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Weather & Climate

Volume 5, Issue 1

January 2020

Summary

- On average December 2019 was the warmest December since 1997 at Princess Juliana International.
- Temperatures are forecast to be seasonably comfortable this season.
- Rainfall for 2019 was 22% below the annual average.

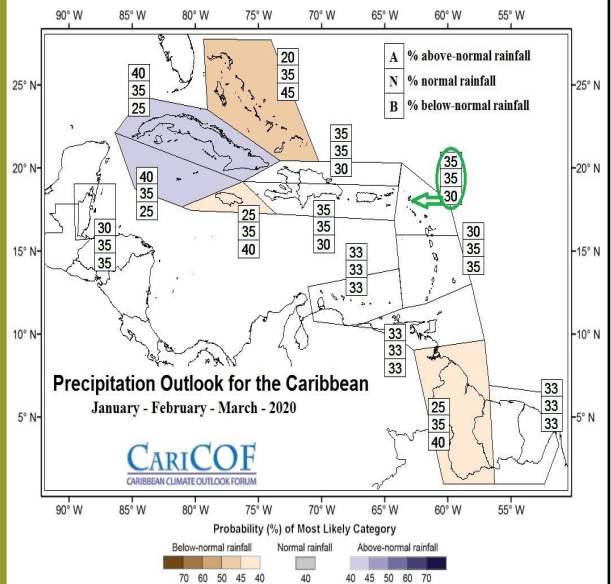
Seasonal Outlook for January to March (JFM) 2020

Rainfall Forecast

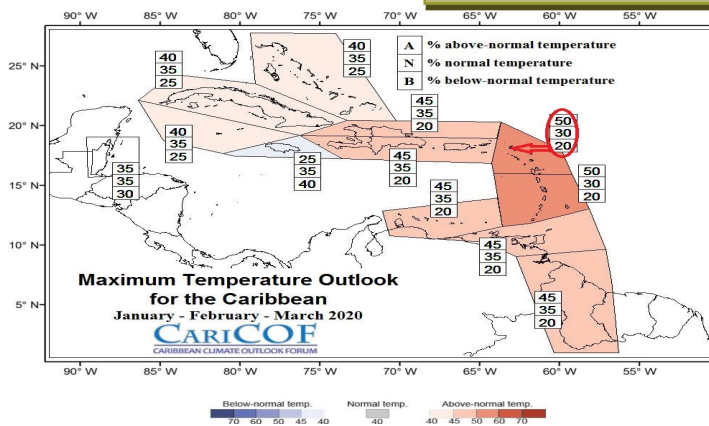
Rainfall totals for the season Jan-Feb-Mar 2020 are expected to be the usual across most of the northeastern Caribbean including St. Maarten. Rainfall is expected to be more than usual over Cuba and the Cayman Islands while it is expected to be drier than usual across the Bahamas, Jamaica and Guyana.

Within the 91 days of Jan-Feb-Mar, the normal rainfall total for St. Maarten ranges from 144.6mm–200.5mm/ 6-8in., 27-38 wet days and up to 4 (7-day) very wet spells can be expected this season.

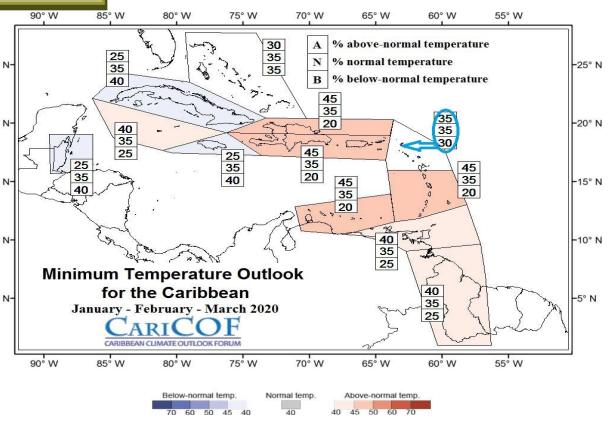
As we move into the dry season, we can expect mostly sunny days with a few showers. Even though there is no expected increase in flash flood potential the threat still remains in the event there is an extreme wet spell.



