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# Meteorological Department St. Maarten

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## Weather & Climate

Volume 4, Issue 12

December 2019

### Summary

- November 2019 was the driest November in 46 years.
- November 2019 also recorded the lowest number of rain days on record for the month of November.
- Daytime temperatures forecast to be warmer while night time temperature cooler this season.

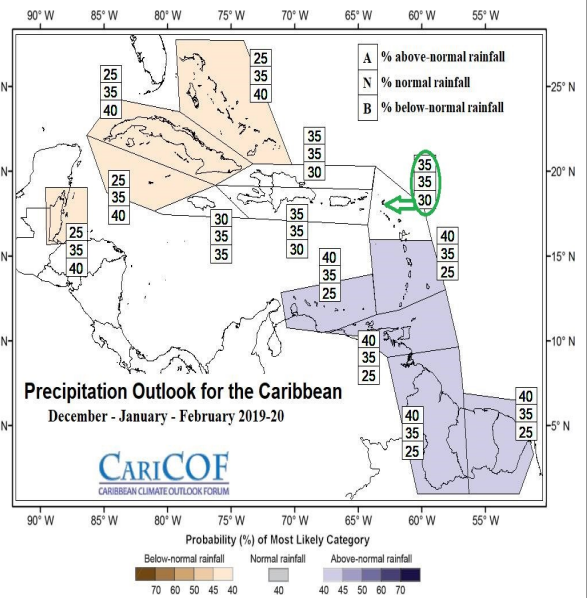
### Seasonal Outlook for December to February (DJF) 2019/20

#### Rainfall Forecast

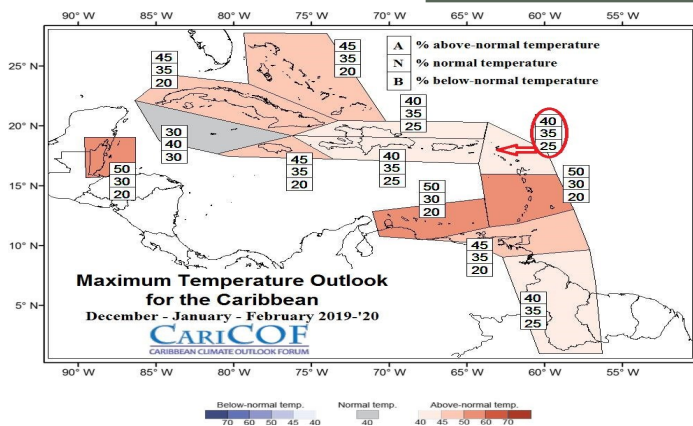
Rainfall totals for the season Dec-Jan-Feb are expected to be the usual across most of the northeastern Caribbean including St. Maarten. Rainfall is expected to be more than usual over the southern Caribbean and drier than usual across the western Caribbean.

Within the 91 days of Dec-Jan-Feb, the normal rainfall total for St. Maarten ranges from 173mm–258mm/ 7-10in., 32-43 wet days and up to 4 (7-day) very wet spells can be expected this season.

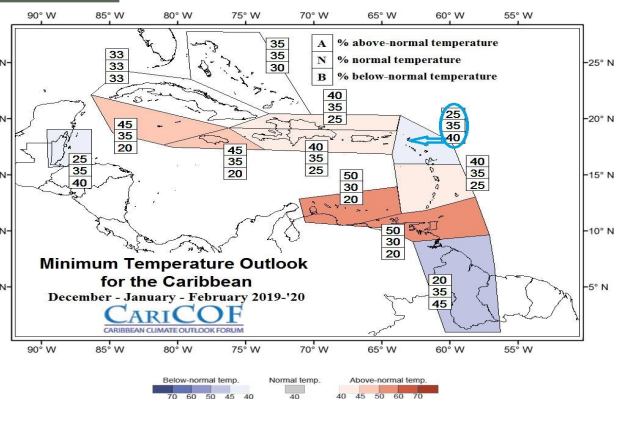
As we transition into the dry season, some shower activity will continue in December with mostly sunny days in January and February. The potential for flash floods remains this season with possible occasional heavy showers.



