

Caribbean Health Climatic Bulletin

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This Bulletin is a joint effort between the Caribbean Public Health Agency (CARPHA), the Pan American/World Health Organization (PAHO/WHO) and the Caribbean Institute for Meteorology and Hydrology (CIMH). It aims to help health professionals identify and prepare health interventions for favorable or inclement climate conditions in the Caribbean. The period covered is March to May 2019. It is recommended that health stakeholders should use the combination of monitoring (November 2018 - January 2019) and forecast (March - May 2019) climate information presented in this Bulletin in tandem with weather forecasts (1-7 days). This suite of information is intended to guide strategic and operational decisions related to health interventions and the management of health care systems.

What are the Key Climate Messages for March to May 2019?

- Climatically, March to May forms the **second half of the Caribbean Dry Season** in Belize and the Caribbean Islands, characterised by relatively few wet days and a small number of wet spells, but many dry days and quite a few dry spells. That said, the intensity of heavy showers increases towards May, especially in the Greater Antilles. Consequently, despite being very low in March, the potential for flooding increases in April and May (*high confidence*). In the coastal Guianas, a steady increase in flooding potential should manifest by May which is the start of their primary wet season (*high confidence*).
- Whereas in March **extreme wet spells** are virtually non-existent across the region, the chance for such spells increases steadily from April onwards. Extreme wet spells may coincide with thunderstorms and high winds, and may result in **flash floods**, land slippage, power outages and possible contamination of food and water supplies.
- Moderate to severe **drought** has started impacting many areas in the Caribbean. Notably, Barbados, parts of Belize, much of Hispaniola, much of the Leeward Islands, Saint Lucia, St. Vincent and Tobago have seen long term drought developing. Short term drought is seen in the ABC Islands, northern Barbados, south-eastern Cuba, much of Hispaniola, St. Vincent, Trinidad and Tobago. This is, in part, due to a developing weak El Niño. That said, extreme to exceptional drought such as that experienced by many territories between 2014 and 2016, when El Niño was particularly strong, is unlikely.
- Regionally, **rainfall totals** from March to May are forecast to likely be at least as dry as usual in the ABC Islands, Belize and the Lesser Antilles, but likely the usual or wetter in Cayman, Cuba and eastern portions of the Guianas (*medium confidence*).
- **Short term drought** (on a 3-6 months timescale) is currently evolving in Barbados, parts of Belize, Dominica, Grenada, Guyana, St. Vincent, Trinidad & Tobago (*high confidence*). Such conditions increase the potential for bush fires and may temporarily increase smoke and soot concentrations in the air.
- **Long term drought** (on a 12 months timescale), which affects the largest water reservoirs, is evolving in Antigua, west-central Belize, Cayman, N & S Dominican Rep., NE Guyana, St. Kitts, Trinidad & Tobago, Windward Islands (*high confidence*), and may develop in most other areas of the Caribbean by the month of May (*medium confidence*).
- Night-time and day-time **temperatures** in the Caribbean are set to increase as the Caribbean approaches its annual heat season which starts in May, with the exception of the Guianas. Night-time and day-time temperatures are forecast to be at least as warm as usual (*medium to high confidence*) and, from April onwards, may locally feel uncomfortable at times due to dry heat.
- The first **heat waves** of the year are usually noted in April or May in Belize and Trinidad. In view of the ongoing drought, which increases the chance of occurrence of heat waves, other areas may also experience one or two heat waves locally between April and May (*medium confidence*).
- The **2019 Hurricane Season officially starts on June 1st**. However, it is important to note that storms and hurricanes can and, in many recent years, did occur before the official start date. Severe weather systems, which can come with a range of hazards, including high winds, landslides, flash floods, among others, could possibly affect Caribbean territories.
- Episodes of **Saharan dust** incursions into the Caribbean tend to increase towards May (access more detailed forecast information on dust and air quality in the Caribbean here: <http://dafc.cimh.edu.bb/>). In addition, with ongoing or potentially pending drought during the dry season, local dust levels could be on the high end.
- The **UV index** on sunny days will be very high (10) to extremely high (12) around noon time (on a scale from 1 to 12. For more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>). In view of the many sunny and dry days expected between March and May, UV exposure is set to be dangerously elevated if no protective measures are taken.

