

Caribbean Health Climatic Bulletin

Vol 3 | Issue 2

June 2019

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 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 June to August 2019. It is recommended that health stakeholders should use the combination of monitoring (February - April 2019) and forecast (June - August 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 June to August 2019?

- The **2019 Hurricane Season officially starts on June 1st**, but storms and hurricanes have occurred before the official start date (including 1 named Tropical Storm this year). 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.
- 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 May and ends in October, with the exception of the Guianas which tend to be cooler from June to July.
- **Heat waves** tend to become more frequent by July in The Bahamas and the Turks and Caicos Islands, and the Greater Antilles, as well as, by August in the rest of the Caribbean. At the same time, humidity and the associated **heat stress** will steadily increase through August, and will peak during heat waves. In view of an ongoing drought and associated dry spells, which increase the chance of heat waves, heat stress is expected to be a greater concern than in 2017 and 2018 (*medium to high confidence*).
- The forecasts suggest warmer than usual temperatures during both day and night, with an increase in the frequency of **heatwaves** when compared to the past two years (*high confidence*).
- Climatically, June to August forms the **first half of the Caribbean Wet Season** with a fair number of wet days and longer wet spells, but at the same time still a number of short dry spells. Some of these dry spells may coincide with incursions of Saharan dust, which tend to be most frequent around this time of the year, particularly in the Lesser Antilles.
- Regionally, **rainfall totals** from June to August are forecast to likely be the usual or drier than the usual across Belize and the Caribbean Islands, with the possible exception of northern Hispaniola (*medium to high confidence*).
- As a result of drier than usual conditions persisting since the 2018 wet season, water resources have been depleted throughout much of the region, with many areas now under **drought**. This drought is associated with an ongoing 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.
- **Short term drought** (on a 3-6 months timescale) is evolving in Martinique and will possibly persist in the ABC Islands, Antigua, Barbados, much of Belize, eastern Dominican Republic, central French Guiana, north-eastern Puerto Rico, St. Martin, Trinidad, and the US Virgin Islands. Short term drought may impact food production, potable water availability, as well as, water availability from small streams and small ponds. This may further increase the potential for bushfires and (temporarily) increase smoke and soot concentrations in the air.
- **Long term drought** (on a 12 months timescale), which may affect water availability across a multitude of socio-economic sectors in a country, is evolving in Suriname and northern French Guiana (*medium to high confidence*), and may possibly persist in Barbados, west-central Belize, Dominica, Grenada, Martinique, central French Guiana, northern Guyana, Saint Lucia, St. Martin, St. Vincent and the Grenadines, Trinidad and Tobago, and the USVI (*medium confidence*).
- The intensity and frequency of heavy showers tend to be relatively high and clustered in **wet spells** and **very wet spells** throughout the period. Consequently, there is potential for flooding throughout the region (*high confidence*), although slightly reduced compared to 2017 and 2018. In the coastal Guianas, flooding potential should start decreasing in August, with the return of their primary dry season (*high confidence*).
- **Extreme wet spells**, of which usually up to one or two occur during these three months (except in the ABC Islands), 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.
- Episodes of **Saharan dust** incursions into the Caribbean tend to be most frequent during this period (access more detailed forecast information on dust and air quality in the Caribbean here: <http://dafc.cimh.edu.bb/>). In addition, with ongoing drought, local dust levels could be on the high end.
- The **UV index** on sunny days will be 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>). UV exposure is set to be dangerously elevated if no protective measures are taken.

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.

What are the Health Implications for June to August 2019?

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. 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. Towards the month of August, this effect may be offset by the increased humidity in Belize and the Caribbean Islands, and towards the end of July in the coastal Guianas, which may promote mold growth in damp and poorly ventilated buildings, leading to increased respiratory symptoms.

Gastrointestinal Illness



- Drought conditions may increase concentrations of water pollutants. Additionally, a drop in water pressure may result in cross-contamination and alternative use of unsafe sources, in turn potentially causing higher incidences of 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 the case across the region throughout the period, although the likelihood decreases in the coastal Guianas after July.

