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# Meteorological Department St. Maarten

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## Weather & Climate

Volume 4, Issue 10

October 2019

### Summary

- There were three (3) heatwave periods during the month of September on St. Maarten.
- September 2019 was the warmest September since 1991.
- The Caribbean Heat Season comes to an end in October, temperatures become more comfortable by November.

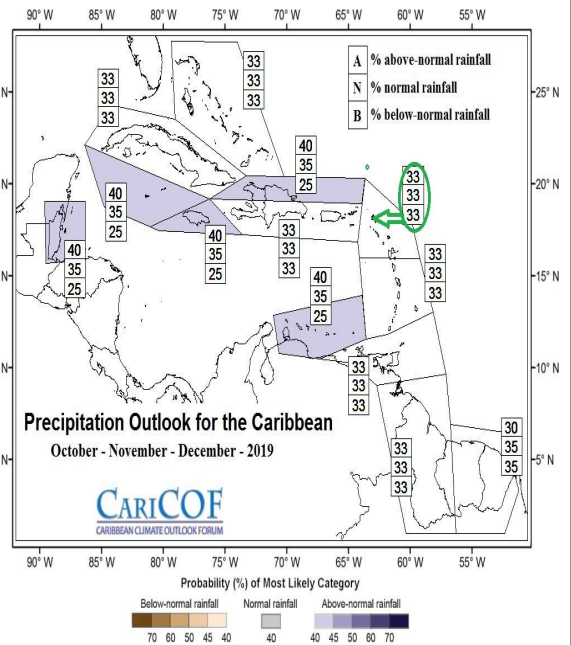
### Seasonal Outlook for October to December (OND) 2019

#### Rainfall Forecast

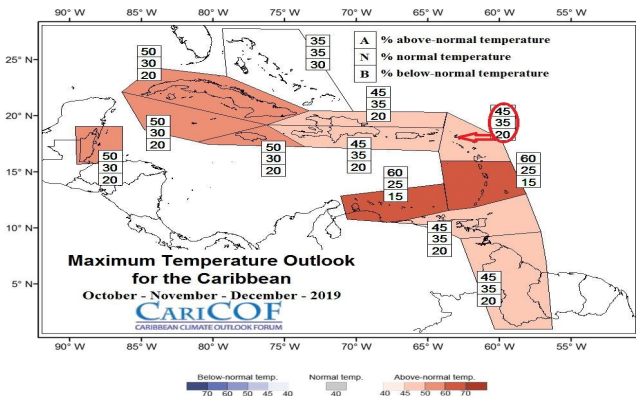
Models are indicating very little indication on rainfall totals for the Oct-Nov-Dec season over most of the Caribbean including St. Maarten and the Leeward Islands at this time. Rainfall is expected to be more than usual in the Cayman Islands, Belize, the ABC Islands, Jamaica & northern Hispaniola.

Within the 92 days of Oct-Nov-Dec, the normal rainfall total for St. Maarten ranges from 307.2 mm – 499.3 mm/ 12-20 in., 38-49 wet days, up to 5 (7-day) wet spells this season.

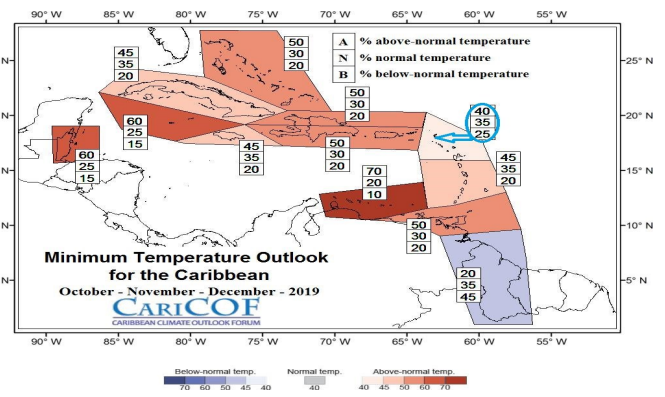
We are in the wet season and there is concern for flash floods and flooding. During Oct. and Nov., frequent heavy showers are expected. November is the wettest month on average in St. Maarten. Rainfall frequency and intensity decreases in the month of December.



