

DOMINICA CLIMATIC NEWSLETTER



SEASONAL CLIMATE OUTLOOK SUMMARY

Previous Season Forecast; Jun-Jul-Aug (JJA) 2024

Above to normal rainfall totals with warmer than usual temperatures (medium to high confidence).

Jun-Jul-Aug (JJA) 2024 Observations:

Normal rainfall totals were recorded with warmer than usual temperatures.

Current Season Forecast; Sept-Oct-Nov (SON) 2024

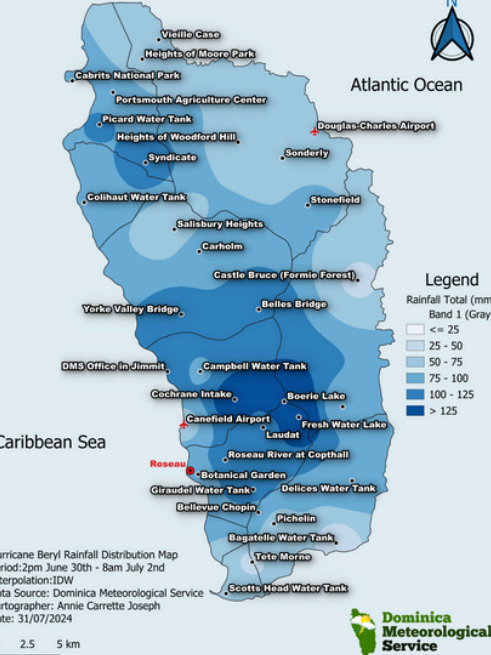
Models are currently giving little indication for rainfall accumulations. However, expect at least the usual wet conditions (low confidence). Warmer-than-usual temperatures are anticipated (medium to high confidence), with the chance of Douglas-Charles experiencing the usual or cooler nights (low to medium confidence)

2024 ATLANTIC HURRICANE SEASON OUTLOOK (TO DATE)

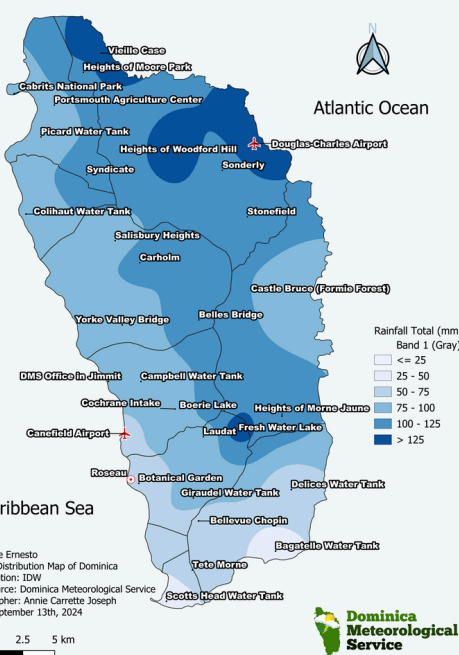
- ✦ The 2024 Atlantic Hurricane Season began intensely with Hurricane Beryl, the earliest Category 5 hurricane ever recorded in the Atlantic in June.
- ✦ A quiet period followed, contradicting earlier expectations of an extremely active season. Scientists attribute this lull to several unforeseen factors that are not forecast at seasonal timescales:
 - A warm and stable upper atmosphere, inhibiting tropical cyclone formation.
 - Stronger upper-level winds in the East Atlantic, causing wind shear.
 - The African Monsoon Trough shifting further north, leading to tropical disturbances encountering drier air, which inhibits development.
 - Suppression of the Madden Julian Oscillation (MJO).
- ✦ La Niña is expected to emerge during the second half of the season which may lead to an unstable atmosphere with reduced vertical wind shear. Coupled with warmer-than-usual sea surface temperatures, tropical storm formation potential remains high.

✦ Up to August, there were 5 named storms, 3 of which became hurricanes, with one becoming a major hurricane. Though there were no direct hits to Dominica, Hurricane Beryl and Hurricane Ernesto (as a tropical storm) impacted the island.

Hurricane Beryl Rainfall Distribution Map
(2pm June 30th, 2024 - 8am July 02nd, 2024)



HURRICANE ERNESTO RAINFALL DISTRIBUTION MAP
(AUGUST 12TH 2024 @ 8AM TO AUGUST 14TH 2024 @ 8AM)



Hurricane Beryl (June 30th to July 2nd)

- Max rainfall was 134.6mm/ 5.3in (Boeri Lake); Min was 39.0mm/ 1.5in (Bagatelle). An average of about 3in was recorded.
- Highest wind gust: 45kts (Freshwater Lake (1st)).
- Very rough seas impacted the coasts from the evening of the 1st into the 2nd.