Temperature Forecast



Day-time Temperatures

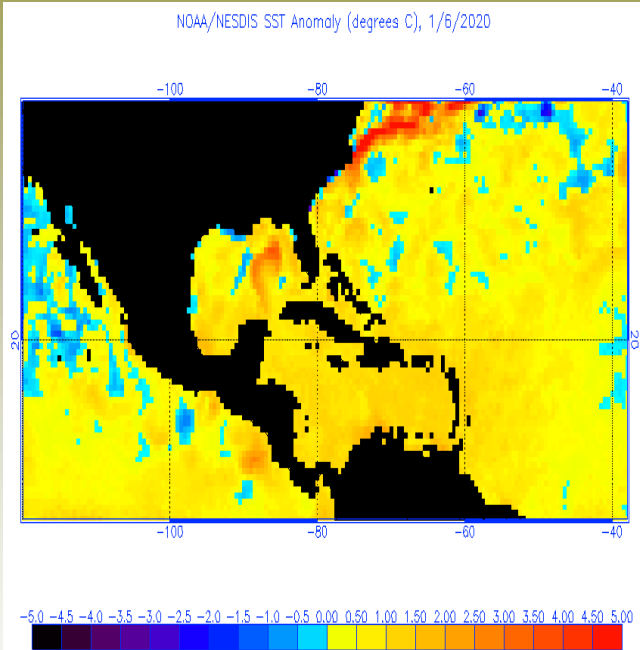


Night-time Temperatures

Day-time temperatures are expected to be as warm as usual or warmer across most of the Caribbean while it is possible for night-time temperatures to be just as cool as usual across the Leeward Islands.

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 (SST) in the east-central Pacific were neutral, but near thresholds of weak El Niño levels during mid-December. Patterns in the atmosphere have maintained ENSO-neutral conditions. Most models favor warm neutral to borderline weak El Niño this season and returning to ENSO-neutral thereafter.

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).

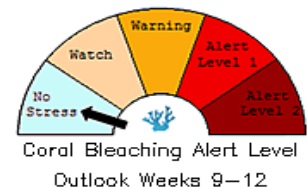
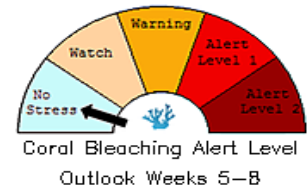
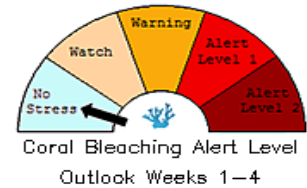
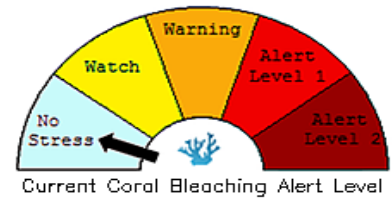
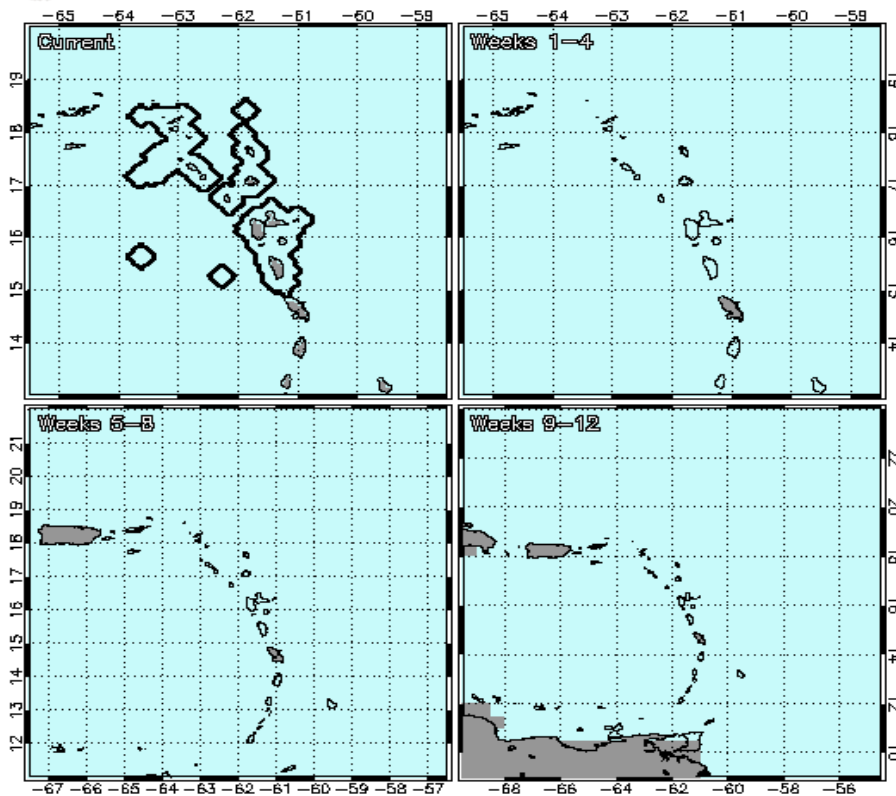
SST throughout the tropical north Atlantic and eastern Caribbean continue to be above average (1°C above). Those environmental factors favor a wetter dry season.

