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 favorable or inclement climate conditions in the Caribbean. The period covered is December 2018 to February 2019. It is recommended that health stakeholders should use the combination of monitoring (August 2018 - October 2018) and forecast (December 2018 to February 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 December 2018 to February 2019?

- Climatically, December to February forms the **first half of the Caribbean Dry Season** in Belize and the Caribbean Islands, characterised by a steady decrease in the frequency of wet days and decrease in the longer wet spells, and by an increasing number of dry days and dry spells. By consequence, the potential for flooding is set to decrease steadily by January *(high confidence)*. In the coastal Guianas, where December to February marks the secondary wet season, a steady decrease in flooding potential should manifest by mid-February *(medium confidence)*.
- In December, up to one **extreme wet spell** occurs in Belize and the Caribbean Islands. By contrast, up to two extreme wet spells can occur in the coastal Guianas until the end of February. 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.
- After 2 years without significant **drought** throughout the region, an expected weak to moderate El Niño event is set to increase the chances of drought across much of the Caribbean. That said, extreme to exceptional drought such as that experienced by many territories between 2014 and early 2016, when there was a particularly strong El Niño, is unlikely.
- Regionally, **rainfall totals** from December to February are forecast to likely be the usual or drier across the ABC Islands, eastern Guianas, Hispaniola, Lesser Antilles, Puerto Rico and the Virgin Islands *(medium confidence)*. By contrast, The Bahamas and Cuba are forecast to be at least as wet as usual *(medium confidence)*.
- **Short term drought** (on a 3-6 months timescale) is currently evolving in the ABC Islands, Antigua, the northern parts of The Bahamas, Dominica and Guadeloupe *(medium confidence)*.
- **Long term drought** (on a 12 months timescale), which affects the largest water reservoirs, is evolving in the ABC Islands, western Cuba, Grand Cayman and Dominica. Long term drought may possibly develop in any of the other islands apart from Trinidad *(medium to high confidence)*.
- Night-time and day-time **temperatures** in the Caribbean are forecast to feel seasonably comfortable *(high confidence)*, though evidence suggests it will probably be slightly warmer than usual for the coolest part of the year *(medium confidence)*.
- **Heat waves** are virtually nonexistent during the coolest three months of the year in any area of the Caribbean *(high confidence)*.
- The **2018 Hurricane Season officially ended November 30th**, but storms and hurricanes can occur beyond the official end date. Severe weather systems, which can come with a range of hazards, including high winds, landslides, flash floods, among others, could possibly still affect Caribbean territories.
- Episodes of **Saharan dust** incursions into the Caribbean usually are infrequent in this period, but can occur sporadically (access more detailed forecast information on dust and air quality in the Caribbean here: http://dafc.cimh.edu.bb/). By contrast, with ongoing or potentially pending drought during the dry season, local dust levels could be on the high end.
- The **UV index** on sunny days will reach its annual lowest values of around 8 in the north and 10 in the south (on a scale from 1 to 12. For more information, see: https://www.epa.gov/sunsafety/uv-index-scale-1) by the end of December, and slowly increase by February. Note that, despite the period marking the secondary wet season in the coastal Guianas, a considerable number of days has long sunny spells, increasing UV exposure.

What are the Health Implications for December 2018 to February 2019?

Respiratory Illness

- Less frequent episodes of Saharan dust incursions into the Caribbean in the coming season may reduce risk of exacerbations of **allergic rhinitis** and **asthma** in susceptible persons; but this effect may be offset by the increased humidity in the coastal Guianas, which may promote mold growth in damp and poorly ventilated buildings, leading to increased respiratory symptoms.

Gastrointestinal Illness

- Where episodes of flooding may occur, cases of **gastroenteritis** may increase, where persons wade in flood waters (which could also inflict skin-disease), or consume food contaminated by these waters. This is particularly the case in the coastal Guianas.

Non-communicable Diseases

- **Morbidity from excessive heat** due to high temperatures across the region (exacerbated by humid air across Belize and the Caribbean islands) should not be an issue in the period of interest.

- Though dangerous UV radiation will be at its annual minimum, excessive exposure can cause **skin damage** across the population on sunny days (for more information, see: https://www.epa.gov/sunsafety/uv-index-scale-1).

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Vector-Borne Illness

- Where episodes of flooding may occur, particularly in the Guianas, there is increased risk of **Leptospirosis** due to displacement of vectors such as rodents into houses, increasing the risk of contamination of household surfaces and food-stores.
- 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.
- As much of the region enters the early dry season, with an increased chance of drought and recurrent dry spells due to an evolving El Niño, increased use of containers for storage, as well as water accumulating in any unattended, open containers may potentially create more breeding sites for mosquitoes associated with **Dengue, Chikungunya** and **Zika** which are of great concern for Caribbean territories. Proper management of water storage containers eg. 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

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. Although the 2018 Hurricane Season has come to an end, health practitioners and administrators should still maintain a state of **readiness**.
- **Food insecurity** would be a concern due to the potential of widespread crop damage resulting from extreme weather events that may occur during this period.
- **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.

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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

More on Climate

Looking Back: August to October 2018

Rainfall

- Parts of the region observed less than the usual rainfall, leading to short term drought in the northern parts of The Bahamas, Cuba, Dominica, Hispaniola and Martinique, and contributing to continued long term drought in Antigua, northern Belize and southern Hispaniola. By contrast, flooding rains in mid-October in Trinidad have led to above-normal rainfall totals over the three months.

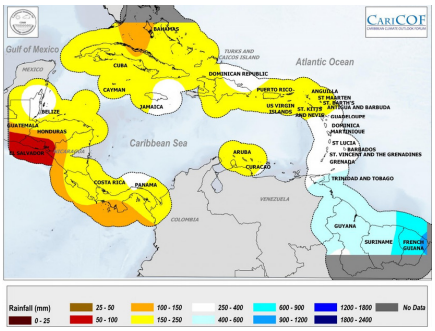
Temperature

- Temperatures were as high as usual for the hotter half-year (i.e. May to October) and felt uncomfortably hot in August and September because the high temperatures were combined with high humidity.

What do we Usually Expect for December to February?

Rainfall

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

- December to February form the coolest part of the year across the region, generally comfortable 'feels-like' temperatures and an absence of heat waves.

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