



**ANNOUNCEMENTS**

Apart from Belize in particular, the drought situation has been alleviated in most of the Caribbean. However, future concerns still exist over Belize and in Jamaica, the southern Caribbean and Guyana. Interests in these vicinities should continue to monitor conditions and conserve water. There is still the likelihood for development of an El Niño, which would likely result in below normal rainfall during the 2015 dry season.

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

Normal to above normal rainfall was experienced in most of the eastern Caribbean and Guyana for August. Guyana, Trinidad, Tobago, Grenada, Barbados, St. Vincent, St. Lucia, Dominica and Antigua were all normal. Jamaica rainfall was normal, while in Belize conditions ranged from extremely dry in the south to moderately dry in the north.

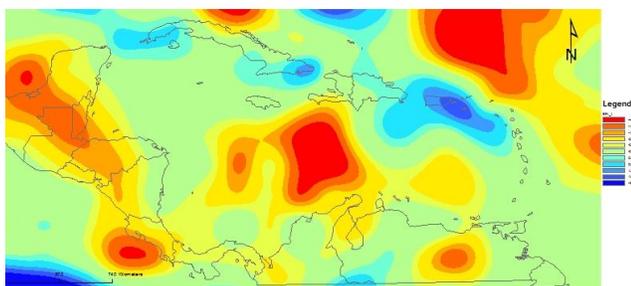


Figure 1. SPI for the Caribbean for August 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>.

Most annual cropping takes place over a period of about three months. Apart from Trinidad that was normal to abnormally wet, the islands of the eastern Caribbean were normal to below normal for the three month period. Tobago and Dominica were abnormally dry; Grenada and Antigua severely dry; and Barbados, St. Vincent and St. Lucia moderately dry. Guyana conditions ranged from being very wet in the west to moderately dry in the east. Jamaica was

moderately dry to the south and abnormally dry in the north, while Grand Cayman was normal. The eastern portion of Cuba was predominantly normal, while the west was abnormal to moderately dry. In Belize, the west was extremely dry and the east exceptionally dry.

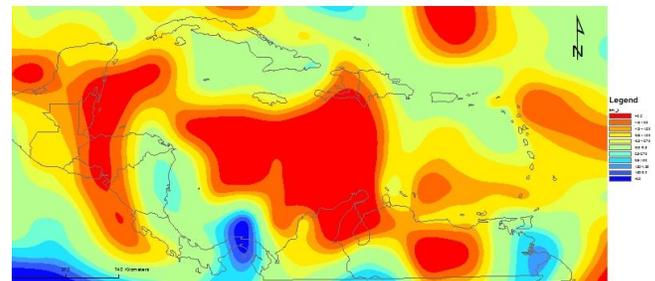


Figure 2. SPI for the Caribbean for June to August 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>

Only two tropical cyclones, Bertha and Cristobal, formed in the Atlantic Basin during August. Bertha was the second named tropical storm of the Atlantic Hurricane Season forming just to the east of the Lesser Antilles. Tropical Depression #4 developed just north of Hispaniola on the 23<sup>rd</sup> and became Tropical Storm Cristobal on the following day. It reached hurricane status (Category 1) on the 26<sup>th</sup> as it tracked northward over the western Atlantic (north of the Bahamas). Tropical waves and troughs also contributed to the rainfall across the region.

The Bermuda Azores High peaked early during the month accompanied by fairly strong winds.

Temperatures in many islands of the eastern Caribbean were below average.

## NATIONAL OVERVIEWS

### Antigua and Barbuda

Relatively cool weather prevailed across the area during August. The mean daily temperature of 27.8°C was below normal and tied with 1977 and 1972 for the fifth lowest on record dating back to 1971. Meanwhile, the mean daily maximum temperature, 30.5°C, was well below normal and tied with 1976 for the seventh lowest on record dating back to 1969. The mean daily minimum temperature was near normal but the second lowest since 2005. So far for the year, the island average rainfall for every month has been near or below normal; August is the first month for the year to receive above normal rainfall, 113.3 mm. For the month, at the V.C. Bird International Airport, both the 13 wet days ( $\geq 1$  mm), and the three heavy rainfall days ( $\geq 10$  mm) were near normal. The 27<sup>th</sup> was the wettest day at the Airport with 18.6 mm caused by a tropical wave. The rainfall for August was helpful for planting activity by farmers; however, the drought, which started September 2013, continues with the last three months (June-August) showing a serious deficit of 107.2 mm, 38% below the average. Further, the deficit for the year ending August is 353.6 mm, around 29.5% below the average of 1201.2 mm, for the given period. Farmers are also wholly dependent on water from desalination, a very expensive and unsustainable source.

