

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 2021. It is recommended that health stakeholders should use the combination of monitoring (November 2020 - January 2021) and forecast (March-May 2021) 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 - May 2021?

- 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. The second half of the dry season typically sees an increase in **wildfire potential**.
- A moderate **La Niña** event has started in September 2020. It is expected to more likely than not remain in place in March-April-May 2021. La Niña tilts the odds towards a wetter March to May season in the Guianas, enhancing flood potential there in May. Sometimes, La Niña can also reduce rainfall somewhat in the Bahamas and Greater Antilles at this time.
- Regionally, **forecasts of rainfall totals** are not typically very confident for the period March to May. That said, the current March to May forecast does indicate at least as high as usual rainfall in Belize and the western half of the Guianas (*medium confidence*).
- That said, the intensity of heavy showers increases towards May, especially in the Greater Antilles and the Guianas. Consequently, despite being *marginal* in March, the potential for **flooding** increases to between *limited and moderate* in April and May (*high confidence*). In the 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 and are more likely in Guyana in May this year than in most years. 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.
- **Short term drought** (on a 3-6 months timescale) is evolving, with impacts expected by the end of May in the northernmost parts of The Bahamas, the Cayman Islands, Western Cuba and eastern parts of the Dominican Republic (*medium to high confidence*) and might possibly develop or continue in the Leeward Islands, other parts of the 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, small ponds. Short term drought may increase the potential for wildfires across the region.
- **Long term drought** (on a 12 months timescale) may affect water availability across a multitude of socio-economic sectors in a country. Long term drought has developed in southwest Belize, along the south coast of the Dominican Republic, south-westernmost Jamaica, and along the Windward Islands. Long term drought is evolving, with expected impacts by the end of May in Aruba and southwest Belize (*high confidence*), and may possibly develop or persist in Central Cuba, Dominica, northern parts of the Dominican Republic, Grenada, Martinique, St. Vincent, US Virgin Islands (*medium confidence*). It should be noted that, wherever long term drought persists during the dry season, drought impacts typically worsen over time.
- 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 westwards of Hispaniola (*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 Caribbean Heat Season, which starts in May and ends in October, is regionally not expected to start off as intensely as in 2020.
- 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/uvindex-scale-1>). 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 - May 2021?

Respiratory Illness

-  The short term drought and associated increase in dust, as well as, potential soot and smoke from bushfires may contribute to higher concentrations of airborne particulate matter. This could result in an increase in **acute respiratory illnesses**.
-  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 being suspended in the air when the ground surface is dry.
-  This may be offset by a decrease in allergic reactions to fungal spores from mold at least until the end of April. By contrast, increased humidity in the Guianas and Belize from May onwards may cause dampness in some poorly ventilated residences and offices resulting in the growth of mold. In the Caribbean islands, 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 across the region, particularly in April and May.

Gastrointestinal Illness

-  Drought conditions, though regionally less prevalent than at this time in 2020, 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**.
-  Cases of **gastroenteritis** may increase in frequency across the region, particularly in the Guianas and Belize during May, due to contamination of food and water supplies, and contact with flood waters.

Non-communicable Diseases

-  Higher temperatures and heat waves, beginning in May, can increase the risk of morbidity from **heat related health effects** such as apathy, general weakness, dizziness, fainting, exhaustion (**heat strain**) and, in extreme cases, kidney failure in persons living in conditions of vulnerability, especially smaller children and the elderly. For information on heat and health see: https://www.who.int/health-topics/heatwaves#tab=tab_1 and <https://ghn.org/>
-  During this period, excessive exposure due to dangerous UV radiation can cause **skin damage** across the population, especially on sunny days (for more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>). For simple action steps on sun protection see: <https://www.who.int/features/qa/40/en/>
-  There is the possibility of **skin infections** due to contact with contaminated stagnant and/or floodwaters in Belize, and the Guianas in May.

Vector-Borne Illness

-  Increased rainfall and the more frequent occurrence of stagnant water from flooding towards May, particularly in Belize and the Guianas, may create more breeding sites for the *Aedes aegypti* and *Aedes albopictus* mosquitoes which are the vectors of diseases such as **Dengue, Chikungunya, Zika and Yellow Fever**. These diseases remain a perennial concern for Caribbean territories.
-  With drought evolving in a few locations and with recurrent dry spells across the region in this period, there may be increased use of containers for water storage.
-  At the household level, careful attention should be given to the management of water storage containers. This includes mosquito proofing water tanks, barrels, drums and buckets.
-  At the Ministry level, the focus should be on public education and awareness on source reduction and personal protection. If fogging operations are considered, advice from the local meteorological services on temperature, wind speed, humidity etc. should be sought.
-  Access to additional information on these mosquito-borne diseases and vector control measures can be found here: <https://www.carpha.org/What-We-Do/Public-Health/Dengue>
<https://www.paho.org/en/campaigns/caribbean-mosquito-awareness-week-2020>
<http://missionmosquito.carpha.org/>
-  Flooding may increase the risk of **Leptospirosis** due to displacement of rodent vectors from their usual habitats into houses, increasing the risk of contamination of flood waters, household surfaces and food-stores with rodent urine.