#### Temperature Forecast



Day-time Temperatures

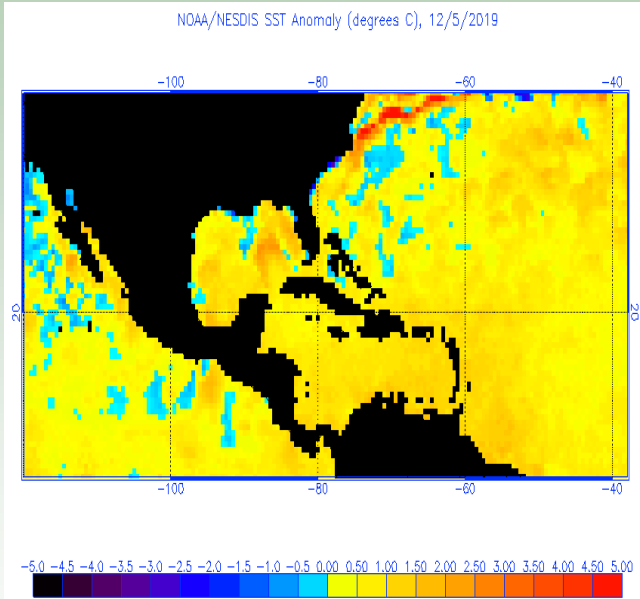


Night-time Temperatures

Day-time temperatures are expected to be as warm as usual across most of the Caribbean while it is possible for night-time temperatures to be cooler than usual across the Leeward Islands and Guyana.

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

## WHAT INFLUENCES THIS SEASON'S CLIMATE?



Sea surface temperatures in the Pacific were near thresholds of weak El Nino levels during October and early November. However, the overall diagnosis indicates ENSO-neutral conditions. Most models favour Enso-neutral throughout this season and up till the end of the Mar-Apr-May season with higher chances for El Nino than La Nina.

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

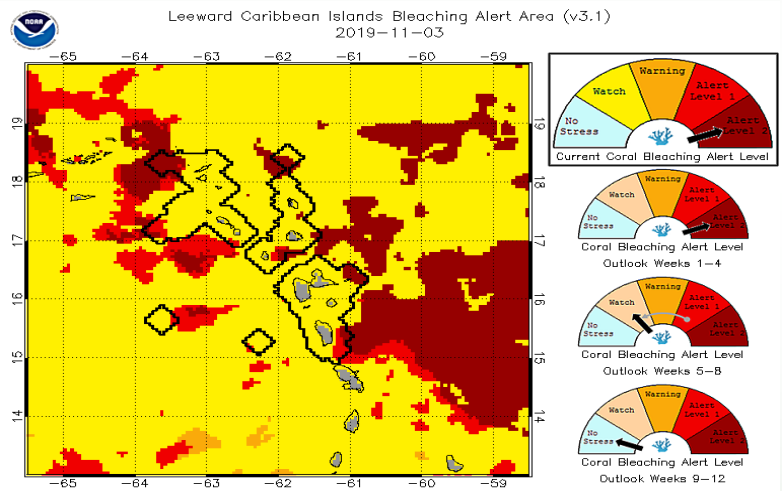
SST throughout the tropical north Atlantic and eastern Caribbean continue to be above average (1°C above). Those environmental factors favour a wetter dry season.

### Coral Bleaching Alert Level : Watch

Presently SSTs across the Leeward Islands are slightly below the bleaching threshold.

Low thermal stress on corals is expected within the next 4 weeks in areas across the Leeward Islands .

Thereafter conditions will return to normal (by end of December).



### The 2019 Atlantic Hurricane Season

#### 2019 Storm/Hurricane Names

<b>Andrea</b>	<b>Humberto</b>	<b>Olga</b>
<b>Barry</b>	<b>Imelda</b>	<b>Pablo</b>
<b>Chantal</b>	<b>Jerry</b>	<b>Rebekah</b>
<b>Dorian</b>	<b>Karen</b>	<b>Sebastien</b>
<b>Erin</b>	<b>Lorenzo</b>	
<b>Fernand</b>	<b>Melissa</b>	
<b>Gabrielle</b>	<b>Nestor</b>	

The 2019 Atlantic Hurricane Season came to an end on November 30<sup>th</sup>.

This season produced 18 named storms which included 6 hurricanes 3 of which were major (Dorian, Humberto and Lorenzo). The 2019 season could be considered as an above average season since in an average season there are 12 named storms including 6 hurricanes 3 of which are major.

This above average activity was due to warmer Atlantic temperatures and weak vertical wind shear. The tropical cyclones which directly or indirectly affected the Caribbean region were Hurricane Dorian which devastated the Bahamas, Hurricane Jerry and Tropical storm Karen which brushed pass Puerto Rico and the Virgin Islands.

**NOVEMBER 2019 IN REVIEW**

Total Rainfall	35.2 mm	1.4 in.
2019 Cumulative Rainfall	784.5 mm	30.9 in.
Max. 24-Hr. Rainfall	Nov. 29 <sup>th</sup>	7.1mm/ 0.3in.
No. Rain Days (>=1.0 mm)	7 days	
No. Heavy Rain Days (>=10.0 mm)	None	
No. Thunderstorm Days	None	
Avg. Wind Speed	7 kts.	8 mph
Avg. Temperature	28.0°C	82°F
Max. Temperature	Nov. 13 <sup>th</sup>	32.1°C / 90°F
Min. Temperature	Nov. 30 <sup>h</sup>	23.0°C / 73°F

Rainfall for the month of November was below the normal range (85-170 mm). This was the driest November since 1973 (26.3mm).