Coral Bleaching Alert Level : No Thermal Stress

Presently SSTs across the Leeward Islands are below the bleaching threshold. No thermal stress is expected on corals until May 2020.



Leeward Caribbean Islands Bleaching Alert Area (v3.1) and Outlook (v5)
2020-01-12



DECEMBER 2019 IN REVIEW

Total Rainfall	133.6 mm	5.3 in.
2019 Cumulative Rainfall	918.1 mm	36.1 in.
Max. 24-Hr. Rainfall	Dec. 11 th	30.1mm/ 1.2in.
No. Rain Days (>=1.0 mm)	15 days	
No. Heavy Rain Days (>=10.0 mm)	5 days	
No. Thunderstorm Days	1 day	
Avg. Wind Speed	9 kts.	10 mph
Avg. Temperature	27.4°C	81°F
Max. Temperature	Dec. 3 rd	31.7°C / 90°F
Min. Temperature	Dec. 12 th	22.1°C / 72°F

Rainfall for the month of December was above the normal range (75-110 mm).

December 2019 was the warmest December in 22 years while the maximum temperature was the highest in 19 years.

On average, temperatures were above the normal range for the month of December 2019.

The average daily temperature for December was 27.4°C/81°F.

The warmest day was the 4th with an average temperature of 28.7°C/84°F.

The coolest day was the 12th with an average temperature of 25.9°C/78°F.

The day with the most sunshine hours was the 1st (10hrs :42min).

The day with the least sunshine hours was the 27th (0hrs:12min) due to cloudy to overcast skies.

The windiest day was the 17th, with a daily average wind speed of 15 kts. / 16 mph.

Long /Short Term Seasonal Review

Year in Review

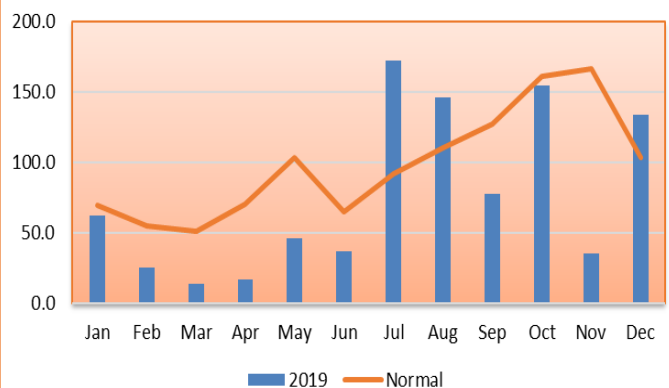
(Jan. 2019— Dec. 2019)

Total rainfall over the past twelve (12) months was below the normal range. A total of 918.1mm/36 inches of rainfall was recorded at the Princess Juliana International Airport. This was approximately 22% below the annual average.

