



**ANNOUNCEMENTS**

The region's meteorologists and climatologists continue to monitor conditions in the Pacific as El Nino conditions are likely to build and have implications for the Caribbean. The possible development is reflected in the July to September rainfall forecast of predominantly normal to below normal amounts over most of the Caribbean (except for northern regions).

**REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR MARCH 2014**

Normal to below normal conditions prevailed in the islands of the eastern Caribbean. Trinidad and Tobago were moderately dry; Grenada, Barbados, St. Vincent, St. Lucia, and Dominica normal; Antigua abnormally dry. Guyana was normal to abnormally wet. Jamaica was abnormally wet, while conditions in Belize ranged from severely dry in the west to moderately wet in the north and to moderately dry in the south.

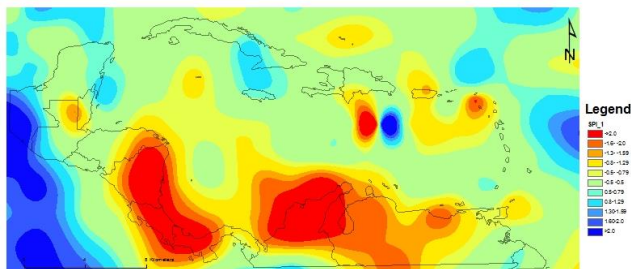


Figure 1. SPI for the Caribbean for March 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>.

Most annual cropping takes place over a period of about three months. Rainfall for the first quarter of 2014 varied across the eastern Caribbean and Guyana to reveal a normal to above normal south and normal to below normal north. Trinidad, Tobago, St. Vincent and St. Lucia were normal;

Grenada and Barbados moderately wet; Dominica abnormally dry; Antigua moderately dry; and Guyana abnormally wet in the west and normal in the east. Puerto Rico, Jamaica and Belize were predominantly normal, but Grand Cayman was abnormally wet. Though the majority of Cuba was moderately wet, conditions ranged from normal to extremely wet.

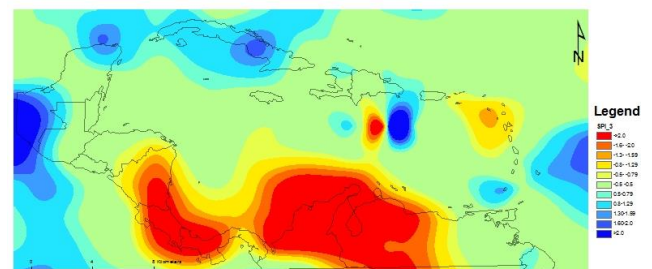


Figure 2. SPI for the Caribbean for January to March 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>

The Bermuda/Azores high pushed moderate surface winds across the region, as the center of the high remained anchored in the far north-eastern Atlantic near the Azores during the first half of the month. A number of frontal systems were generally present over the western Atlantic. On occasion, the southern portion of these frontal systems moved closer to the central Greater Antilles and the north-eastern Caribbean, generating some showers in those areas as they induced a series of westward-moving surface troughs.

## NATIONAL OVERVIEWS

### Antigua and Barbuda

A summary of weather for the month of March 2014 from the V.C. Bird International Airport is as follows:

**Weather:** Fair

**Winds:** From the east at 12.2 km/hr; Max ten minute wind 31.5 km/hr on 28/03/2014 10:00

**Sea Level Pressure:** 1016.3mb (above normal)

**Rainfall:** 21.1mm (below normal); MAX 24-hour: 9.5mm on 02/03/2014; Max 6-hour 9.5 mm on 03/03/2014 at 12:00

**Maximum Temp:** mean 28.4 C; highest 29.7 C on 21/03/2014 at 18:00

**Minimum Temp:** 22.7 C; lowest 19.8 C on 11/03/2014 at 12:00

**Average Temp:** 25.3 C; Warmest Day 21/03/2014 with 26.2 C on ; Coolest Day: 24.0 C on 10/03/2014

**Average Relative Humidity:** 71.0%; Most Humid-Day: 02/03/2014 with 92.0 %; Least Humid-Day: 05/03/2014 with 59.0 %

### Barbados

The Bermuda/Azores high pressure ridge pushed moderate surface winds of between 15 and 35 km/hr across Barbados. A number of frontal systems moved closer to the central Greater Antilles and the north-eastern Caribbean, generating some showers in those areas from time to time.

