

Caribbean Health Climatic Bulletin

Vol 5 | Issue 2

June 2021

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 June-August 2021. It is recommended that health stakeholders should use the combination of monitoring (February - April 2021) and forecast (June-August 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 June - August 2021?



- The **2021 Atlantic Hurricane Season** officially starts on June 1st and is forecast to be active with the consensus suggesting close to 18 named storms (i.e. tropical storm, hurricane or major hurricane), including around 8 hurricanes, of which around 3 could intensify into a major hurricane (i.e. category 3, 4 or 5 on the Saffir-Simpson scale) over the entire season. One named storm (Ana) already occurred in late May. The CIMH further forecasts around 7 named storms for June to August, but with a large uncertainty of between 2 and 10 storms.
- **Severe weather systems**, including but not restricted to named storms, can come with a range of hazards, including high winds, landslides, flash floods, among others, which are expected to affect Caribbean territories. Persons should keenly monitor weather advisories issued by the National Meteorological Services and other information provided by the Caribbean Disaster Emergency Management Agency (<http://cdema.org/>) and the US National Hurricane Center (<https://www.nhc.noaa.gov/>).
- June to August forms the **first half of the Caribbean Wet Season** with a fair number of wet days and longer wet spells, and a decreasing number of short dry spells. These trends result in a decrease in dryness, wildfire potential and dust levels, as well as an increase in water levels in soils, rivers and reservoirs. However, when dry spells lasting several days do occur, they may coincide with incursions of **Saharan dust**, which tends to be most frequent around this time of the year, particularly in the Lesser Antilles.
- The intensity and frequency of heavy showers tends to be relatively high and, at times, clustered in **very wet spells**, with even a strong chance for the occurrence of **extreme wet spells** throughout the period, particularly towards August. As a consequence, the potential for **flash floods, long-term flooding and cascading impacts** will increase from *moderate* (i.e. occurs two to five times in 10 years) to *high* (i.e. occurs once every other year or even more often) by August throughout the Bahamas, Belize, the Greater Antilles and the Lesser Antilles. By contrast, in the Guianas, this potential will decrease from *high* to *moderate* by August, whereas, in the ABC Islands, this potential remains *limited* (i.e. occurs once or twice in 10 years) throughout the period. Extreme wet spells may coincide with thunderstorms and high winds, and may result in flash floods, land slippage or rock fall, power outages and possible contamination of food and water supplies.
- Even drier than average conditions during the peak months of the dry season (February to April) has led to **short-term drought** in Antigua, most parts of The Bahamas, southwest Belize, Cuba, southeastern-most Hispaniola, St. Kitts and Sint Maarten/St-Martin. From June to August we expect at least the usual amount of **rain** across most parts of the Caribbean. With the forecasted rainfall up until August, places currently affected by short-term drought should see notable improvements in coming months, with virtually no major drought impacts expected by the end of August. Until then, short-term drought may impact food production, potable water availability, as well as, water availability from small streams and small ponds. With the forecasted short term drought relief for most, the potential for bushfires should largely subside, reducing the occasional increases in smoke and soot concentrations in the air.
- Though unlikely to be accompanied by major short-term drought impacts, less rainfall than usual may accumulate from June to August in the ABC Islands, Barbados, Belize, Trinidad and Tobago, and the Windward Islands. The potentially drier than usual conditions in these places would be driven by a cooler than usual Tropical North Atlantic Ocean and Caribbean Sea.
- Although last year's wet season rains were plenty in a majority of locations, **long-term drought** has developed in southwest Belize, along the south coast of Hispaniola, St. Croix, St. Kitts and the west coasts of the Windward Islands. Ongoing long-term drought, which can affect water availability across a multitude of socioeconomic sectors in a country, should subside by the end of November, with the possible exception of western parts of central Belize and St. Vincent and the Grenadines.
- Night-time and day-time **temperatures** in the Caribbean are set to remain high throughout this portion of the Caribbean's annual heat season which starts in April/May and ends in October. The exception is the Guianas which tend to be slightly cooler during their primary wet season lasting through the end of July. At the same time, humidity and the associated **heat stress** will steadily increase through August, and will peak during heatwaves. Note that, over the three-month period as a whole, night-time low temperatures may be higher than usual in the ABC Islands, the Bahamas, the Cayman Islands and Cuba, but possibly cooler than usual in Guyana and the Leeward Islands. In addition, the usual or higher daytime (high) temperatures are forecast for the Cayman Islands and locations southwards of Guadeloupe. In the Caribbean Islands, the monthly number of **heatwaves** (and heatwave days) strongly increases from June (between 0 and 8 heatwave days depending on the location) to August (6 to 12 heatwave days) (*high confidence*).
- The **UV index** on sunny days will be extremely high (factor 12) around noontime (on a scale from 1 to 12. For more information see: <https://www.epa.gov/sunsafety/uv-index-scale-1>).