Seasonal Review (Oct-Nov-Dec. 2019)

Total rainfall for the last three (3) months was 323.1 mm, this amount was within the normal range (307-499 mm). There were seven (7) days with heavy rainfall (>10mm) within that period.

2019 Monthly vs Normal Rainfall



NORMAL JANUARY CONDITIONS

Rainfall Total	60.3 mm — 85.0 mm	2– 3 in.
Avg. No. of Rain days	13 days	
Daily Average Temperature	25.5°C	78°F
Avg. Max. Temperature	28.8°C	84°F
Avg. Min. Temperature	23.2°C	74°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, therefore no stress on corals is expected this season.

Health

- Though dangerous UV radiation will be at its annual minimum in January however 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.

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.

Energy/Water Sector

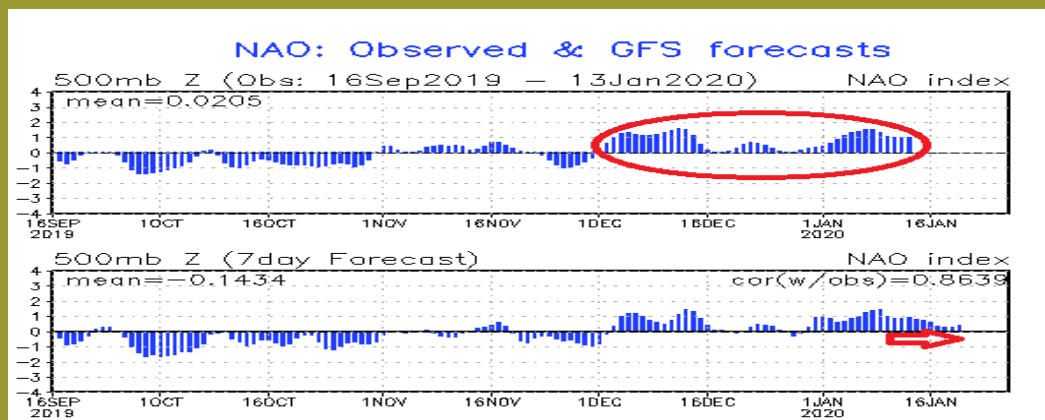
Energy demand for cooling purposes is not expected to increase drastically this season as night time temperatures over St. Maarten are expected to be seasonably comfortable. Increases may be expected towards the end of the season.

WHAT CAUSES THE STRONG WINDS ACROSS THE REGION?

The Bermuda/Azores high is part of the North Atlantic Oscillation (NAO) where low pressure is generally located over Greenland (Icelandic Low), while an area of high pressure is located further south in the central North Atlantic (Bermuda-Azores High). The strength and position of these systems vary from year to year and the differences between the two influence the strength of the winters in Europe and United States as well as the trade winds across the Atlantic.

There are positive and negative phases of the NAO. When it is in a positive phase the areas of pressure are reinforced; the low pressure area is lower than normal while the high pressure area is higher than normal. The opposite happens in the negative phase. The NAO changes phase more frequently than many other climate oscillations.

Based on observations from the Climate Prediction Center from early December 2019 the mean value of the NAO index has remained in the positive phase. This means that the Bermuda-Azores High has been stronger than normal consequently bringing stronger trades across the region. The forecast indicates a slightly weaker phase of the NAO from January 16th 2020. Thus weaker wind speed are expected however fluctuations in the strength and location of the High pressure system is expected until April.



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