While some of the above-mentioned surface features triggered occasional showers across Barbados and neighbouring islands, there were only five rain days (rain day= $\geq$ 1mm), which was below the long-term average number of eight rain-days for March. However, one significant trough feature was responsible for the significant spike which was observed on day 16 when the G.A.I.A recorded 27mm of rainfall. Thus, Barbados' rainfall total actually reached 40.4mm, which was 4.0 mm above the average of 37.4mm. Golden Ridge in St. George also recorded 40.3 mm of rainfall over ten rain days.

Meanwhile, with the exception of days 22 and 23 when the maximum temperature reached 30.1°C, daily maximum temperatures were generally cooler than the long-term average and ranged between

28.9° and 29.8°C. The long-term average is 29.7°C. The lowest minimum observed was 22.0°C, which occurred on the 9<sup>th</sup> March.

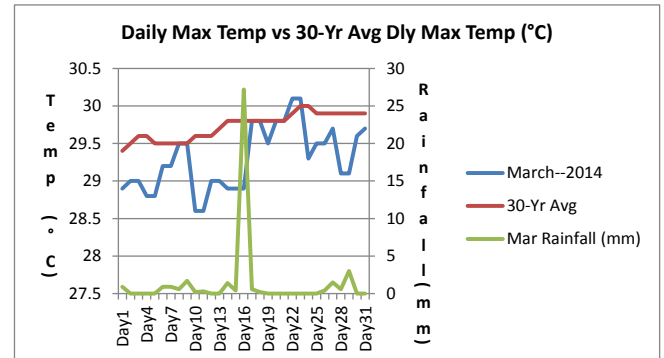


Figure 3 March 2014 daily rainfall and maximum temperature (compared with the average) at Grantley Adams Airport.

### Belize

The month commenced with dry weather for much of the country. The 3<sup>rd</sup> started out with showers over southern Belize, but the weather was pleasant over the rest of the country. At the start of the 6<sup>th</sup> the weather started out sunny. However, during the afternoon and evening, skies turned cloudy as a pre frontal convection occurred over southern inland Belize. By nightfall the showers and thunderstorms spread to central and coastal areas before drifting out to the sea. The remnants of the front produced a few showers on 8<sup>th</sup>, first along the coast of the Stann Creek district, then along the coastal and central portions of the Belize district.

On the 12<sup>th</sup>, there were showers and isolated thunderstorms over southern and offshore Belize during the afternoon. On the 13<sup>th</sup> a cold front produced a few showers and isolated thunderstorms along coastal Belize and offshore areas. On the 14<sup>th</sup> the front produced rain and showers mainly over central and coastal areas. Baldy Beacon recorded the highest rainfall with 30.5mm followed by Pomona in the Stann Creek district with 28.1mm. For that weekend, a drier southeasterly airflow produced pleasant weather across the country. The winds were particularly gusty on 16<sup>th</sup> over coastal Belize.

On the 17<sup>th</sup> fog gradually overtook the International Airport and portions of the central and northern Belize. Visibility was reduced below 100m for several hours at the Airport. A cold front crossed Belize later that night. Mostly sunny weather prevailed on

the 18<sup>th</sup> and 19<sup>th</sup> as a dry southeasterly flow prevailed, which persisted to the weekend.

The dry weather trend continued until 24<sup>th</sup>. The next day there were showers along the foothills of the Maya Mountains in the Toledo district, over the Maya Mountains itself and the Cayo district. During the afternoon and evening of the 26<sup>th</sup> a line of showers over central Belize and over the Corozal district were identified. On 27<sup>th</sup> and 28<sup>th</sup>, strong winds and dry weather persisted over the country. The dry season weather persisted to the end of the month.