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 dehydration which may present an associated increase in its symptoms such as lethargy, general weakness, dizziness, fainting and, in extreme cases, kidney failure.



- If unprotected, dangerous UV radiation may lead to excessive UV exposure, which can cause **skin damage** across the population (for more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>).

Vector-Borne Illness



- With ongoing drought and with recurrent dry spells 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 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)



- 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.

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, 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, particularly early on during this period.



- When disasters have seasonal patterns, like hurricanes, floods and drought, **psychosocial** impacts such as anxiety among survivors may increase as alerts on isolated events arise. Health care professionals are therefore advised to be sensitive to these issues, as they interact with patients.



- 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 various vulnerable populations and develop tailored strategies for assisting them.

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.

Contact Information

For More Information Contact:

Ms. Shermaine Clauzel
Email: clauzesh(at)carpha.org

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

Eng. Adrianus Vlugman
Email: vlugmana(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: February to April 2019

Rainfall

- Many parts of the Caribbean observed less than the usual rainfall. Severe (or worse) short term drought has developed in Aruba, French Guiana, the Northern Leewards, parts of Martinique. Severe (or worse) long term drought has developed in Barbados, Southeastern Belize, Southernmost Cuba, northern French Guiana, central coast of Guyana, much of Hispaniola, northeastern Jamaica, northern Leewards, Martinique, St. Lucia and Tobago.

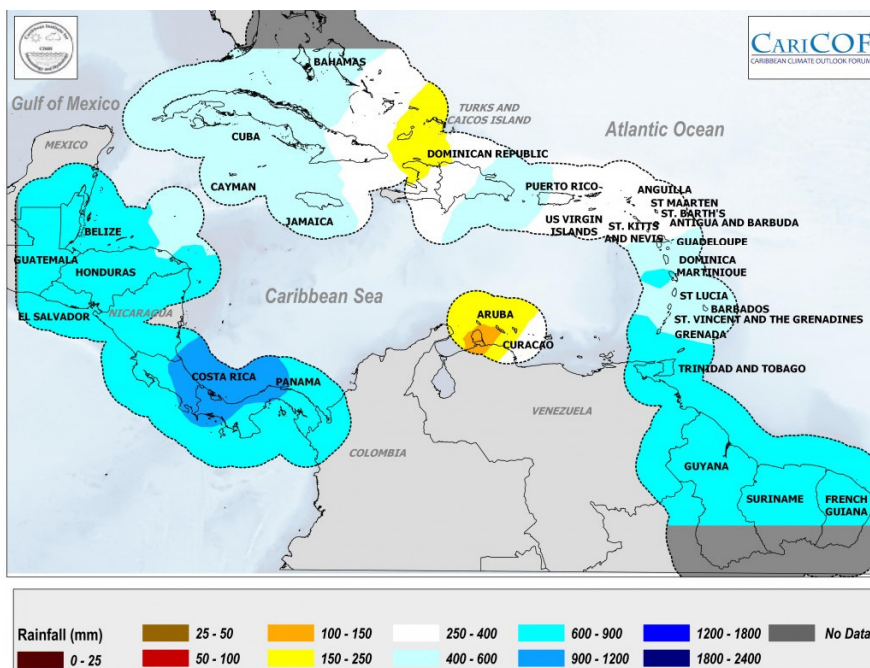
Temperature

- Temperatures have been steadily increasing from February to April, which marks the end of the cool season (November to April) with generally comfortable temperatures. Slightly to significantly warmer than average conditions were nevertheless recorded for this part of the year, exceeding 1.5°C above average in The Bahamas and the Guianas.

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 and 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 May to October), with the annual peak in 'feels-like' temperatures usually starting in August. The likelihood and frequency of heat waves throughout the region is relatively low in June and July, but high in August.

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.