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 March - May 2020. It is recommended that health stakeholders should use the combination of monitoring (November 2019 - January 2020) and forecast (March - May 2020) climate information presented in this Bulletin in tandem with weather forecasts (1-7 days) issued by the local meteorological service. 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 - May 2020?

- 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 (or worse) **short term drought** (on a 3-6 months timescale) has developed in the ABC Islands, central Bahamas, southeast Barbados, eastern Dominican Republic, eastern Guadeloupe, parts of northern French Guiana, northernmost Guyana, Saint Lucia, and St. Vincent. At the same time, the ABC Islands, the Antilles (except for Antigua, Western Cuba, Dominica, Grenada, western parts of Guadeloupe, western Jamaica, Puerto Rico and Tobago), northernmost and southeastern parts of The Bahamas, much of northern French Guiana, and the Turks & Caicos Islands are in **long term drought** (on a 12 months timescale).
- **Short term drought** is evolving by the end of May in the ABC Islands, Barbados, Belize, Dominica, Grenada, Guyana, NE Puerto Rico, Martinique, Saint Lucia, St. Vincent, and Trinidad & Tobago *(medium to high confidence)* and might possibly develop or continue in the Leeward Islands, Dominican Republic, northern French Guiana, and Suriname *(medium confidence)*. Short term drought may impact food production, potable water availability, as well as, water availability from small streams and small ponds and the potential for wildfires across the region.
- **Long term drought**, which may affect water availability across a multitude of socio-economic sectors in a country, is evolving in Antigua, Barbados, the northwestern half of Belize, Grand Cayman, parts of coastal and interior Guyana, much of the Dominican Republic, St. Kitts, the Windward Islands, and the USVI by the end of May *(high confidence)*, and may possibly develop or persist in most other areas *(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 March to May indicate as dry as usual or drier conditions in the ABC Islands, the Leeward Islands and Trinidad & Tobago, but likely the usual or wetter in the Bahamas, Cuba, eastern parts of the Guianas and Jamaica *(medium confidence)*.
- **Night-time and day-time temperatures** in the Caribbean are forecast to warm up into May *(high confidence)* and are likely to be at least as warm as usual across most of the Caribbean *(medium to high confidence)*. At times, the heat may become uncomfortable across the region, especially in the event of **heat waves** which are relatively frequent during the month of May in Belize and Trinidad *(high confidence)*.
- The frequency of **Saharan dust** incursions into the Caribbean tends to increase during this period to peak starting in May. It should be noted that, in some years, significant Saharan dust episodes also occur in March and April. (Access more detailed forecast information on dust and air quality in the Caribbean here: http://dafc.cimh.edu.bb/). **Local dust** levels should be increasing during prolonged dry spells and towards the end of the dry season.
- The **UV index** on sunny days will increase from very high (8-10) in the northernmost part of the region and extremely high (11-12) in the Guianas in March to extremely high across the region by May (on a scale from 1 to 12. For more information, see: https://www.epa.gov/sunsafety/uv-index-scale-1). UV exposure is set to be dangerously elevated if no protective measures are taken. For simple action steps on sun protection see: https://www.who.int/features/qa/40/en/

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What are the Health Implications for March - May 2020?

Respiratory Illness

- There may be an increase in symptoms in persons with **asthma**, and in persons prone to **allergic rhinitis** due to more frequent episodes of Saharan dust incursions into the Caribbean, as well as due to local dust kicked up when the ground surface is dry.
- This may be offset by a decrease in allergic reactions to fungal spores from mould at least until the end of April. By contrast, increased humidity in the Greater Antilles and the Guianas from May onwards may cause dampness in some poorly ventilated residences and offices resulting in the growth of mould. In the Lesser Antilles, increased allergens in the atmosphere may occur from plant materials (e.g. pollen) driven by increased wind speeds and reduced washing out by rain. These factors may also trigger increased incidences of **upper respiratory tract symptoms**.
- Where episodes of flooding may occur, there is an increased risk of **ENT infections** from contaminated water in the Guianas, the Greater Antilles and Belize.

Non-communicable Diseases

- Higher temperatures, beginning in May, can increase the risk of morbidity from **heat stress** in vulnerable persons, especially smaller children and the elderly.
- Throughout the 3-month period, there will be an increased risk of dehydration, which may present with symptoms such as apathy, general weakness, dizziness, fainting, and, in extreme cases, kidney failure.
- During this period, excessive exposure due to dangerous UV radiation can cause **skin damage** across the population on sunny days (for more information, see: https://www.epa.gov/sunsafety/uv-index-scale-1).
- There is the possibility of **skin infections** due to contact with contaminated stagnant and/or floodwaters in Belize, the Greater Antilles and the Guianas in May.

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 2020 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 an 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.

Gastrointestinal Illness

- Cases of **gastroenteritis** may increase in frequency in The Bahamas, Belize, much of the Greater Antilles and the Guianas from the start of the wet season.
- In the event of flooding, contamination of food crops and water supplies might occur outdoors and contamination of household food and water supplies may occur with household inundation.