### Barbados

The passage of several tropical waves brought the rainfall total for the month to 130.3, which was just 11.6mm short of the long-term average rainfall of 141.9mm. This was achieved over 18 rain day ( $\geq 1$ mm), three more than the average. However, the cumulative rainfall total at the Airport at the end of August was 185.8mm less than the long-term (1981-2010) cumulative average. Meanwhile, Golden Ridge in St. George also observed 143.2mm of rainfall over 20 rain days.

Wind-speeds across the island were moderate to brisk during the month, ranging between 18 and 37 km/hr. A 48.1 km/hr maximum wind-speed was recorded on 25<sup>th</sup>.

In general, daily maximum temperatures were lower than the long-term (1981-2010) daily averages. Daily maximum temperatures ranged between 28.6 and 30.8°C for most of the month, with only four days exceeding 31°C; the normal for August being 30.9°C. The highest maximum of 31.1°C was observed on the 27<sup>th</sup>. The lowest minimum was 23.0°C recorded on 28<sup>th</sup>. The average day-time air temperature was 28.3° C, while the average night-time air temperature was 26.7°C.

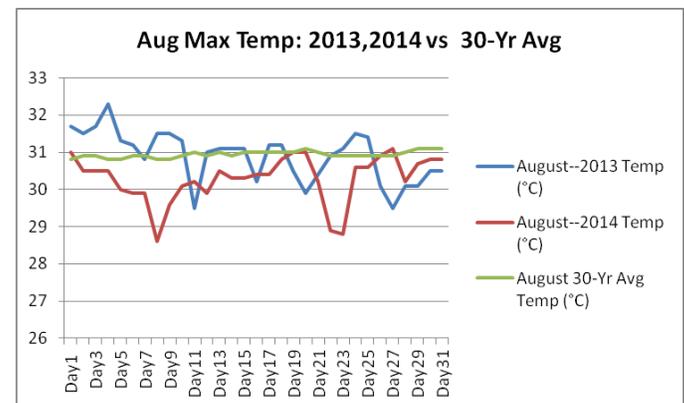


Figure 3 Average maximum temperature for August 2014 compared to August 2013 and the long term average.

### Belize

Light surface winds and high daytime temperatures were experienced in Belize during the first few days of August. On the 5<sup>th</sup>, showers and thunderstorms developed over the southern districts and coastal areas as a tropical wave approached, but thunderstorms were isolated over most land areas. In the south, more showers and thunderstorms occurred on the 7<sup>th</sup> and again on the 9<sup>th</sup> (with central and northern areas later affected) and into the 10<sup>th</sup> due to tropical waves.

The next week (of the 11<sup>th</sup>) started with more showers and thunderstorms developing over southern and coastal areas, with the wave eventually crossing Belize with very little impact. Another wave approached later in the week bringing cloudiness with showers and thunderstorms occurring over most areas except for the extreme north of the

country. The showers continued in the south up until weekend..

On the 18<sup>th</sup> another tropical wave approached that changed sunny skies cloudy by evening bringing several showers and thunderstorms along coastal areas, with rains continuing into the south until the 20<sup>th</sup> morning, and later with brief showers over northern Belize district and portions of the Orange Walk district. On the 23<sup>rd</sup>, a few showers and thunderstorms developed in the west, northwest and southwest Belize. During the 24<sup>th</sup>, showers developed around midday over inland Belize and Stann Creek districts.

