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 favourable or inclement climate conditions in the Caribbean. The period covered is December 2019 - February 2020. It is recommended that health stakeholders should use the combination of monitoring (August - October 2019) and forecast (December 2019 - February 2020) 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 December 2019 - February 2020?

- As of December 1st, the **2019 Hurricane Season is officially finished**, but storms and hurricanes can occur and have occurred after the official end date. Severe weather systems, which can come with a range of hazards, including high winds, landslides, flash floods, coastal flooding, among others, may still affect Caribbean territories. From January onward, this risk should be strongly reduced throughout the islands and Belize.
- Climatically, December to February forms the first half of the **Caribbean Dry Season** in Belize and the Caribbean Islands, characterized by a steady decrease in the frequency of wet days and the intensity of heavy showers. Conversely, the number of dry days and dry spells typically increases steadily towards February, drying the surface and foliage, which may increase the potential for wildfires and airborne particulates.
- Severe (or worse) **short term drought** (on a 3-6 months timescale) has developed in Barbados, the Cayman Islands, eastern Dominican Republic, northeastern Guadeloupe, northwestern Martinique, St. Vincent and southern Trinidad. At the same time, Aruba, Barbados, Cayman, eastern Cuba, eastern-, southern- and western-most Hispaniola, Martinique, western Puerto Rico, St-Barth, St. Thomas and Trinidad are in **long term drought** (on a 12 months timescale).
- **Short term drought** is evolving in the northwestern Bahamas, the Cayman Islands, and western Cuba *(medium to high confidence)* and might possibly continue in the far northern Bahamas, Barbados, parts of Belize, and northwestern Puerto Rico *(medium confidence)*. Short term drought may impact food production, potable water availability, as well as, water availability from small streams and small ponds.
- **Long term drought**, which may affect water availability across a multitude of socio-economic sectors in a country, is evolving in Barbados, much of Belize and the Cayman Islands *(high confidence)*, and may possibly develop or persist in the ABC Islands, most of Cuba, the Dominican Republic, Guadeloupe, Haiti, Trinidad and the Windward Islands (with the exception of Grenada) *(medium confidence)*. It should be noted that, wherever long term drought persists during the dry season, **drought impacts** typically worsen over time.
- Regionally, the forecast **rainfall totals** from December to February indicate drier than usual or, at best, the usual conditions in the Bahamas, Belize, the Cayman Islands and Cuba. By contrast, the usual or wetter conditions are forecast for the ABC Islands, Guianas and Windward Islands *(medium confidence)*.
- Though decreasing through February, the intensity and frequency of heavy showers tend to still be relatively high in some years and clustered in **wet spells** and **very wet spells** initially. By consequence, the **potential for flooding** is set to decrease steadily by January throughout Belize and the Islands *(high confidence)*. Flooding potential is forecast to be slightly enhanced compared to the period December to February in the previous two years in the ABC Islands and the Windward Islands *(low to medium confidence)*. In the coastal Guianas, where December to mid-February marks the secondary wet season, a steady decrease in flooding potential is expected during February *(medium confidence)*. Flooding potential is forecast to be slightly enhanced compared to the same period in the previous two years *(medium to high confidence)*.
- In December, up to one **extreme wet spell** occurs in Belize and the Caribbean Islands. By contrast, up to two extreme wet spells can occur in the coastal Guianas until the end of February. Extreme wet spells may coincide with thunderstorms and high winds, and often result in **flash floods**, which may be accompanied by land slippage, power outages and possible contamination of food and water supplies.
- **Night-time and day-time temperatures** in the Caribbean are forecast to feel seasonably comfortable *(high confidence)*, though evidence suggests it will probably be slightly warmer than usual for the coolest part of the year *(medium confidence)*.
- **Heat waves** are virtually nonexistent during the coolest three months of the year in any area of the Caribbean *(high confidence)*.
- The frequency of **Saharan dust** incursions into the Caribbean tends to be relatively low during this period. It should be noted that, in some years, significant Saharan dust episodes occur as early as February. (Access more detailed forecast information on dust and air quality in the Caribbean here: http://dafc.cimh.edu.bb/). Though initially low, **local dust** levels should be increasing towards February, particularly in areas currently experiencing short term drought.
- The **UV index** on sunny days will start increasing from high (6-7) in the northern Bahamas and very high (8-10) elsewhere in December and January, to very high (8-10) and extremely high (11-12) by the end of February (on a scale from 1 to 12. For more information, see: ttps://www.epa.gov/sunsafety/uv-index-scale-1). UV exposure is set to be dangerously elevated by February if no protective measures are taken.

Disclaimer

What are the Health Implications for December 2019 - February 2020?

Respiratory Illness

- Less frequent episodes of Saharan dust incursions into the Caribbean in the coming season may reduce risk of exacerbations of **allergic rhinitis** and **asthma** in susceptible persons; but this effect may be offset, at times, in areas where there is drying of the surface and foliage. This risk may be further exacerbated during wildfires.
- Increased humidity in the coastal Guianas during the wet season may promote mold growth in damp and poorly ventilated buildings, leading to increased respiratory symptoms.