Table 1 Rainfall and Temperature Summary for March 2014 for stations in Belize

Station	Liber tad	Zoo	PGIA	Belmopan	Central Farm	Savannah
Elevation (m)	12	30	5	90	90	13
<b>Rainfall (mm)</b>	<b>9.7</b>	<b>22.5</b>	<b>47.9</b>	<b>22.0</b>	<b>7.9</b>	<b>23.1</b>
Mean.	34.1	37.9	46.7	49.7	45.4	51.9
Max	4.5	21.7	37.2	10.2	4.0	9.3
Rain days	2	1	2	4	3	5
<b>Temp (°C)</b>						
Mean Min.	<b>20.1</b>	<b>20.4</b>	<b>23.6</b>	<b>20.8</b>	<b>20.7</b>	<b>22.9</b>
Mean	19.1	19.2	22.0	18.8	18.8	21.7
Lowest Min.	13.8	17.5	19.9	16.0	17.0	20.3
Mean Max.	<b>31.2</b>	<b>32.6</b>	<b>30.4</b>	<b>31.8</b>	<b>32.8</b>	<b>31.0</b>
Mean	31.3	31.2	29.6	31.3	31.5	30.7
Highest Max.	33.2	34.0	33.7	34.5	35.5	34.2

Rainfall values in Green represent amounts above the monthly average; Temperature values in Red represent means above the monthly average; Temperature values in Blue represent means below the monthly average

**Dominica**

The Atlantic high pressure system continued to influence weather conditions throughout the month resulting in conditions characteristic of the ‘dry’ season. Below normal rainfall was recorded at the two airport stations; however, Melville Hall’s final total climbed to above average on the 31<sup>st</sup> when some 26.0mm was recorded.

At the Canefield Airport a total of 19.3mm of rainfall was recorded, which is 39% of the mean. The highest daily total recorded was 5.1mm on the 13<sup>th</sup>. There were only 6 rainfall days. March has an average of 10. There was a 13 day dry spell over the second and third weeks. The dry atmosphere resulted in hourly relative humidities in the 30s being measured throughout the month, and on the 24<sup>th</sup> a

record low of 27% was recorded. The average air temperature recorded was 27.0°C and this is 0.1°C above the mean. The highest daily temperature recorded was 32.2°C on the 24<sup>th</sup> with the lowest being 20.4°C recorded on the 7<sup>th</sup>. The average wind direction was south south easterly at an average speed of 7km/hr. The highest wind gust was 54km/hr recorded on the 5<sup>th</sup>.

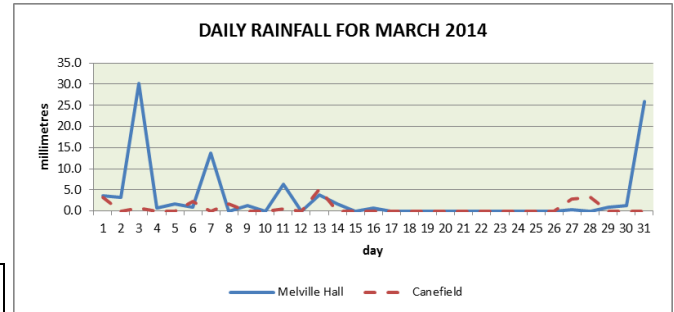


Figure 4 March 2014 daily rainfall at Melville Hall and Canefield

Melville Hall Airport reported a monthly rainfall total of 95.9mm, which is 85% of the mean. The highest daily total recorded was 30.1mm on the 3<sup>rd</sup>. There were eleven rainfall days. This is 4 days below the monthly average. A 15 day dry spell was recorded from mid-month. The average air temperature recorded was 26.3°C and that is 0.1°C below the mean. The highest temperature recorded was 29.9°C on the 24<sup>th</sup> and the lowest recorded was 19.3°C on the 10<sup>th</sup>. Winds maintained an east south east direction at an average speed of 13km/hr. The highest wind gust recorded was 50km/hr on the 1<sup>st</sup>, 28<sup>th</sup> and 30<sup>th</sup>.

There have been reports of leaf scorching, fruit and flower drop on farms including greenhouses in the western regions as a result of the warm temperatures and little rainfall. In the southern region there is an abundance of Irish potatoes and vegetables including lettuce cabbage, tomatoes and broccoli in spite of the dry conditions. There has been little to no establishment of new crops this month, and farmers engaged in land preparation for the start of the rains. No new outbreaks of insect pests and diseases were reported, however, army worms in the southern region are thriving on Irish potato, cucumber and cabbage leaves.

**Grenada**

Apart from a few night time and early morning cloudy skies, mostly fair and windy conditions persisted during the month.

