

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 December 2021 - February 2022. It is recommended that health stakeholders should use the combination of monitoring (August - October 2021) and forecast (December 2021 - February 2022) 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 2021 - February 2022?




- As of December 1st, the busy **2021 Hurricane Season** -- which was well-forecasted with 21 named storms, including 4 major hurricanes -- has officially ended, but storms and hurricanes can occur and have occurred after the official end date.
- Climatically, December to February forms the first half of the **Caribbean Dry Season** in the Bahamas, Belize, the Greater and Lesser Antilles. This period is characterized by a steady decrease in the frequency of wet days and the intensity of heavy showers. Conversely, the number of dry days and dry spells is high westwards of Puerto Rico throughout the period while, further east, their frequency increases steadily towards the end of February. This high or increasing frequency of dry spells tends to dry the surface and foliage, which may increase the potential for wildfires and airborne particulates. By contrast, in the Guianas, the secondary wet season runs until early-February, followed by a short dry season. In the ABC Islands, the short wet season runs until January.
- In August 2021, weak **La Niña** conditions developed in the Pacific Ocean for a second consecutive year. La Niña increases the probability of a slightly cooler, more intense wet season in the Guianas and in the ABC Islands; it tempers heat and favours a less intense early dry season in the Lesser Antilles; but the Bahamas and the Greater Antilles -- Cuba in particular -- can be even drier than usual.
- This contrast between the northwestern and southeastern Caribbean is reflected in the forecast, which suggests that **rainfall totals** are likely to be at least the usual in the ABC Islands, Belize, Guyana and Trinidad and Tobago, but at best as low as usual in the Bahamas, Cuba, Hispaniola and the US Caribbean Territories (*medium confidence*).
- The potential for **floods and cascading hazards** -- such as land slippage or rockfall, power outages and possible contamination of food and water supplies -- arising from severe weather events is expected to be *moderate* (two to five times in 10 years) in December, but *limited* (once or twice in 10 years) or *marginal* (seldom) from January onwards across the Caribbean Islands and Belize. In the coastal Guianas, flood potential is *high* (at least every other year) until early-February and becomes *limited* by the end of February. 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/>).
- **Short-term drought** (on a 3-6 months timescale) may impact food production, water quality and quantity from small streams, small ponds and other surface sources. **As of November 1st**, short term drought has developed in Antigua and Barbuda, parts of the Bahamas, Barbados, Belize, Cuba, the Dominican Republic, Guadeloupe, Martinique, Puerto Rico, and St. Barths. **By the end of February 2022**, it is expected to evolve in southeast Belize, Cayman Islands, most of Cuba, western Jamaica, and northwest Puerto Rico (*medium to high confidence*) and might possibly develop or continue in the northernmost Bahamas, Barbados, western Belize, eastern Cuba, Dominica, southern Dominican Republic, Guadeloupe, eastern Jamaica, Martinique, and southwest Puerto Rico (*medium confidence*).
- **Long-term drought** (on a 12 months timescale) may affect water availability across a multitude of socio-economic sectors in a country. **As of November 1st**, long-term drought has developed in parts of The Bahamas, Belize, Cuba, Dominica, the Dominican Republic, throughout the Leeward Islands, in Martinique, St. Barths, St. Croix, and St. Vincent. **By the end of May 2022**, it is expected to evolve in southern Belize (*medium to high confidence*), and may possibly develop or persist in the northernmost Bahamas, central Belize, Eastern & Western Cuba, Dominica, southern Dominican Republic, Leeward Islands (except St. Kitts), Martinique, southern Puerto Rico, and St. Vincent (*medium confidence*).
- December to February forms the core of the Caribbean **Cool Season** throughout the Caribbean, with comfortable temperatures and virtually no heat waves throughout the period (*high confidence*), which is reflected in the forecast.
- The frequency of **Saharan dust** incursions into the Caribbean tends to be low during this period though, in some years, significant episodes occur as early as February. (Access more detailed forecast information on dust and air quality in the Caribbean here: <http://dafc.cimh.edu.bb/>). Although initially low, **local dust** levels may increase towards February, particularly in areas under short-term drought.
- **UV exposure** is set to be dangerously elevated by February. On a scale from 1 to 12, the UV index on sunny days will be 6-7 (*high*) in the northern Bahamas and 8-10 (*very high*) elsewhere until January, and then increase to 8-10 and 11-12 (*extremely high*) by the end of February. (For more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>).

Disclaimer


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What are the Health Implications for December 2021-February 2022?




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. In areas currently affected by short-term drought, as well as in the Bahamas and Cuba, the drying of the surface and foliage is expected to increase the concentration of local dust, thereby increasing the risk of respiratory illness. This risk may be further exacerbated during wildfires.
-  Increased humidity in the coastal Guianas during the wet season may promote mold growth in damp and poorly ventilated buildings, leading to increased respiratory symptoms.
-  Where episodes of flooding occur, cases of **ear, nose, and throat infections** may increase, due to persons coming into contact with flood waters. This is particularly the case in the Guianas.