Gastrointestinal Illness

- Where episodes of flooding may occur, cases of **gastroenteritis** and **ENT** may increase, where persons wade in flood waters (which could also inflict skin-disease), or consume foods contaminated by these waters. This is particularly the case in the coastal Guianas.

Non-communicable Diseases

- **Morbidity from excessive heat** due to high temperatures across the region should not be an issue in the period of interest.
- Though dangerous UV radiation will be at its annual minimum in December and January, excessive exposure can cause **skin damage** across the population on sunny days (for more information, see: https://www.epa.gov/sunsafety/uv-index-scale-1). The exposure will increase in February.

Vector-Borne Illness

- Where episodes of flooding may occur, particularly in the Guianas, 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.
- 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.
- During the early dry season, there is an increased chance of long term drought and recurrent dry spells are expected. Increased use of containers for storage may potentially create more breeding sites for mosquitoes, especially those associated with mosquito borne diseases, such as **Dengue**, **Chikungunya** and **Zika** which are of great concern for Caribbean territories. Access useful materials on mosquito control measures here: [https://www.paho.org/hq/index.php?option=com_content&view=article&id=12355:cde-mosquito-awareness-week&Itemid=42087&lang=en]

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. Although the 2019Hurricane Season has come to an end, health practitioners and administrators should still maintain a state of **readiness**.
- **Food insecurity** would be a concern due to the potential for extensive crop damage and/or loss due to drought and frequent dry spells in affected areas or resulting from flooding in the coastal Guianas.
- **Psychosocial impacts** are still being felt in the countries affected by the 2017 Hurricanes Irma and Maria and by the 2019 Hurricane Dorian. 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.

Disclaimer

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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: August to October 2019

Rainfall

- Parts of the region observed less than the usual rainfall, leading to short term drought in Barbados, the Cayman Islands, eastern Dominican Republic, northeastern Guadeloupe, northwestern Martinique, St. Vincent and southern Trinidad. By contrast, many areas in the Guianas have observed rainfall totals well above average, with extremely wet conditions in much of northern Guyana and southernmost Suriname.

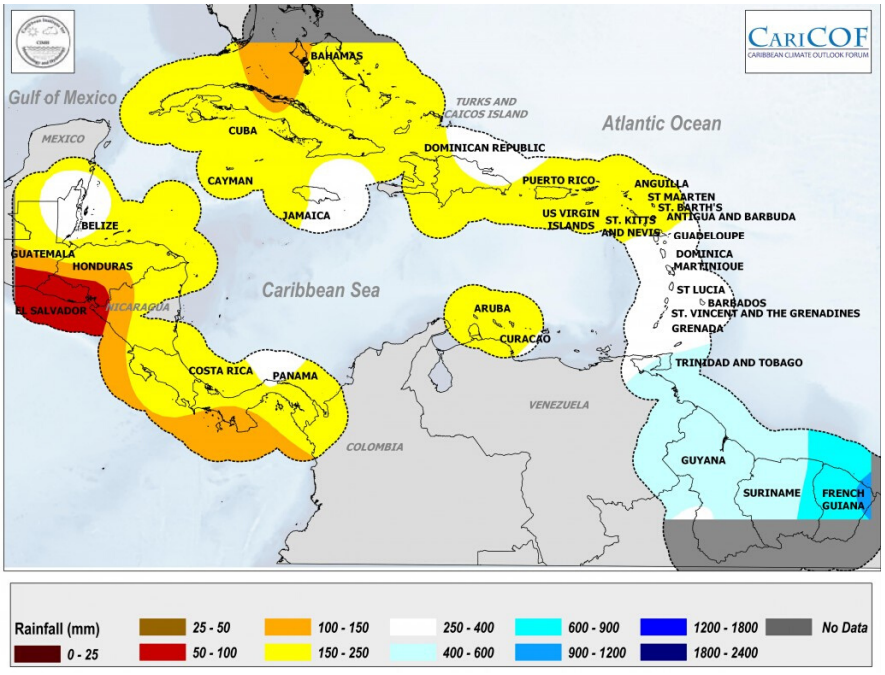
Temperature

- With the period forming the second half of the Caribbean heat season, including its annual peak, temperatures have recurrently been uncomfortably high for large sections of the population, particularly during heatwaves. Apart from Guadeloupe, northwesternmost Puerto Rico and northeastern-most French Guiana, most of the region was significantly warmer than average.

What do we Usually Expect for December to February?

Rainfall

- This period typically marks the early dry season in Belize and the Caribbean Islands, but the secondary wet season in the Guianas and the transition into the long dry season in the ABC Islands. This is illustrated in the Figure below (Historical Average Rainfall Totals). Click on the image to see a larger map.



Temperature

- December to February forms the coolest part of the year across the region, with generally comfortable 'feels-like' temperatures and an absence of heat waves.

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