Bahamas, Belize, Cayman Is. and Cuba, but the usual or higher across the Lesser Antilles the Guianas.

White areas show where the forecast indicates little information on rainfall totals.

### Night- and daytime temperatures up to April



FMA night-time (min.) and daytime (max.) temperatures are forecast to be higher than usual in most areas. Significant episodes of heat stress may, therefore, appear after the end of the Caribbean Cool Season in March. However, heatwaves might well be recorded this March, notably where soil moisture content is even lower than usual.

### Wet days and wet spells up to April

#### What usually happens from February to April?

- Number of wet days: roughly 15 to 30 (ABC Is.: 5 to 15; northern Guianas: 20 to 45).
- # of wet spells: up to 2 or 3, of which up to 1 is very wet (northern Guianas: up to 2).
- # of extreme wet spells: up to 1 or two in the northern Guianas and mountainous areas. Virtually none elsewhere.

#### Forecast and Implications:

- The potential for flooding and cascading impacts arising from very wet and extreme wet spells increases from limited through March, to moderate in April.
- Water depletion rates in smaller and larger surface reservoirs and in rivers may be slower than usual in the Lesser Antilles.
- Sparse occurrence of wet days will often lead to favourable conditions for outdoor tourism activities, but are accompanied by rapidly increasing wildfire potential.

### Drought conditions

**Latest drought situation:** Moderate (or worse) short-term drought has developed in eastern Cuba, French Guiana, Grenada, Guyana, Martinique, Puerto Rico, St. Vincent, Sint Maarten/St-Martin, western Suriname, and Trinidad and Tobago; long-term drought has developed in Antigua, Cuba, Dominica, Guadeloupe, northern Guyana, southern Puerto Rico, and St. Kitts.

**Short-term drought (at the end of Apr. 2024)** Short-term drought is evolving in Grand Cayman, southern Puerto Rico, Sint Maarten/St-Martin, USVI, and may possibly develop or continue in Antigua, Dominica, Guadeloupe southern French Guiana, and northern Suriname.

**Long-term drought (at the end of May 2024)** Long-term drought is evolving in Grand Cayman, central and southern French Guiana, southwest Puerto Rico, and northern Suriname, and might possibly develop or continue in northwestern parts of Belize, Western Cuba, Dominica, northern Guyana, Jamaica, Sint Maarten/St-Martin, Trinidad and Tobago, and the USVI.

### BRIEF CLIMATE OUTLOOK - May to July 2024

This period marks the transition from the dry to the wet season, as well as the early Heat Season in the Caribbean. The tropical North Atlantic Ocean is forecast to remain unseasonably warm, whereas the strong El Niño is expected to fade. Unusually high air temperatures will most likely prevail in many locations through July 2024 and the occurrence of significant heat stress is expected to evolve. The risk of severe weather impacts, including flooding, flash floods, and cascading impacts is expected to be higher than usual, as an intense early wet season is forecasted. Historically, a reasonable analog to this year's expected conditions is 2010, when regional drought was followed by extreme heat, rainfall and floods. *For temperature and precipitation outlooks for MJJ 2024, please visit [rcc.cimh.edu.bb/caricof-climate-outlooks](http://rcc.cimh.edu.bb/caricof-climate-outlooks)*

### What influences the next season?

#### El Niño Southern Oscillation (ENSO)

**Recent observations:** A strong El Niño event is present in the eastern equatorial Pacific, where Sea Surface Temperatures (SSTs) are 1.5-2.0°C above average.

**Model forecast and guidance:** The forecast models indicate a likely anomalous cooling of the eastern Pacific after March, with moderate El Niño conditions in FMA (100% confidence) potentially transitioning to neutral ENSO conditions by MJJ (55-65% confidence).

**Expected impacts on rainfall and temperatures:** El Niño more often than not is marked by anomalously high air temperatures, even after El Niño wanes. A transition out of El Niño more often than not is associated with increased chances of heavy showers and higher rainfall totals in April.

#### Climate conditions in the Tropical North Atlantic and Caribbean

**Recent observations:** SSTs have hovered around 1°C to 2°C above average in much of the Tropical North Atlantic (TNA), reaching record-high values across vast ocean areas.

**Expected conditions:** Models are confidently forecasting increasingly warm SST anomalies of 0.5°C to 2°C (or more) above average across the Caribbean Sea and the TNA.

**Expected impacts:** Warm SSTs in and around the Caribbean tend to contribute to higher air temperatures with above-average humidity, seasonal rainfall totals and an increased frequency of extreme rainfall ahead of and in the early wet season.

### Climate outlooks - background

The Caribbean Climate Outlooks are prepared by the Caribbean Climate Outlook Forum (CariCOF). The Caribbean Institute for Meteorology and Hydrology, in its role as WMO Regional Climate Centre, coordinates the CariCOF process. Contributors to the Outlooks are the Meteorological Services from the region. The Precipitation and Temperature Outlooks are issued in the form of a map, which shows regions where the forecast rainfall or temperatures have the same probabilities to be:

- Above-normal (A) - within the wettest/hottest third of the historical record
- Near-normal (N) - within the middle third of the historical record, i.e. a range called the 'usual'
- Below-normal (B) - within the driest/coldest third of the historical record

CariCOF Outlooks offer consensus-based information averaged across multiple territories. In some cases, individual national results may differ from region wide results. To get information on your specific country context, please consult your National Meteorological and Hydrological Services and/or any national level bulletins they may provide.

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