Disclaimer

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What are the Health Implications for March to May 2019?

Non-communicable Diseases



- **Morbidity from excessive heat** due to high temperatures during heat waves across the region may become an issue from May onwards.



- If unprotected, prolonged and/or repeated exposure to dangerous UV radiation may lead to **skin damage** across the population, especially in view of the many expected sunny days in this period (for more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>).

Vector-Borne Illness



- With drought evolving and with recurrent dry spells in this period, there may be increased use of containers for storage, as well as water accumulating in any unattended, open containers. This may potentially create a proliferation of artificial breeding sites for the *Aedes aegypti* mosquito which is the major vector for diseases such as **Dengue**, **Chikungunya** and **Zika**. Access to additional information on these mosquito-borne diseases can be found here: <http://carpha.org/What-We-Do/Public-Health-Activities/Dengue>. Guidelines on mosquito-borne diseases for travelers, tourist accommodations and tourism and health officials can be found here: <http://carpha.org/What-We-Do/Tourism-and-Health-Programme>



- At the household level, careful attention should be given to management of water storage containers. This includes properly covering barrels, drums and buckets. Access to useful materials on mosquito control measures can be found here: https://www.paho.org/hq/index.php?option=com_content&view=article&id=12355:cde-mosquito-awareness-week&Itemid=42087&lang=en



- The presence of stagnant water in the aftermath of a flood may promote the breeding of mosquitoes. However, note that in the case of flash floods, flood waters may sweep away mosquito eggs, larvae and pupae, potentially reducing mosquito populations.

- At the Ministry level, focus should be on education, source reduction and space spraying or fogging operations. The fogging operations would be weather- (temperature, wind speed, humidity etc.) dependent as advised by local meteorological services.



- Where episodes of flooding may occur, particularly in the Bahamas, the Greater Antilles and the Guianas towards May, there is increased risk of **Leptospirosis** due to displacement of vectors such as rodents into houses, increasing the risk of contamination of household surfaces and food-stores.

Gastrointestinal Illness



- Drought conditions may increase concentrations of water pollutants. Additionally, a drop in water pressure in the pipes of water supply systems may result in cross-contamination and reduced access to water by consumers. Alternative use of unsafe sources of water, in turn may potentially contribute to higher incidences of gastrointestinal illness.
- Where episodes of flooding may occur, cases of **gastroenteritis** may increase, due to persons wading in flood waters (which could also inflict skin-disease), or consuming foods contaminated by flood waters. This is particularly the case in the Bahamas, the Greater Antilles, and the coastal Guianas towards May.

Respiratory Illness

- More frequent episodes of Saharan dust incursions into the Caribbean in the coming season may increase the risk of exacerbation of **allergic rhinitis** and **asthma** in susceptible persons. The short term drought and associated increase in dust, as well as, potential soot and smoke from bush fires may contribute to higher concentrations of airborne particulate matter. This could result in an increase in acute respiratory illnesses. Towards the month of May, this effect on acute respiratory illness may be offset by the increased humidity in the Bahamas, the Greater Antilles and the coastal Guianas, which may promote mold growth in damp and poorly ventilated buildings, leading to increased respiratory symptoms.

Well-Being and Mental Health



- Severe weather systems, which can come with a range of hazards, including high winds, landslides, flash floods, among others, may possibly affect Caribbean territories. With the possibility of tropical cyclones before the official start of the 2019 Atlantic Hurricane Season, health practitioners and administrators should maintain a state of **readiness**.