Gastrointestinal Illness

-  Cases of **gastroenteritis** may increase where the quality and quantity of water are compromised, either during episodes of flooding -- especially in the Guianas --, or in areas experiencing drought.




Non-communicable Diseases (NCDs)

-  There is a possibility of skin infections due to contact with contaminated, stagnant and/or floodwaters, particularly in the Guianas.
-  UV radiation will be at its annual minimum in December and January, though still high and increasing to extremely high in February. Excessive UV exposure can cause skin damage across the population on sunny days if unprotected (for more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>).
-  Morbidity from excessive heat due to high temperatures across the region should not be an issue in the period of interest.

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 in the short term.
-  In areas experiencing shortages in water supply due to drought, increased use of containers for water storage may potentially create more breeding sites for mosquitoes, especially those associated with mosquito borne diseases, such as **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:cdemosquito-awareness-week&Itemid=42087&lang=en) ; (<https://www.paho.org/en/campaigns/caribbean-mosquito-awareness-week-2020>); Join the fight against mosquito-borne disease in the Caribbean. (carpha.org)

Well-Being and Mental Health

-  **Food insecurity** is a concern due to the potential for extensive crop damage and/or loss due to frequent dry spells in the ABC Islands, the Bahamas, Belize and the Greater Antilles. A similar concern arises as a result of the high flood potential in the Guianas.
-  **Mental health effects** may increase due to extreme weather events, their impacts and associated alerts. Health Care Professionals are therefore advised to be aware of these issues, as they interact with patients.
-  Severe weather events, which can trigger a range of hazards, including high winds, landslides, flash floods, among others, may possibly affect Caribbean territories, particularly in the Guianas. Although the 2021 Hurricane Season has come to an end, health practitioners and administrators should still maintain a state of **readiness**.

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What are the Health Implications for December 2021-February 2022? (continued)

COVID-19 and Climate Impacts



- Water quantity and quality is critical to support **prevention strategies** to combat the COVID-19 pandemic, especially with regards to safe water for hygiene purposes. Flooding and drought may affect the uninterrupted access to safe water. Special attention should be paid to communities with interrupted or limited access to safe water.



- Any disaster occurring will compound **psychosocial** impacts related to the COVID-19 pandemic, particularly disasters arising from extreme weather events. Health care professionals are therefore advised to be sensitive to these issues, as they interact with patients.



- 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. 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 cases and new strains of COVID-19.

Symbol Key



Container



Dry conditions



Extreme weather event



Flooding



Food availability



Medical care or medical condition



Rodents



Mosquitoes



Temperature-related



UV radiation

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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: August-October 2021

Rainfall

- This period stood out in terms of short-term drought across many parts of the Caribbean contrasted with (near-)record rainfall totals in large parts of the Guianas and in western Trinidad.

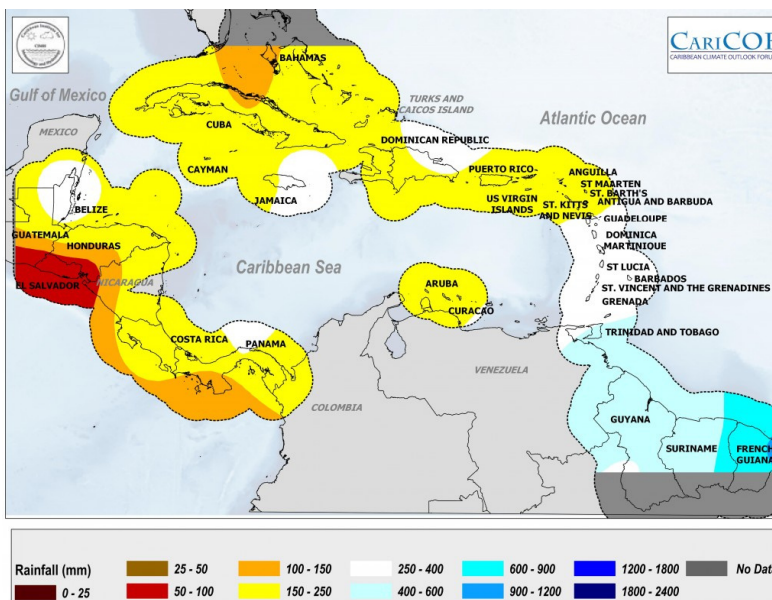
Temperature

- Heat discomfort associated with high temperatures and humidity, and peaking during heatwaves in September, was overall lower than in 2020, with fewer heatwaves.
- Over the period August to October, near-average temperatures were recorded in much of the Caribbean, but parts of Barbados, Belize, Dominica and Puerto Rico were warmer than usual while parts of the Bahamas, Guadeloupe, Jamaica, Martinique, St. Croix and Suriname were cooler than usual.

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 forms the coolest part of the year across the region, with generally comfortable 'feels-like' temperatures and the general absence of heat waves.

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