There were only seven (7) rain days in the month of November. This was the lowest number of rain days in November on record.

November is the wettest month of the year climatologically.

On average temperatures throughout the month of November were above the normal range.

The average daily temperature for November was 28.0°C/82°F.

The warmest day was the 5<sup>th</sup> with an average temperature of 29.0°C/84°F.

The coolest day was the 29<sup>th</sup> with an average temperature of 25.8°C/78°F.

The day with the most sunshine hours was the 24<sup>th</sup> (10hrs :36min).

The day with the least sunshine hours was the 30<sup>th</sup> (3hrs:18min) due to cloudy to overcast skies.

The windiest days were the 5<sup>th</sup>, 6<sup>th</sup> & 7<sup>th</sup> ,with a daily average wind speed of 11 kts. / 13 mph.

**Long /Short Term Seasonal Review**

**Year in Review  
(Dec. 2018— Nov. 2019)**

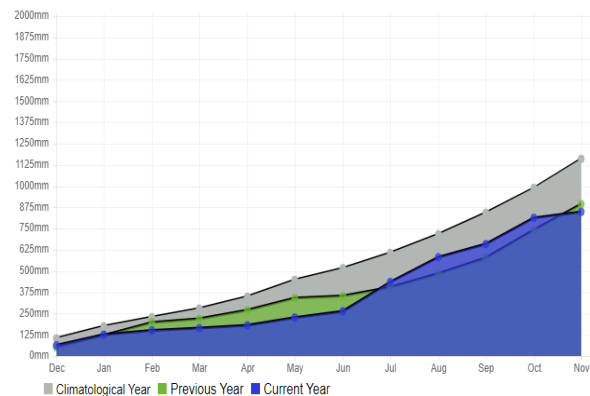
Total rainfall over the past twelve (12) months is once again below the normal range. There were eight (8) months within the past year with below normal rainfall.

**Seasonal Review (Sept-Oct-Nov. 2019)**

Total rainfall for the last three (3) months was 266.8 mm, this amount was below the normal range (3356-498 mm). There were five (5) days with heavy rainfall (>10mm) within that period.

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

(Location: 18.0408°N, -63.1095°W)



**NORMAL DECEMBER CONDITIONS**

Rainfall Total	74.6 mm — 110.1 mm	3— 4 in.
Avg. No. of Rain days	14 days	
Daily Average Temperature	26.2°C	79°F
Avg. Max. Temperature	29.4°C	85°F
Avg. Min. Temperature	23.9°C	75°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.

## Implication of Forecast for Sectors

### Tourism Sector

- A decrease in the frequency of wet days and an increasing number of dry days and dry spells will lead to less disruption to outdoor activities this season.
- Ocean temperatures are expected to cool towards the end of February, with virtually no coral bleaching expected beyond December.

### Agriculture

- With decreasing rainfall totals after a drier than usual wet season, farmers may need alternate water sources for farm activities.
- Irrigate in the early morning preferably. There is less chance of wind and lower evaporation rates.

### Health

- Though dangerous UV radiation will be at its annual minimum in December and January, excessive exposure can cause skin damage across the population on sunny days.
- During the dry season, 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.

### Energy/Water Sector

Energy demand for cooling purposes especially at nights may be reduced as night time temperatures over St. Maarten are expected to be slightly cooler than usual this season.

## 2019 CONCLUDES A DECADE OF EXCEPTIONAL GLOBAL HEAT AND HIGH-IMPACT WEATHER

The World Meteorological Organization (WMO) provisional statement on the State of the Global Climate, says that the global average temperature in 2019 (January to October) was about 1.1 degrees Celsius above the pre-industrial period.

**Concentrations of carbon dioxide** in the atmosphere hit a record level of 407.8 parts per million in 2018 and continued to rise in 2019. CO<sub>2</sub> lasts in the atmosphere for centuries and the ocean for even longer, thus locking in climate change.

**Sea level rise** has accelerated since the start of satellite measurements in 1993 because of the melting of ice sheets in Greenland and Antarctica, according to the report.

The ocean, which acts as a buffer by absorbing heat and carbon dioxide, is paying a heavy price. Ocean heat is at record levels and there have been widespread marine heatwaves. Sea water is 26 percent more acidic than at the start of the industrial era. Vital marine ecosystems are being degraded.

The daily Arctic sea-ice extent minimum in September 2019 was the second lowest in the satellite record and October has seen further record low extents. In Antarctica, 2019 saw record low ice extents in some months.

“If we do not take urgent climate action now, then we are heading for a temperature increase of more than 3°C by the end of the century, with ever more harmful impacts on human wellbeing,” said WMO Secretary-General Petteri Taalas.

To read more visit: <https://public.wmo.int/en/media/press-release>