The month's maximum temperature ranged from 28.4°C on the 16<sup>th</sup> to 30.6°C on the 23<sup>rd</sup> and 28<sup>th</sup> respectively, with the mean being 29.4°C. The lowest minimum temperature was 21.2°C, which occurred on the 9<sup>th</sup> and the highest minimum temperature was 25.3°C which occurred on the 21<sup>st</sup>. The mean minimum temperature for the month was 23.3°C.

Rainfall for the month was 33.3mm, 6.3mm more than the average and 29.7mm more than last year's. There was one very significant 24hour period of rainfall of 20.9mm which occurred on the 14<sup>th</sup> of the month, due to a low level trough interacting with a low level moisture surge. There were twenty (20) days with no or insignificant amounts of rainfall during the month.

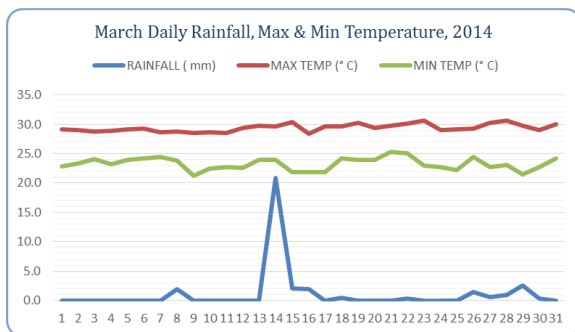


Figure 5 March 2014 daily rainfall and temperatures at Maurice Bishop Airport

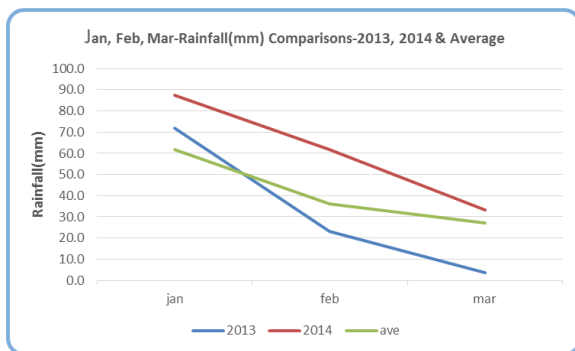


Figure 6 Monthly rainfall and temperatures at Maurice Bishop Airport for the first quarter of 2014

There was a marked increase in rainfall for the first quarter of 2-14 when compared to that of last year's and the overall average.

### Guyana

For the month, Guyana averaged 6 rain days, with an average of 52.0 mm of rainfall. Region 10 recorded the highest average rainfall total of 74.4mm over an average of 9 rain days. The highest one day

rainfall total was recorded at Wash Clothes, Mahaicony, Region 4 with 63.6 mm on 15<sup>th</sup>. Kaieteur Region 8 recorded the highest monthly rainfall total with 256.6 mm.

The highest mean maximum temperature for the month of March was recorded at Lethem in Region 9 with 34°C; Lethem also recorded the highest one day temperature of 35.6°C on the 13<sup>th</sup>. The lowest mean minimum temperature was recorded at Ebini with 20.9°C; Timehri recorded the lowest minimum temperature for the month of 18.0°C on the 12<sup>th</sup>.

In the month of March generally fair weather conditions prevailed over most parts of Guyana thus supporting agricultural activities. The harvesting of sugarcane continued in the month and no significant weather impact on agricultural production was reported.

### Jamaica

Surface troughs coupled with a few occasional frontal systems were the dominant weather features across the island during the month of March. During the month, most of the rainfall was confined mainly over northern parishes. Therefore Sangster International Airport in the northwest recorded above average rainfall while Norman Manley International Airport in the southeast recorded near average rainfall.

Table 2 Climatological Statistics for Manley and Sangster Airports for March 2014.

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	31.9 °C <b>(32.7 °C)</b>	32.7 °C <b>(32.5 °C)</b>
Lowest Minimum Temperature	22.1 °C <b>(21.1 °C)</b>	21.2°C <b>(20.1 °C)</b>
Rainfall Total	24.7 mm <b>(24)</b>	87.2 mm <b>(53)</b>
Rainfall days (≥1mm)	4 days <b>(4.5)</b>	3 days <b>(10.5)</b>

Values in red indicate the 1992-2010(19-year) averages. Values in orange represent 1971-2000 mean.