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, particularly in the Guianas. With the possibility of tropical cyclones before the official start of the 2021 Atlantic Hurricane Season, health practitioners and administrators should maintain a **state of readiness**.
-  **Food insecurity** would be a concern due to the potential for extensive crop damage and/or loss due to frequent dry spells across the region. A similar concern arises as a result of the high flood potential in the Guianas in May.
-  When impactful hazards have seasonal patterns, like extreme weather events, floods and drought, mental health effects may increase as alerts and events arise. Health care professionals are therefore advised to be aware of these issues, as they interact with patients.

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What are the Health Implications for March - May 2021? (continued)

COVID-19 and Climate Impacts



- Due to the ongoing COVID-19 pandemic, water availability is critical to support **prevention strategies** to combat the COVID-19 pandemic, especially with regards to safe water availability for hygiene purposes.



- Flooding may affect water quality, which is critical to support **prevention strategies** to combat the COVID-19 pandemic. Special attention should be paid to communities with interrupted or limited access to safe water over the coming period.



- Any disaster occurring, will compound **psychosocial** impacts related to the COVID-19 pandemic particularly disasters arising from extreme weather events.



- Extreme weather events or disasters may cause an increased burden on already stressed **healthcare services** and the rollout of **vaccination campaigns**.



- When an impending extreme weather event occurs, **shelters** will require reorganisation to accommodate COVID-19 prevention strategies.

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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 2020 - January 2021

Rainfall

- The period stood out in terms of recurrent extreme rainfall events causing flooding, flash floods and related hazards Belize and Cuba. The secondary wet season was wet to exceptionally wet in the Guianas. By contrast, moderate (or worse) shorter term drought has developed in southernmost parts of southern Dominica, northern Martinique, Sint Maarten/St-Martin and northwest Trinidad.

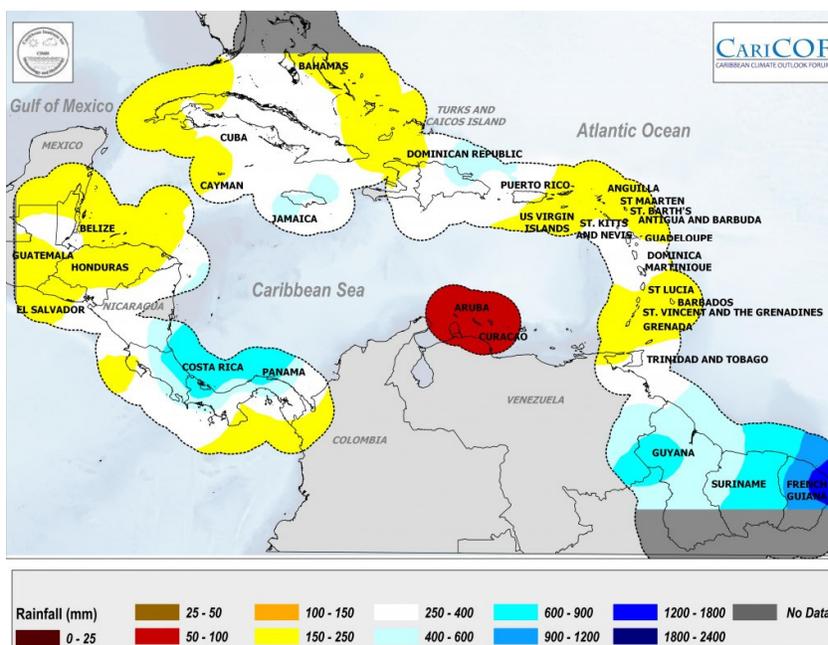
Temperature

- With November forming the transition into the December to March cool season, comfortable temperatures returned to the region after an otherwise hot 2020. Even then, much of the Caribbean was still warmer than average, especially in The Bahamas, Jamaica and Trinidad & Tobago. By contrast, Antigua, Guadeloupe and parts of Suriname were slightly cooler than average.

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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