- **Food insecurity** may be a concern due to the potential for crop damage and loss or inability to have productive cropping resulting from ongoing drought.



- **Psychosocial impacts:** When disasters have seasonal patterns, like hurricanes, floods and drought, anxiety among survivors will increase as alerts on isolated events arise. Health Care Professionals are therefore advised to be sensitive to these issues, as they interact with patients.

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For More Health Information:

CARPHA

<http://carpha.org>

PAHO

<http://www.paho.org>

For More Climate Information:

Caribbean Regional Climate Centre (RCC)

<http://rcc.cimh.edu.bb>

For a Glossary of Technical Climate Terms:

<https://rcc.cimh.edu.bb/glossary-of-terms/>

More on Climate

Looking Back: November 2018 to January 2019

Rainfall

- Many parts of the Caribbean observed less than the usual rainfall. Consequently, severe short term drought has developed in portions of Barbados, Cuba, Hispaniola, St. Vincent and Trinidad & Tobago. In addition, severe long term drought is seen in southern Hispaniola, but with many other territories recording moderate drought. This situation is depleting water resources faster this dry season than usual.

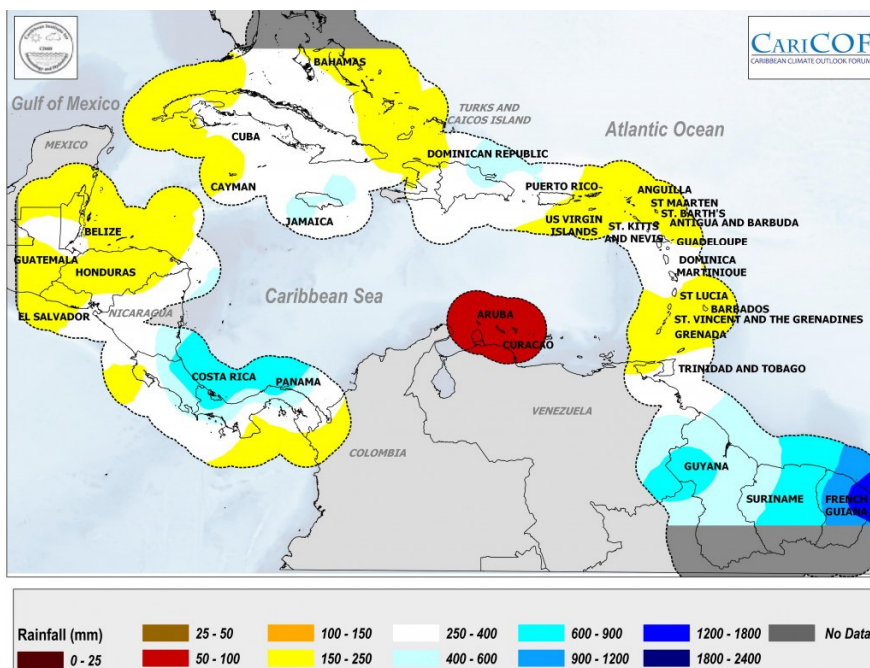
Temperature

- Temperatures in the Caribbean were slightly to significantly warmer than average for this period, except in most of the Lesser Antilles. However, region-wide, temperatures felt comfortably cool especially in December and January which form the coolest part of the year.

What do we Usually Expect for March to May?

Rainfall

- This period typically marks the transition between the dry season up until April and the start of the wet season in May in the Bahamas, Belize, the Greater Antilles and the Guianas. In the Lesser Antilles, this period marks the second half of the dry season. The ABC Islands will remain in their long dry season. This is illustrated in the Figure below (Historical Average Rainfall Totals). Click on the image to see a larger map.



Temperature

- While temperatures typically remain comfortable in March, they increase steadily towards April and May, which are the first month of the heat season in Belize and Trinidad, and the remainder of the Caribbean Islands, respectively. Heat discomfort can arise during heat waves.

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