During the month, Sangster recorded 87.2 mm of rainfall, while Norman Manley recorded 24.7 mm. There were three rainfall days reported for Sangster, while four days were reported for Norman Manley during the month. Sangster recorded 64% above the

1971-2000 mean while Norman Manley recorded near its mean.

The highest maximum temperature recorded for Sangster Airport was 32.7°C (23<sup>rd</sup>) while 31.9°C (15<sup>th</sup>) was reported for Norman Manley Airport.

**St. Lucia**

The dry season is becoming fierce in St. Lucia. The lush green landscape is rapidly changing to a brown hue. The seasonal precipitation outlook gives no consolation. For the next 3 to 6 months rainfall amounts are expected to be in the normal to below normal categories.

Table 3 March monthly averages at Hewanorra Airport

AVERAGE MONTHLY DATA FOR HEWANORRA					
Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
3	90	15	26.0	73	38.0
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
29.3	24.1	9.6	8.5	27.9	

Table 4 March 2014 monthly averages at George Charles Airport

AVERAGE MONTHLY DATA FOR HEWANORRA					
Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
4	100	08	26.5	71	29.8
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
29.2	23.0				

The tripartite committee formed under CAMI along with WASCO have been very active in trying to cushion the effects of the dry season. The local precipitation and drought committee has been activated and WASCO is ready to activate its drought contingency plan.

The Saint Lucia Meteorological Services has been issuing reports based on its SPI drought monitor. The latest report indicates that the north of the island is into a moderate drought on a time scale of 1 month (based on records from 1967).

**St Vincent and the Grenadines**

While occasional brief showers were observed across St. Vincent and the Grenadines (SVG), relatively warm and dry conditions persisted into March. There was a 'six day' dry spell from the 21<sup>st</sup>

to 26<sup>th</sup>. During the third week, there were intermittent periods where Sahara dust haze reduced visibility. Moderate easterly winds were observed throughout most of the month, with maximum winds recorded as 50 km/hr in the Arnos Vale area. Sea-swells were slight to moderate in open waters, triggering a few small craft advisories.

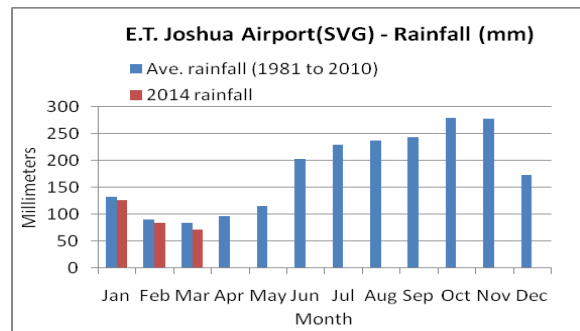


Figure 7 Monthly rainfall at E.T. Joshua Airport during March 2014 and the averages for the first quarter months.

Rainfall recorded at the E.T. Joshua Airport for the month of March was 71.4mm, which was below the climatological average for this station. The highest 24-hour rainfall was 10.3mm, which was recorded on the 16<sup>th</sup>. Rainfall distribution showed the first dekad (ten-day period) had 40.3%; the second had 34.2% and the third had ~25.5% of the total rain fall. There were 15 days with rainfall ≥ 1mm, which is equal to the climatological average for this station. There were 16 days with <1mm of rainfall.

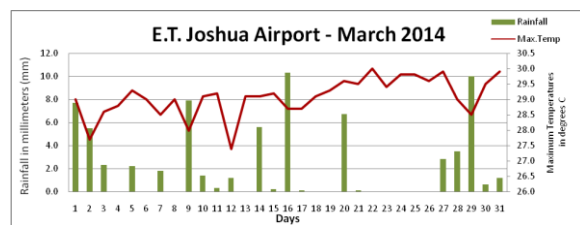


Figure 8 March 2014 daily rainfall and temperature at ET Joshua Airport.

The average maximum temperature was 29.1°C, and the average minimum temperature was 23.5°C. The extreme maximum temperature was 30.0°C and the extreme minimum temperature was 21.4°C.