Disclaimer




This Bulletin provides a broad overview of climate conditions up to 3 months in advance. It is based on insights drawn from CIMH's suite of technical climate information products and epidemiological insights from CARPHA and PAHO. The information contained herein is provided with the understanding that the CARPHA, the PAHO and the CIMH make no warranties, either expressed or implied, concerning the accuracy, completeness, reliability or suitability of said information. The Bulletin may be freely used and disseminated by the public with appropriate acknowledgement of its source but shall not be modified in content and then presented as original material.

What are the Health Implications for June - August 2021?



Respiratory Illness

-  • Frequent episodes of Saharan dust incursions into the Caribbean in the coming season may increase the risk of exacerbations of **allergic rhinitis** and **asthma** in susceptible persons. In the areas where short term drought is progressively subsiding, there may still be relatively high atmospheric dust concentrations, as well as, potential soot and smoke from bushfires. Such conditions may contribute to higher concentrations of airborne particulate matter. This could result in an increase in **acute respiratory illnesses**, as well as **ocular allergies**.
-  • The increased humidity towards the end of July in the coastal Guianas, as well as, in Belize and the Caribbean Islands towards the end of August may promote mold growth in damp and poorly ventilated buildings, leading to increased respiratory symptoms.




Gastrointestinal Illness

-  • Following extreme weather events or disasters, there is an increased chance that the conventional means of water supply may be compromised resulting in persons seeking alternative water resources where the water is untreated and the water quality is unknown. This has the potential to increase gastrointestinal illness.
-  • Where episodes of flooding may occur, cases of **gastroenteritis** may increase, where persons consume foods contaminated by these waters. Wading in flood waters could also result in an increase in skin infections due to contact with contaminated, stagnant and/or flood waters, especially in the coastal Guianas. This is increasingly the case across Belize and the Caribbean islands towards the end of August, although the likelihood decreases in the coastal Guianas after July.
-  • Any lingering drought conditions may temporarily increase concentrations of water pollutants for small reservoirs and tanks and, in terms of long-term drought, for very large reservoirs. Additionally, a reduction in water pressure in distribution systems may result in cross-contamination and use of alternative, unsafe sources, in turn potentially causing higher incidences of gastrointestinal illness.





Non-communicable Diseases

-  • **Morbidity from excessive heat** due to high temperatures and increasing humidity, especially during heat waves, is likely to increase across the region towards August. Throughout the three-month period, there will be an increased risk of heat stress which may present as a worsening in chronic conditions such as cardiovascular, respiratory, cerebrovascular disease and diabetes related conditions. Symptoms can include lethargy, general weakness, dizziness, fainting and, in extreme cases, kidney failure. More information may be found at: <https://ghhin.org/heat-and-health/>
-  • Dangerous UV radiation may lead to excessive UV exposure, which can cause **skin damage**, if persons do not take preventative measures.