#### Temperature Forecast



Day-time Temperatures

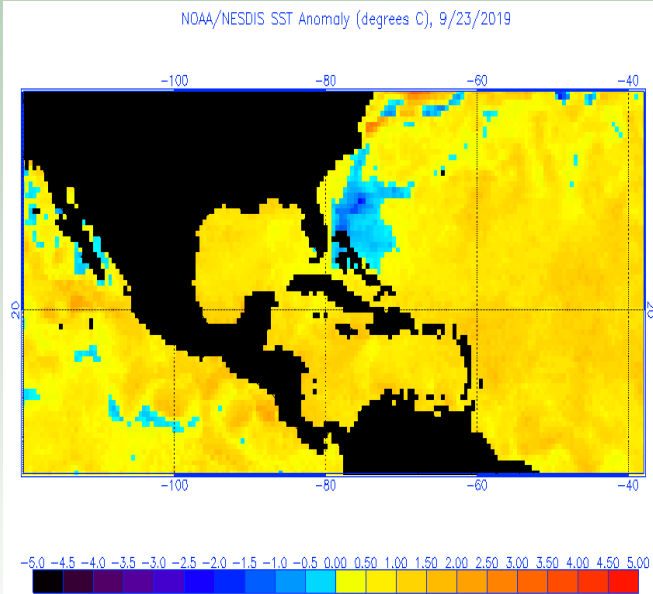


Night-time Temperatures

Day-time and night-time temperatures are expected to be as warm as usual or warmer across most of the Caribbean during this period. The Caribbean heat season ends in October, temperatures will become more comfortable by November.

For more information on other Caribbean Outlooks go to <http://rcc.cimh.edu.bb/long-range-forecasts/caricof-climate-outlooks/>

## WHAT INFLUENCES THIS SEASON CLIMATE?



Sea surface temperatures in the Pacific maintain ENSO-neutral levels during the month of September. Models suggest that these conditions will persist throughout the end of 2019 and into the first quarter of 2020.

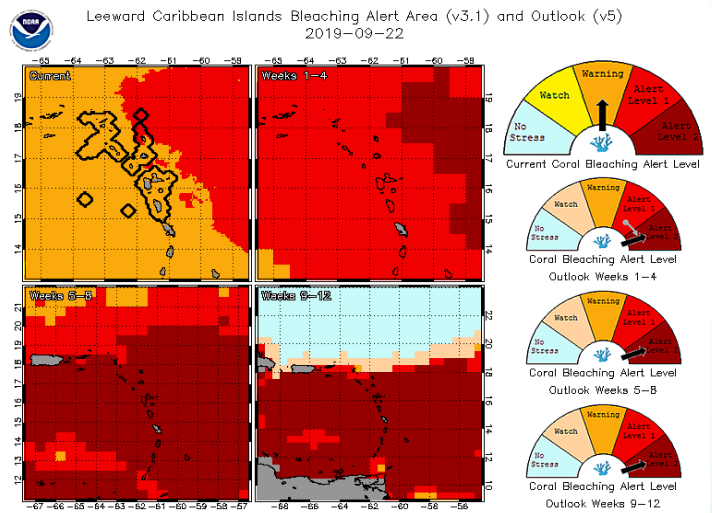
The ENSO neutral conditions do not drive seasonal rainfall or temperature in the Caribbean. Climate conditions in the Caribbean may more be affected by the North Atlantic Sea Surface temperatures (SST).

SST throughout the subtropical north Atlantic and the Gulf of Mexico continue to be 1°C above average. Caribbean Sea SSTs are expected to increase slightly through this season. This may lead to above average humidity and atmospheric instability thus favoring a warmer and wetter end of the wet season.

### Coral Bleaching Warning: Thermal Stress is Accumulating

Presently SSTs across the Leeward Islands are above the bleaching threshold.

Bleaching of corals is expected during the next four (4) weeks while widespread bleaching is anticipated by the end of this season (Oct-Dec).