**Trinidad and Tobago**

March is normally the driest month in Trinidad and Tobago but rainfall totals measured at most locations across the country were well below average. At Piarcro, maximum 24-hour rainfall was 7.7 mm, with

a total for the month of 14.7 mm (47 % of the average); while 26 days were considered as dry days. The longest span of consecutive dry-days was 12 (2<sup>nd</sup> to 13<sup>th</sup>). At Crown Point in Tobago, monthly rainfall amounted to 11.6 mm (33% of average) with a maximum daily total of 4.5 mm and 27 dry days with the longest spell also spanning 12 (16<sup>th</sup> to 27<sup>th</sup>).

With the first ten days of March dominated by a dry weather regime, water stress in pastures and late season Carnival crops would have increased irrigation needs. The infrequent rainfall was in confined areas and did not improve soil moisture prospects. The heaviest rainfall occurred on the first day of the dekad when 2.1 mm was measured at locations such as Piarco, where 10-day rainfall totaled a meager 2.7 mm. Some areas experienced as much as 7 days with no measurable rainfall. In Tobago, the dryness was more intense as ten-day rainfall totals were hardly measurable and totaled 0.6 mm at Crown Point. At the same time, temperatures at Piarco averaged 27.5 °C which was 1.2 °C above the monthly average and this was similar for most other areas; while maximum temperatures remained above 32.5°C, soaring to a high of 33.8 °C. Accompanying these conditions were moderate to strong winds and daytime relative humidity (%) ranging from the high 50's to low 60's, while total sunshine hours and pan evaporation rates remained high.

Much needed rainfall at the start of the second ten days brought some relief from the harsh conditions until the middle of the period. Of note, day 4 produced moderate to heavy afternoon rain showers with southern districts of Trinidad experiencing the heaviest showers along with a few thunder showers. Ten-day rainfall totals rose above 8.0 mm for the first time since early February in both islands. Ten-day temperatures at Piarco averaged just about 27.8°C with daily maximum temperatures often higher than 32.5°C, while minimum temperatures during the night remained above 22.0 °C. The rainfall events were sufficient to be effective, especially for mulched and low tillage crops. Conditions during the second half of the dekad were favourable for crop pests and diseases to develop.

Dry conditions returned during the last ten days, even though small periods of light rainfall affected

confined areas of the northern and central agriculture districts of Trinidad. Ten-day totals were below 3.0 mm across most of Trinidad and Tobago. At Piarco it was 2.0 mm while it was 0.8 mm at Crown Point. Average daily temperatures were 28.2°C in Trinidad and 27.2 °C in Tobago, both of which were warmer than the respective monthly averages. In Trinidad, daily maximum temperatures averaged about 33.2 °C, while it averaged just 31.1°C in Tobago. The highest maximum temperature for the dekad was 33.6 °C at Piarco, while it was 31.8°C at Crown Point. Mean daily minimum temperatures were 23.1 °C in both islands. Rainfall was insufficient for plants, making irrigation necessary, and combined with high temperatures and high evaporation rates increased the potential for heat and water stresses in crops, pastures, and livestock. With below average rainfall during February and March, pastures became less green, and grasses were observed to be wilting. To reduce the resulting negative impacts, livestock farmers were encouraged pay attention to their livestock grazing management or alternate feeding to enable good nutrient intake.

### REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

#### ENSO Conditions

ENSO-neutral conditions persist, with Eastern Pacific equatorial Sea Surface Temperatures (SSTs) close to 0°C. However, most models indicate upward trend to about 0.5-2°C above average from July to September, possibly initiating an El Niño event – a development that the region should monitor closely. The influence of ENSO on rainfall and temperature is expected to be minimal for the period April to June, however there is a real chance for a shift to below normal rainfall south of 20°N for July to September, including a delay of onset of the wet season, and a small shift to above-normal rainfall in the northern Caribbean.

#### Conditions in the Tropical North Atlantic and Caribbean

SSTs are 0.5-1.5°C above average around the northern islands, and average to the east of the Antilles. The above average SSTs are forecasted to remain in the north, while a rise in SSTs to slightly above average are expected to the east of the islands

by July. The atmosphere is expected to contain little moisture during the dry season, but is likely to increase into May and June as the wet season approaches. The Trade Winds are currently slightly above average, and though with little predictability, are expected to possibly remain stronger than average until September, likely resulting in decreased rainfall in the region, apart from the northern Caribbean.