Vector-Borne Illness

- The presence of stagnant water in the aftermath of a flood may promote the breeding of mosquitoes and increase the risk of diseases such as **Dengue, Chikungunya, Zika and Yellow Fever** which remain a perennial concern for Caribbean territories. Access to additional information on these mosquito-borne diseases can be found here: http://carpha.org/What-We-Do/Public-HealthActivities/Dengue
- There may be accelerated mosquito proliferation in communities where water is stored in containers without protective mesh, especially at times of drought.
- At the household level, careful attention should be given to the management of water storage containers. This includes properly securing mosquito screens onto 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:cdemosquito-awareness-week&Itemid=42087&lang=en
- At the Ministry level, the focus should be on public education and awareness on source reduction. If fogging operations are considered, advice from the local meteorological services on temperature, wind speed, humidity etc. should be sought.
- Increased rainfall in The Bahamas, Belize, the Greater Antilles and the Guianas may also create more breeding places for mosquitoes from May onwards when the wet season starts again. In addition, there is also the possibility of impacts of new and reemerging diseases related to *Aedes aegypti*.
- Some mosquito eggs laid last year may still be present in breeding areas and may become activated by settling rainwater, thus contributing to increased mosquito populations.
- There is an increased risk of **Leptospirosis** due to displacement of rodent vectors from their usual habitats and potential movement into houses, increasing the risk of contamination of household surfaces and food-stores with rodent urine.

Contact Information

For More Information Contact:
Ms. Shermaine Clauzel
Email: clauzesh(at)carpha.org

Dr. Laura-Lee Boodram
Email: boodral(at)carpha.org

Eng. Adrianus Vlugman
Email: vlugmana(at)paho.org

Ms. Sally Edwards
Email: edwardss(at)paho.org

Dr. Karen Polson-Edwards
Email:polsonkar(at)paho.org

Mr. Wayne Depradine
Email: wdepradine(at)cimh.edu.bb

Dr. Roché Mahon
Email: rmahon(at)cimh.edu.bb

Dr. Cédric J. Van Meerbeeck
Email: cmeerbeeck(at)cimh.edu.bb

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 2019 - January 2020

Rainfall

- Parts of the region observed less than the usual rainfall, leading to short term drought in the ABC Islands, central Bahamas, southeast Barbados, eastern Dominican Republic, eastern Guadeloupe, parts of northern French Guiana, northernmost Guyana, Saint Lucia, and St. Vincent. By contrast, Puerto Rico and southwestern Dominica have observed rainfall totals well above average.

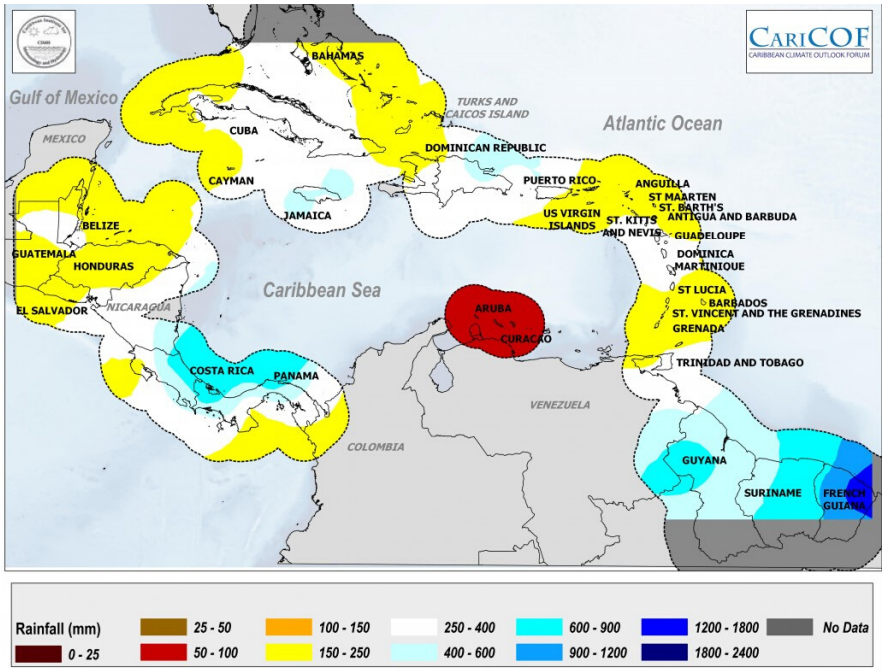
Temperature

- Most of the Caribbean has been significantly warmer than average, especially in parts of the Northwestern Bahamas, western Jamaica and French Guiana during this transition period out of the heat season (May to October) and into the cool season (December to March).

What do we Usually Expect for March to May?

Rainfall

- This period typically marks the late dry season in Belize and the Caribbean Islands, with May marking the onset of the early wet season in the Greater Antilles. March to April further marks the secondary dry season in the coastal Guianas, where the primary wet season starts in May. The March to May period is a part of 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

- March is the last month of the cool season. From April onwards, temperatures rise to become uncomfortable at times during May, which forms the first month of the heat season across the region. In Belize and Trinidad, a peak in the number of heatwaves typically occurs during May. That said, with the exception of the Guianas, air humidity is typically at its lowest during the late dry season, moderating 'feels-like' temperatures as compared to the second half of the heat season (i.e. August to October).

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