### The 2019 Atlantic Hurricane Season

2019 Storm Names		
<del>Andrea</del>	<del>Humberto</del>	Olga
<del>Barry</del>	<del>Imelda</del>	Pablo
<del>Chantal</del>	<del>Jerry</del>	Rebekah
<del>Dorian</del>	<del>Karen</del>	Sebastien
<del>Erin</del>	<del>Lorenzo</del>	Tanya
<del>Fernand</del>	<del>Melissa</del>	Van
<del>Gabrielle</del>	Nestor	Wendy

**Be Prepared !!! Be Prepared !!!**

Tropical storm **Fernand** formed in the Gulf on September 3<sup>rd</sup> and tropical storm **Gabrielle** formed on September 4<sup>th</sup> in the Eastern Atlantic.

**Humberto** formed in the western Atlantic on Sept. 13<sup>th</sup> and became a hurricane on the 15<sup>th</sup>. Tropical Storm **Imelda** formed in the Gulf on Sept. 17<sup>th</sup> while **Jerry** formed the following day east of the Leeward Islands and became a hurricane of the 19<sup>th</sup>. **Karen** formed east of the Windward Islands on September 22<sup>nd</sup> while **Lorenzo** formed over the eastern Atlantic on the 23<sup>rd</sup> and became a hurricane the following day.

There were seven (7) named storms in September, three (3) of which became hurricanes. What a busy September!!!

The next named storm will be called **Nestor**.

**SEPTEMBER 2019 IN REVIEW**

Total Rainfall	77.3 mm	3.0 in.
2019 Cumulative Rainfall	595.0 mm	23.4 in.
Max. 24-Hr. Rainfall	Sept. 24 <sup>th</sup>	16.5mm/ 0.7 in.
No. Rain Days (>=1.0 mm)	9 days	
No. Heavy Rain Days (>=10.0 mm)	3 days	
No. Thunderstorm Days	3 days	
Avg. Wind Speed	7 kts.	8 mph
Avg. Temperature	29.4°C	85°F
Max. Temperature	Sept. 14 <sup>th</sup>	33.7°C / 93°F
Min. Temperature	Sept. 25 <sup>th</sup>	24.2°C / 76°F

Rainfall for the month of September was below the normal range (95-133 mm). A total of 77.3mm/3.0inches was recorded for the month

Temperatures throughout the month of September were above the normal range.

The average daily temperature for September was 29.4°C/85°F. This was the warmest August since 1991.

The warmest days were the 13<sup>th</sup> & 14<sup>th</sup> with an average temperature of 30.2°C/86°F. The maximum temperature on these days were 33.3°C/92°F & 33.7°C/93°F respectively.

There were twenty-one (21) heat-wave days (maximum temperature of 32.3°C/90°F and above) in the month of September. There were three (3) heat-wave periods. i.e. three (3) or more consecutive days with maximum temperatures above 32.2°C.

The coolest day was the 24<sup>th</sup> with an average temperature of 27.4°C/81°F.

The day with the most sunshine hours was the 8<sup>th</sup> (11hrs :18min).

The day with the least sunshine hours was the 24<sup>th</sup> (0hrs:30min) due to cloudy to overcast skies.

The windiest day was the 22<sup>nd</sup> with a daily average wind speed of 13 kts. / 15 mph.

**Long /Short Term Seasonal Review**

**Year in Review  
(Oct. 2018— Sept. 2019)**

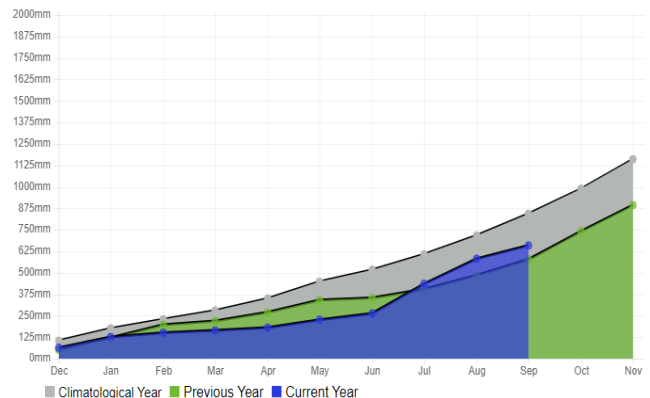
Rainfall amount over the past year is once again below the normal range. There were seven (7) months within the past year with below normal rainfall.

**Seasonal Review (Jul—Aug-Sept. 2019)**

Total rainfall for the last three (3) months was 395.4 mm, this amount was above the normal range (264-349 mm). There were eleven (11) days with heavy rainfall (>10mm) within that period.