**April to June 2014**

Low predictability continued in the Caribbean for this period, apart from in the northern Caribbean and the northern Leeward Islands. In the north in the vicinity of The Bahamas and Turks and Caicos Islands, above normal rainfall is the most likely scenario. Further to this, slightly better than normal chance for normal to above normal rainfall in Cuba exist. In the Guianas, similar predictions are made to the northern Caribbean, with slightly better than average chances for normal to above normal rainfall. Below normal rainfall is the most likely outcome over the Leeward Islands. For the remainder of the Caribbean, a slightly better than average chance of normal to below normal rainfall exists.

Temperatures are expected to be normal to above normal, with confidence of above normal increasing toward the north and west of the region.

**July to September 2014**

Normal to below normal conditions, with a greater likelihood of below normal, is predicted for most of the region as an El Nino is forecasted to develop during the wet season. Confidence for below normal rainfall is higher in Belize and in the area of the ABC islands. There is also chance for Cuba to be normal to below normal, albeit only slightly better than average. Contrastingly, the remainder of the northern Caribbean has a slightly better than average chance for normal to above normal rainfall.

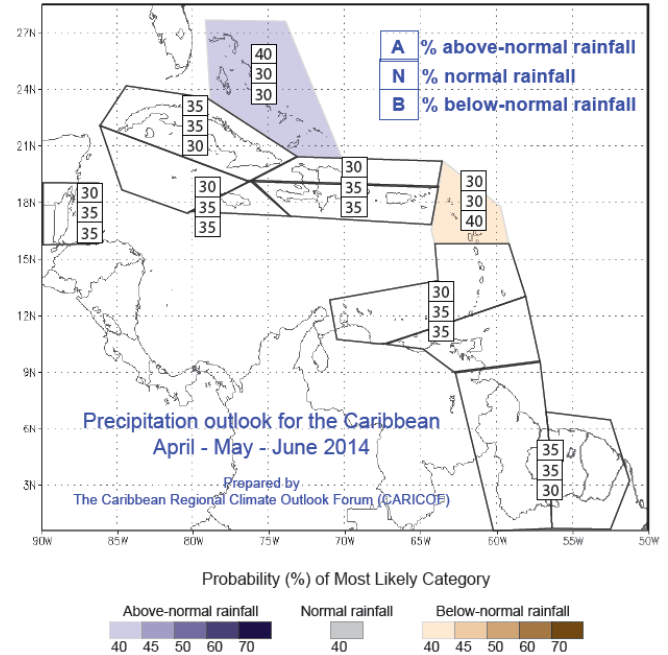


Figure 9 The April to June 2014 rainfall forecast

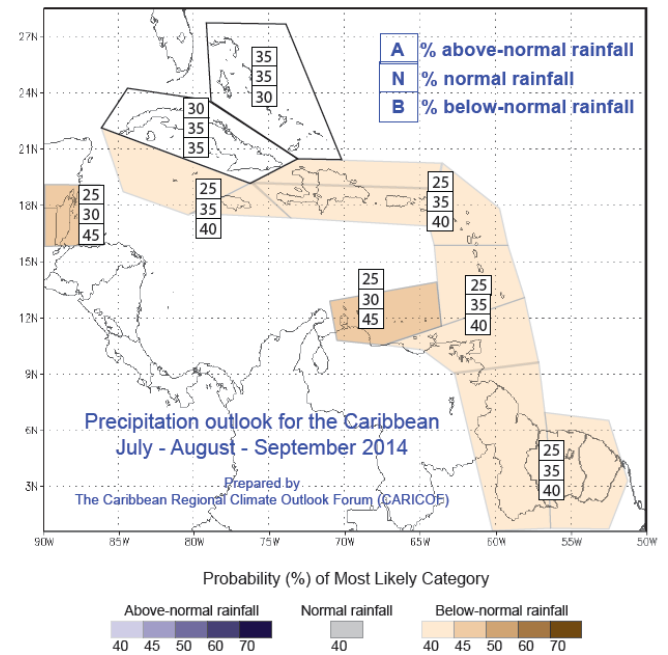


Figure 10 The July to September 2014 rainfall forecast

*Prepared by*  
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