

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

- The **2020 Hurricane Season officially lasts until November 30th**, with the peak of tropical cyclone activity typically lasting until around mid-October, but storms and hurricanes have occurred after the official end date. The 2020 Hurricane Season has already brought about 13 named Tropical Storms, 4 hurricanes and 1 major hurricane as of 26 August 2020. As of early-August, there remained a strong consensus that this year will bring a **particularly active season** with a forecasted 2020 season total of between 19-25 named storms, of which there would be between 7-11 hurricanes (*high confidence*). Higher numbers are not precluded. 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.
- Climatically, September to November forms the **second half of the Caribbean Wet Season** with a large number of wet days and frequent wet spells, but at the same time, still a number of short dry spells, particularly in the Greater Antilles. This year, the possibility of a *La Niña* event in the Pacific, as well as, particularly high ocean temperatures around the Caribbean both tilt the odds towards even more frequent and more intense rainfall, and higher rainfall totals across the Caribbean (*medium confidence*).
- The intense and frequent heavy showers clustered in **very wet spells** throughout the period results in a **high potential for long-term flooding** in flood-prone areas of Belize and the Caribbean Islands (*high confidence*). Moreover, the forecast suggests a higher than usual number of very wet spells, further increasing flooding potential (*medium confidence*). By contrast, in the coastal Guianas, flooding potential should be relatively low up until the onset of their secondary wet season in mid- to late-November (*high confidence*).
- Similarly, the forecast suggests a higher than usual number of up to two **extreme wet spells** during these three months in Belize and the Caribbean Islands, resulting in **high to extremely high flash flood potential** in Belize and the Caribbean Islands (*high confidence*). By contrast, with usually up to 1 extreme wet spell at any given location in the coastal Guianas, there will only be limited flash flood potential there (*medium confidence*). Besides often resulting in flash floods, extreme wet spells may coincide with thunderstorms and high winds, land slippage or rockfall, power outages and possible contamination of food and water supplies (*high confidence*). It should be emphasized that, while tropical cyclones typically produce extreme wet spells, a majority of extreme wet spells occur during the passage of other weather systems.
- As of August 1st, **short term drought** (on a 3-6 months timescale) has developed in Dominica, southern Guadeloupe, southwest French Guiana, southwest Hispaniola, Martinique, Saint Lucia, western Trinidad & eastern Tobago. At the same time, northernmost & southeastern islands in the Bahamas, Belize, the Cayman Islands, the Dominican Republic, eastern Guadeloupe, western French Guiana, southwest Puerto Rico, St. Croix, western Trinidad, and the Windward Islands (excluding Dominica & Grenada) are in **long term drought** (on a 12 months timescale).
- **Short term drought** is unlikely to be of significant concern by the end of November, with the possible exception of southwest Belize and Trinidad (*medium confidence*). Short term drought may impact food production, potable water availability, as well as, water availability from small streams and small ponds. However, such drought impacts are not expected to be widespread or pronounced at this time.
- **Long term drought**, which may affect water availability across a multitude of socio-economic sectors in a country, should slowly ease and concerns decrease in most affected areas. By the end of November, long term drought concern is expected to evolve in Martinique, Suriname, and Trinidad (*medium to high confidence*), and may possibly persist in parts of western Belize, Dominica, coastal French Guiana, northern Guyana, Saint Lucia, St. Vincent, and Tobago (*medium confidence*).
- Night-time and day-time **temperatures** in the Caribbean are forecast to remain at least as high as usual for the remainder of the **Caribbean Heat Season** - which starts in May, peaks in September and ends in October. A higher than usual number of **heat waves** are expected to occur in most locations in September. In addition, in Barbados, the Windward Islands, Trinidad and Tobago and the Guianas, heat waves are also possible through October. In view of high temperature, high air humidity, and short-lived dry spells - which increase the chance of heat waves - **excessive heat exposure is expected to be a particular concern this year** (*medium to high confidence*) and last through October across the entire region.
- The frequency of **Saharan dust** incursions into the Caribbean tends to decrease during this period (access more detailed forecast information on dust and air quality in the Caribbean here: <http://dafc.cimh.edu.bb/>). Similarly, local dust levels should be on the low end throughout the remainder of the Wet Season.
- The **UV index** on sunny days will decrease from extremely high (11-12) to very high (8-10) around noon time towards November (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

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What are the Health Implications for September - November 2020?