Vector-Borne Illness

-  • Episodes of flooding may occur in any area of the Caribbean during this period. In such cases, there is increased risk of **Leptospirosis** due to displaced rodents that could contaminate flood waters, household items and food containers.
-  • 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 in the short term.
-  • Where there is lingering drought and in the few areas where dry spells remain frequent during 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 more breeding sites for mosquitoes, especially those associated with diseases, such as **Dengue**, **Chikungunya** and **Zika**. Proper management of water storage containers e.g., covering with protective mesh helps to reduce this risk. Access useful CARPHA materials on mosquito control measures here: <https://carpha.org/What-We-Do/Public-Health/Dengue>. Access useful PAHO materials on mosquito control measures here: https://www.paho.org/hq/index.php?option=com_content&view=article&id=12355:cdemosquito-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, are expected to affect Caribbean territories. With the possibility of tropical cyclones, health practitioners and administrators should maintain a state of **readiness**.
-  • During extreme weather events or disasters, **vulnerable populations** may have an increased need for medical care as they face a greater risk of poor health and even death. Health care providers and other stakeholders should clearly define vulnerable populations and identify their locations to develop tailored strategies for assisting them.
-  • Increased heat stress associated with heatwaves, can increase **mood-affective** and **stress-related disorders**, as well as, other mental and behavioral disorders. Persons taking medication for mental health disorders are at increased risk of heat-health effects.
-  • In drought-affected areas, **food insecurity** is a concern due to the potential for crop damage and loss or inability to have productive cropping.

Disclaimer

This Bulletin provides a broad overview of climate conditions up to 3 months in advance. It is based on insights drawn from CIMH's suite of technical climate information products and epidemiological insights from CARPHA and PAHO. The information contained herein is provided with the understanding that the CARPHA, the PAHO and the CIMH make no warranties, either expressed or implied, concerning the accuracy, completeness, reliability or suitability of said information. The Bulletin may be freely used and disseminated by the public with appropriate acknowledgement of its source but shall not be modified in content and then presented as original material.

What are the Health Implications for June - August 2021? (continued)

COVID-19 and Climate Impacts



- Water availability is critical to support prevention strategies to combat the COVID-19 pandemic, especially with regards to safe water for hygiene purposes. Flooding post an extreme weather event may affect water quality.. Special attention should be paid to communities with interrupted or limited access to safe water over the coming period. Further details on water, sanitation and hygiene practices related to the COVID-19 pandemic can be found here:

<https://www.carpha.org/Portals/0/Documents/Technical%20Guidance/Water%20Sanitation%20Hygiene%20and%20Waste%20Management%20during%20the%20COVID-19%20Pandemic.pdf>



- 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**. National health systems must factor the above issues into multi-hazard disaster response planning for the upcoming months.



- Prior to or following an extreme weather event, displaced persons may require the use of an evacuation shelter. Shelter management is critical during the COVID-19 pandemic as additional measures must be taken to ensure maintenance of physical distancing, appropriate hygiene and respiratory protection. Further information on shelter management during the COVID-19 pandemic can be found here:

<https://www.carpha.org/Portals/0/Documents/Technical%20Guidance/Emergency%20Shelter%20Management%20in%20the%20Caribbean%20during%20the%20COVID-19%20Pandemic.pdf>

Disclaimer

This Bulletin provides a broad overview of climate conditions up to 3 months in advance. It is based on insights drawn from CIMH's suite of technical climate information products and epidemiological insights from CARPHA and PAHO. The information contained herein is provided with the understanding that the CARPHA, the PAHO and the CIMH make no warranties, either expressed or implied, concerning the accuracy, completeness, reliability or suitability of said information. The Bulletin may be freely used and disseminated by the public with appropriate acknowledgement of its source but shall not be modified in content and then presented as original material.