**TNCM, St-Maarten - Accum. Rainfall Dec-Nov Year**

(Location: 18.0408°N, -63.1095°W)



**NORMAL OCTOBER CONDITIONS**

Rainfall Total	99.9 mm – 180.9 mm	4– 7 in.
Avg. No. of Rain days	14 days	
Daily Average Temperature	28.2°C	83°F
Avg. Max. Temperature	31.4°C	86°F
Avg. Min. Temperature	25.8°C	78°F
Avg. Daily Hours of Sunshine	8 hrs	

Please note that all data was recorded at the Princess Juliana International Airport and may not necessarily reflect conditions at other points on country St Maarten.

## The Heat Season continues!!!!

August to October is normally the hottest time of year on St. Maarten.

Drink lots of water.

Wear protective clothing, hats and sunglasses if you work outdoors.

### Implication of Forecast for Sectors

#### Tourism Sector

- We are in the peak of the 2019 Atlantic Hurricane Season. Therefore, tourism operators are advised to monitor weather advisories issued by the Meteorological Department.
- At all times, tourism operators should maintain a state of readiness, including communication plans and response protocols to deal with sudden eventualities.

#### Agriculture

- Episodes of heat stress could be a concern to farmers, small livestock and poultry. Provide adequate water and shade for Livestock.
- Continue to be mindful of the necessary procedures needed to avoid/minimize damage or loss in the event of floods or flash floods.

#### Health

- The presence of stagnant water in the aftermath of heavy rainfall or floods may promote the breeding of mosquitoes and increase the risk of associated mosquito borne diseases, such as Dengue & Chikungunya.
- Particularly in October, there will be an increased risk of dehydration, which may present an associated increase in its symptoms such as general weakness, dizziness, fainting, and, in extreme cases, kidney failure. This risk decreases as we approach November.
- Frequent episodes of Saharan dust into the Caribbean region may increase the risk of respiratory illnesses. Persons suffering with Asthma and other such illness should take the necessary precaution.

#### Energy/Water Sector

Energy demand for cooling purposes will continue to increase as day-time and night-time temperatures are expected to be warmer than normal.

## GLOBAL CLIMATE IN 2015-2019: CLIMATE CHANGE ACCELERATES.

The impacts of climate change – such as sea level rise, ice loss and extreme weather – increased during 2015-2019, which is set to be the warmest five-year period on record, according to the World Meteorological Organization (WMO).

#### **Sea level rise:**

Over the five-year period May 2014 -2019, the rate of global mean sea-level rise has amounted to 5mm per year, compared with 4mm per year in the 2007-2016 ten-year period. This is substantially faster than the average rate since 1993 of 3.2 mm/year.

#### **Shrinking Ice:**

Throughout 2015-2018, the Arctic's average summer minimum sea-ice extent was well below the 1981-2010 average. Antarctic summer minimum and winter maximum sea-ice extent values have become well below the 1981-2010 average since 2016. The amount of ice lost annually from the Antarctic ice sheet increased at least six-fold. The Greenland ice sheet has witnessed a considerable acceleration in ice loss since the turn of the millennium.

#### **Wildfires:**

Wildfires are strongly influenced by weather and climate phenomena. Drought substantially increases the risk of wildfire in most forest regions, with a particularly strong influence on long-lived fires. The three largest economic losses on record from wildfires have all occurred in the last four years.

#### **Ocean heat and acidity:**

More than 90 % of the excess heat caused by climate change is stored in the oceans. 2018 had the largest ocean heat content values on record, with 2017 ranking second and 2015 third. The ocean absorbs around 30% of the annual anthropogenic emissions of CO<sub>2</sub>, thereby helping to alleviate additional warming. There has been an overall increase in acidity of 26% since the beginning of the industrial revolution.

#### **Extreme events:**

More than 90 % of the natural disasters are related to weather. The dominant disasters are storms and flooding, which have also led to highest economic losses. Heatwaves and drought have led to human losses, intensification of forest fires and loss of harvest.

Heatwaves, which were the deadliest meteorological hazard in the 2015-2019 period, affecting all continents and resulting in numerous new temperature records. The largest economic losses were associated with tropical cyclones.