Respiratory Illness

-  The incidence of **asthma** and **allergic rhinitis** is likely to be lower compared to the previous season (JJA) due to less frequent episodes of Saharan dust incursions and lower levels of local dust into the Caribbean in the coming season.
-  Increased humidity - at even higher levels than usual for this time of the year - in Belize and the Caribbean islands throughout the period may cause dampness in some poorly ventilated residences and offices resulting in the growth of mould and increased **allergic reactions**.
-  Where episodes of flooding may occur, particularly in Belize and the Caribbean islands, there is an increased risk of **ENT** from contact with contaminated water.

Gastrointestinal Illness

-  Though of decreasing concern through November, remnant drought conditions may still increase concentrations of water pollutants at least until the end of November to a limited extent for small reservoirs and tanks in southwest Belize and Trinidad. Increased water pollutant concentrations may more significantly affect very large reservoirs in Martinique, Suriname, and Trinidad. Additionally, though less likely than in previous seasons, 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.
-  Where episodes of flooding may occur, cases of **gastroenteritis** may increase, where persons consume foods contaminated by these waters. Wading in floodwaters could also result in an increase in skin infections due to contact with contaminated, stagnant and/or floodwaters, especially in Belize and the Caribbean Islands.

Non-communicable Diseases

-  Excessive heat from high temperatures across the region (exacerbated by humid air across Belize and the Caribbean islands) will first be of greater concern through October before becoming less prevalent towards November. That said, especially during September (and October in Barbados, the Windward Islands, Trinidad & Tobago and the Guianas), frequent **heat waves** can increase the risk of **morbidity from heat related illness** in vulnerable persons, especially smaller children, the elderly, pregnant women and persons with NCDs. Heat stress 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 can be found at: <https://www.ghhin.org/heat-health-explained>. For more information on what to do during heatwaves, see: https://www.paho.org/hq/index.php?option=com_content&view=article&id=15130:heatwave&Itemid=4206&lang=en

Non-communicable Diseases (continued)

-  During the period, unprotected exposure to dangerous UV radiation may cause **skin damage** across the population (for more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>).
-  There is a possibility of **skin infections** due to contact with contaminated, stagnant and/or floodwaters.

Vector-Borne Illness

-  As the region enters the peak of the Wet Season, increased rainfall may create more breeding places for mosquitoes. The presence of stagnant water in the aftermath of a flood may promote the **breeding of mosquitoes**. Irrespective of the presence of floods, water accumulating in any unattended, open containers may also potentially create more breeding sites for mosquitoes. Both situations would increase the risk of associated mosquito-borne diseases such as **Dengue**, **Chikungunya** and **Zika**. However, note that in the case of flash floods, floodwaters may sweep away mosquito eggs, larvae and pupae, potentially reducing mosquito populations in the short term. Access useful 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)
-  Where there is ongoing drought, increased use of containers for water storage, as well as water accumulating in any unattended, open containers require protective mosquito mesh to reduce the risk of mosquito breeding. Access useful 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)
-  Episodes of flooding may occur in any flood-prone area of the Caribbean Islands or Belize during this period. In such cases, there is an increased risk of **Leptospirosis** due to displaced rodents that could contaminate floodwaters, household items and food containers.

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**.
-  In drought-affected areas, **food insecurity** is 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.

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What are the Health Implications for September - November 2020? (continued)

Well-Being and Mental Health (continued)

-  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.
-  Increased heat stress associated with heatwaves, can increase **mood-affective** and **stress-related disorders**, as well as, other mental and behavioral disorders.