Tropical Storm Ernesto (August 12th to 13th, 2024).

- Max rainfall was 144.4mm/ 5.7in (Douglas-Charles Airport); Min was 41.8mm/ 1.7in (Bagatelle). An average of about 4in was recorded.
- Highest wind gust: 33kts (Freshwater Lake (13th)).

Looking Back: June-July-August (JJA) 2024)

Atlantic Tropical Cyclone Names 2024

- Alberto— Leslie
- Beryl— Michael
- Chris— Nadine
- Debby— Oscar
- Ernesto— Patty
- Florence Rafael
- Gordon Sara
- Helene Tony
- Isaac Valerie
- Joyce William
- Kirk

Date: Aug 31st, 2024

TEMPERATURE

June-July-August (JJA) 2024 Season		
TEMPERATURE		
15YRS AVERAGES		
Average Maximum	32.2°C to 32.5°C	30.7°C to 31.2°C
JJA 2024 Average Maximum	33.5°C (above normal)	31.5°C (above normal)
Average Mean	28.2°C to 28.5°C	27.7°C to 28.1°C
JJA 2024 Average Mean	29.2°C (above normal)	28.3°C (above normal)
Average Minimum	24.1°C to 24.6°C	24.7°C to 25.1°C
JJA 2024 Average Minimum	24.8°C (above normal)	25.2°C (above normal)

Both the daytime and nighttime temperatures were above normal at the airports for the JJA 2024 Season.

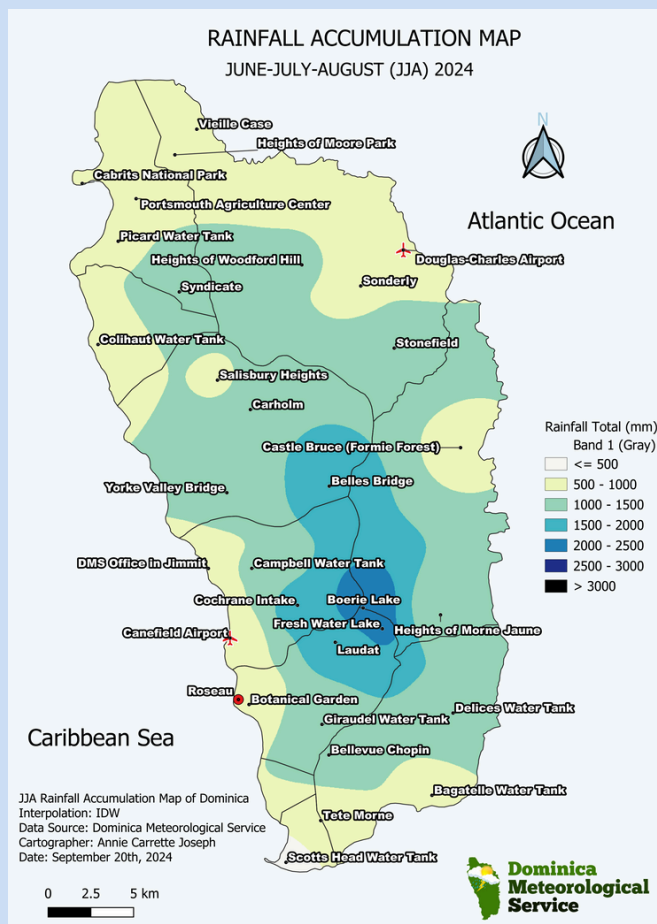
- The Canefield Airport recorded 8 hot spells and the Douglas-Charles Airport had 6. (Three or more consecutive hot days when daily highs equal or exceed 32.9°C at Canefield and 31.5°C at Douglas-Charles.

- At Canefield, 77 out of 92 days(JJA) were hot. The longest hot spell was 20-days long in July. At Douglas-Charles, 52 out of 92 days(JJA) were hot. The longest hot spell was 8-days also in July.
- Record breaking actual maximum temperatures were observed in June and July of 36.0°C and 35.4°C respectively, at Canefield. A record breaking mean maximum was also observed in July of 33.6°C.
- The Douglas-Charles Airport had record breaking mean maximum temperatures of 31.5°C and daily mean of 28.5°C in July.