Contact Information

For More Information Contact:

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

Dr. Jonathan Drewry
Email: drewryjon(at)paho.org

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

Ms. Sally Edwards
Email: edwardss(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: February - April 2021

Rainfall

- This period in the dry season stood out in terms of short-term drought in many areas north and west of Guadeloupe contrasted with wetter than usual conditions to the south. This pattern was, at least in part, driven by a fading La Niña event.
- Curaçao, large parts of the Guianas, and Trinidad were wet to exceptionally wet compared to average for this season. By contrast, even drier than average conditions for this part of the dry season led to short-term drought in Antigua, most parts of The Bahamas, southwest Belize, Cuba, southeastern-most Hispaniola, St. Kitts and Sint Maarten/St-Martin.

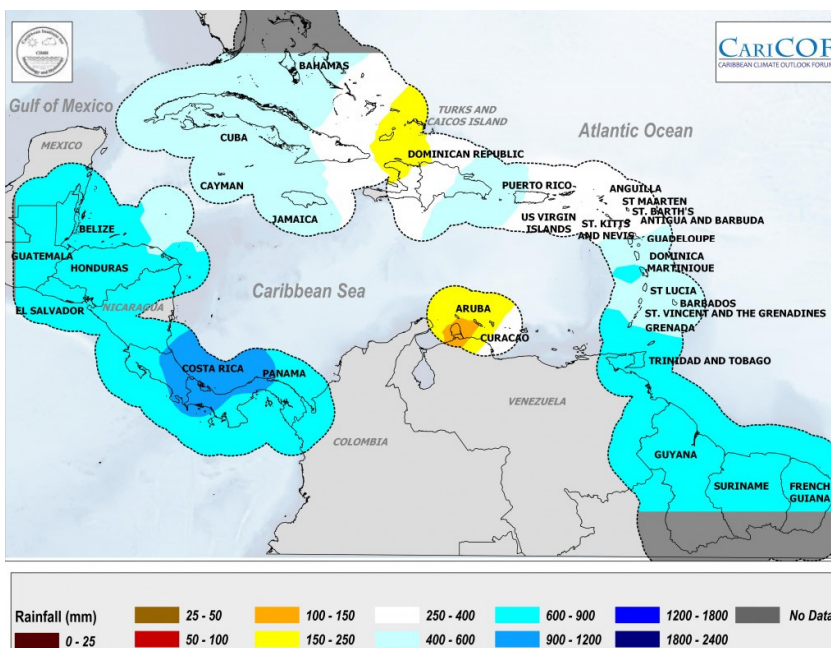
Temperature

- With February and March being the second half of the Caribbean cool season, and despite that April marks the transition out of the cool season and into the Caribbean Heat Season, comfortable temperatures were felt throughout most of the region. Some places even recorded slightly cooler than average temperatures, including Guadeloupe, much of Guyana, southeastern Jamaica and parts of Suriname.

What do we Usually Expect for June to August?

Rainfall

- This period typically marks the first half of the wet season in Belize and the Lesser Antilles, the centre of the wet season in The Bahamas and the Greater Antilles, the transition from the primary wet season to the dry season during August in the Guianas, and 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

- June to August forms part of the Caribbean Heat Season (which runs from April/May to October), with the annual peak in 'feels-like' temperatures usually starting in August. The likelihood and frequency of heatwaves throughout the region is relatively low in June and July, but high in August. Similarly, air humidity tends to increase while wind speed decreases into August. This makes the 'feels-like' temperatures more stressful to the vulnerable sections of the population, and even to most persons during intense heatwaves.

Disclaimer

This Bulletin provides a broad overview of climate conditions up to 3 months in advance. It is based on insights drawn from CIMH's suite of technical climate information products and epidemiological insights from CARPHA and PAHO. The information contained herein is provided with the understanding that the CARPHA, the PAHO and the CIMH make no warranties, either expressed or implied, concerning the accuracy, completeness, reliability or suitability of said information. The Bulletin may be freely used and disseminated by the public with appropriate acknowledgment of its source but shall not be modified in content and then presented as original material.