COVID-19 and Climate Impacts

-  Considerations in managing potential exacerbated heat stress during COVID-19 as the Heat Season peaks in September can be found at: <https://www.ghhin.org/heat-and-covid-19>
-  Lingering drought conditions in areas that are still affected may impact on the **prevention strategies** to combat the COVID-19 pandemic, especially with regards to safe water availability for hygiene purposes. Special attention should be paid to communities with interrupted or limited access to safe water. More information can be found at <https://iris.paho.org/handle/10665.2/52185>
-  When disasters have seasonal patterns, such as hurricanes and excessive rainfall, **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. Any disaster occurring will compound psychosocial impacts related to the COVID-19 pandemic.
-  Extreme weather events or disasters may cause an increased burden on already overburdened **healthcare services**.
-  When an impending extreme weather event occurs, **shelters** will require reorganisation to accommodate COVID-19 prevention strategies. More information can be found at: <https://iris.paho.org/handle/10665.2/52170>
-  Should a major disaster occur and foreign support be requested, there is potential to **import new cases** of COVID-19.
-  **Guidelines for Water, Sanitation, Hygiene, and Waste Management in Institutional Facilities, Communities and Home Settings** can be found here: <https://carpha.org/Portals/0/Documents/Technical%20Guidance/COVID-19%20WASH%20Guideline.pdf>
-  **Guidelines for Vector Control during the COVID-19 pandemic** can be found here: <https://carpha.org/Portals/0/Documents/Technical%20Guidance/COVID-19%20Vector%20Control%20Operations%20Guidelines.pdf>

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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: May - July 2020

Rainfall

- Short term drought, on top of long term drought, spiked in May and June in most islands from Guadeloupe southwards, as well as in southwest French Guiana, southwest Hispaniola, and parts of Jamaica due to significant rainfall deficits during the transition between the dry and wet season. By contrast, July rains put a dent in drought in most affected islands from Dominica northwestward.

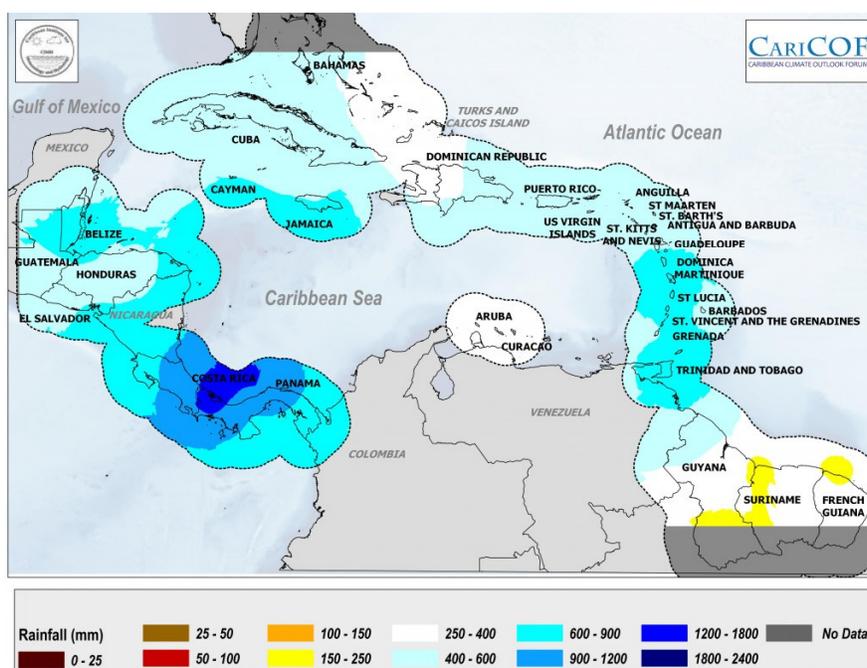
Temperature

- With the period forming the first half of the Caribbean heat season, temperatures have remained high across virtually the entire Caribbean, especially in parts of the Northwestern Bahamas, Belize, Grand Cayman, Cuba, Jamaica, the US Caribbean Territories and in the southern half of the Lesser Antilles. Barbados and Grenada faced their warmest July on record, accentuated by a record-high number of heatwaves for July in Barbados.

What do we Usually Expect for September to November?

Rainfall

- This period typically marks the late wet season in Belize and the Caribbean Islands, but the dry season in the Guianas and the transition into the wet 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

- September to October form the tail end of the Caribbean heat season (which runs from May to October), with the annual peak in 'feels-like' temperatures usually ending in September. The likelihood and frequency of heat waves throughout the region is relatively high in September (and October in Barbados, the Windward Islands, Trinidad & Tobago and the Guianas), but essentially decreasing to nil afterwards.

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