RAINFALL

June-July-August (JJA) 2024 Season		
CLIMATOLOGICAL NORMAL (30YEARS)		
RAINFALL	CANEFIELD AIRPORT	DOUGLAS-CHARLES AIRPORT
Normal	474.2 to 756.8mm	544.4 to 768.5mm
JJA 2024 Total	743.8mm (normal)	758.1mm (normal)
Wet Days Normal	49 to 66 days	53 to 68 days
JJA 2024 Wet Days Total	53	63

- Normal rainfall totals were recorded at both airports for the June-July-August 2024 Season.
- One significant dry spell was observed in June (10-days at Canefield and 7-day at Douglas-Charles)
- The Morne Trois Piton National Park recorded the highest rainfall accumulations. A max of 2249.8mm/ 88.6in was recorded at the Boeri Lake.
- The low lying coastal regions recorded the lowest accumulations. Scotts Head in the south had the lowest of 430.3mm/ 16.9in.
- Hurricane Beryl and Ernesto resulted in heavy downpours which led to landslides, rockfalls, elevated river levels and significant surface runoffs.

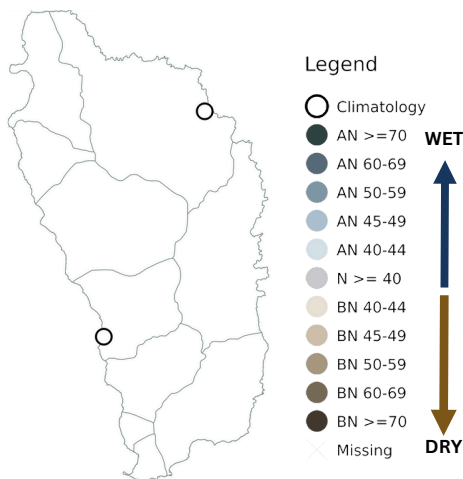


INFLUENCING FACTORS

- Recent observations in the Eastern Equatorial Pacific Ocean show near-normal sea surface temperatures (ENSO-neutral conditions). Models are predicting continued cooling, leading to La Niña conditions during the September to November 2024 season. La Niña is often associated with increased heavy shower activity, higher rainfall totals, warmer air temperatures, and increased Atlantic hurricane activity during September-October-November season.
- Warmer than usual Sea Surface Temperatures (SSTs) continue to persist across the Caribbean Sea and Tropical Atlantic Ocean and this is expected to continue throughout the season. Warmer than usual SSTs often lead to higher air temperatures, a more humid environment, an increase in the frequency of rainfall events, some of which could be extreme and heightened tropical cyclone activity.
- Saharan dust haze intrusions are not forecasted seasonally but weekly. Climatologically, a reduction in the concentration and frequency of dust plumes is observed during the September to November (SON) season. Therefore, no significant influence is expected.

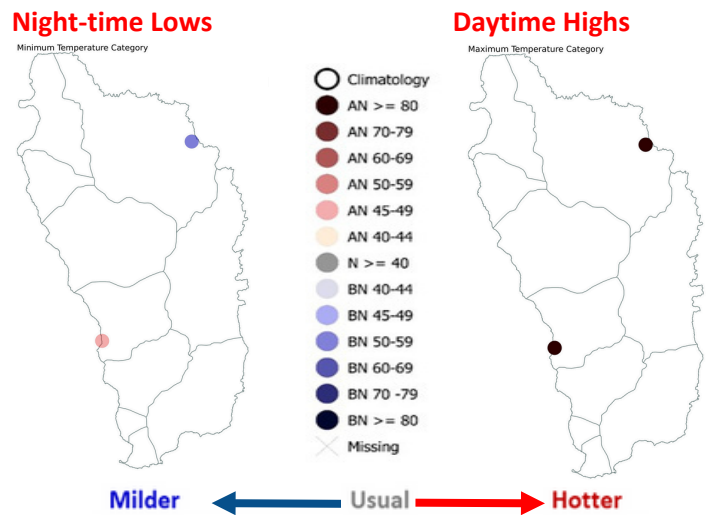
September-October-November (SON) 2024 Outlook

RAINFALL PROBABILITY FORECAST (%)



- Currently, models provide very little information regarding rainfall accumulations, however, at least the usual wet conditions during the September to November (SON) season are anticipated.
- Models indicate a decrease in the frequency of wet days (medium confidence), alongside an increase in the frequency of 7-day wet and very wet spells (medium confidence).
- The total number of wet days may range between 37 and 67, with around three to eight 7-day wet spells.
- At least five excessive rainfall events (at least 30mm within 24 hours) at Canefield and nine at Douglas-Charles, which could trigger flash floods are possible (medium to high confidence).
- One to two 7-day dry spells are also possible. There are no drought concerns.
- Wetter than usual or the usual conditions are expected to continue into the December-January-February 2024/2025 season.

TEMPERATURE FORECAST



- Climatologically, the heat season peaks in September. A transition to the cool season usually occurs in November. This year, significantly hotter than usual and humid conditions are expected to continue. Cooler than usual nights are however possible at Douglas-Charles.
- 45 or more hot days are possible.
- There is a high probability of having at least 30 hot spell days.

SEPTEMBER-OCTOBER-NOVEMBER (SON) CLIMATOLOGY

September-October-November Season CLIMATOLOGICAL NORMAL (1991-2020)		
RAINFALL	CANEFIELD AIRPORT	DOUGLAS-CHARLES AIRPORT
Normal	434.3 to 699.0mm	730.4 to 1051.1mm
Wet Days Normal	42 to 54 days	57 to 69 days
7-Day Dry Spells Normal	n/a	0 to 1
TEMPERATURE (2006-2020)		
Average Maximum	31.8°C to 32.2°C	30.6°C to 31.0°C
Average Mean	27.6°C to 27.9°C	27.1°C to 27.4°C
Average Minimum	23.4°C to 23.7°C	23.6°C to 23.9°C

SECTORAL IMPLICATIONS



AGRICULTURE

- Intense heat and higher night-time temperatures could lead to increased stress on crops, affecting growth, flowering and fruiting stages. Heat stress may cause wilting, reduce yields, and even lead to crop failure for heat-sensitive varieties.
- Warmer temperatures and increased humidity create ideal conditions for the proliferation of certain pests (e.g., whiteflies and aphids) and plant diseases (e.g., fungal infections such as rust and mildew).
- More frequent extreme rainfall events may cause temporary waterlogging, damaging root systems and increasing vulnerability to pests and diseases.
- Farmers will likely need to increase their monitoring efforts and apply integrated pest management (IPM) strategies to control infestations and disease outbreaks.
- Livestock, particularly cattle and poultry, may experience heat stress, reducing productivity and increasing mortality risk, especially for poultry.
- Farmers may need to adopt climate-smart agriculture practices, including heat and pest tolerant crop varieties and protective measures for livestock.



TOURISM

- Frequent heavy rainfall events and possible flash floods may lead to cancellations or delays in flights, cruises and other travel plans. Tourists may face road closures or difficulties accessing remote areas due to flooding or landslides.
- Visitors and operators are advised to apply sunscreen to protect the skin against extremely high exposure to harmful UV light on sunny days.
- Reduce direct exposure to sunlight during 10am and 3pm.
- Coastal tourism destinations may experience beach erosion and damage to marine ecosystems due to heavy rains and rough seas, reducing the attractiveness of key locations. This can affect beachgoers, as well as water sports businesses (e.g., diving, surfing, snorkeling).
- Very slight influxes of sargassum are expected from mid-September.
- A risk for Reef wide bleaching with mortality of heat sensitive corals is likely as coral bleaching Alert Level 2, is expected to continue well into December 2024.



HYDROLOGY

- Frequent heavy rainfall events raise the likelihood of flash and riverine flooding in low-lying areas. These sudden and intense rainfall episodes can overwhelm drainage systems, rivers, and reservoirs, particularly in areas prone to flooding.
- Prolonged periods of rainfall could lead to saturated soils, which in turn heighten the risk of landslides in hilly or mountainous regions.
- Heavy rainfalls and flash floods can lead to contamination of surface water sources. Stormwater runoff washes pollutants (fertilisers, pesticides, sediments) into water bodies. This could degrade water quality and affect drinking water supplies.
- Flood events can also damage water infrastructure, including pipes and water treatment facilities, leading to interrupted water supply and pollution risks.
- Rapid surface runoff during heavy rain events could lead to coastal and riverbank erosion, affecting infrastructure, homes, and ecosystems in these areas.



HEALTH

- Extreme daytime and night-time temperatures, combined with high humidity, increase the risk of heat-related illnesses such as: fatigue, dizziness, headaches, nausea, dehydration and heatstroke which could lead to death especially among vulnerable groups like the elderly, young children and people with pre-existing health conditions.
- Long-term heat exposure has been linked to an increase in mental health disorders, including sleep disruption, irritability, and decreased cognitive function. Hot nights, in particular, may lead to sleep deprivation, affecting overall well-being and productivity.
- Stagnant water from excessive rainfall and flash floods can create breeding grounds for mosquitoes leading to the proliferation of mosquito-borne diseases, such as: Dengue fever, Chikungunya and Zika virus.
- Heavy rainfall and flooding can lead to contamination of water supplies, increasing the risk of waterborne diseases such as: Leptospirosis and Gastrointestinal illnesses. Public health systems will need to ramp up vector control measures.

For Regional Sectoral Bulletins (Agriculture, Health and Tourism)

Visit: <https://rcc.cimh.edu.bb/>

Source: Dominica Meteorological Service (DMS) in collaboration with the Caribbean Institute for Meteorology and Hydrology (CIMH) & National Oceanic and Atmospheric Administrative (NOAA); UWI-CERMES

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