Table 1 Rainfall and Temperature Summary for August 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>110.6</b>	<b>93.9</b>	<b>86.3</b>	<b>44.9</b>	<b>49.2</b>	<b>62.2</b>
Mean.	155.9	265.4	191.7	237.2	159.7	345.8
Max	27.0	39.6	13.6	26.9	14.2	27.3
Rain days	8	6	12	3	7	5
<b>Temp (°C)</b>						
Mean	<b>24.0</b>	<b>23.3</b>	<b>25.1</b>	<b>23.6</b>	<b>23.0</b>	<b>25.1</b>
Min.	23.4	22.9	24.6	22.4	22.5	24.2
Lowest	21.5	22.5	21.9	22.3	21.0	23.1
Min.						
Mean	<b>34.4</b>	<b>33.2</b>	<b>32.1</b>	<b>33.0</b>	<b>33.3</b>	<b>33.4</b>
Max.	32.9	32.3	31.5	32.2	32.4	31.5
Mean	37.0	34.3	34.2	34.0	36.0	33.0
Highest						
Max.						

n/a-not available; 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;\*-station data incomplete.

On the 25<sup>th</sup> and the 26<sup>th</sup> over inland areas, daytime heating supported afternoon showers and thunderstorms inland. On the 26<sup>th</sup> showers were also experienced over western and central Belize. Skies cleared up considerably the following day with a small area of showers over northern Belize and later in the evening over the western Orange Walk and northwest Cayo districts. On the 28<sup>th</sup>, showers and thunderstorms occurred over inland areas. A fast-moving wave reached the western Caribbean during the 30<sup>th</sup> producing scattered showers mostly over the sea and southern coastal waters, but later showers and thunderstorms occurred that spread inland by the next morning with extensive areas of showers,

rain and thunderstorms over northern, central and coastal areas.

**Dominica**

Dominica was affected by its first tropical system for 2014, Tropical Storm Bertha, on the 1<sup>st</sup>. Bertha passed some 40 miles to the south of the island producing tropical storm force winds and rainfall of up to 50 mm.

A monthly total of 271.4mm of rainfall was recorded at the Canefield station. This total was 27.1mm more than the monthly mean. The highest daily total recorded was 70.7mm on the 7<sup>th</sup> as a result of the passage of a tropical wave. There were 18 rainfall days and that is about average. There were no significant dry spells. The average air temperature recorded was 28.5°C which is about average. The highest daily temperature recorded was 33.4°C on the 25<sup>th</sup> and the lowest recorded was 23.3°C on the 26<sup>th</sup> and 28<sup>th</sup>. The average wind direction was south easterly at an average speed of 6km/hr. The highest wind gust recorded was 44km/hr as a result of the passage of Tropical Storm Bertha on the 1<sup>st</sup>.

Melville Hall recorded a monthly total of 260.5mm of rainfall, which is 5.1mm more than the monthly mean. Tropical Storm Bertha produced the highest daily total of 57.0mm on the 1<sup>st</sup>. The number of rainfall days were about average at 20 rainfall. There were no significant dry spells. The average air temperature recorded was average at 28.5°C. The highest temperature recorded was 31.6°C on the 15<sup>th</sup> and the lowest recorded was 21.5°C on the 28<sup>th</sup>. The average wind direction was east south easterly at an average speed of 15km/hr. The highest wind gust recorded was 72km/hr as a result of the passage of Tropical Storm Bertha on the 1<sup>st</sup>.

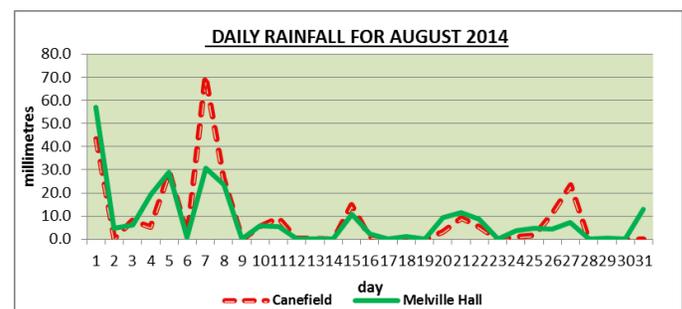


Figure 4 Daily rainfall at Canefield and Melville Hall Airports during August 2014.

There were no reports of any extensive damages to crops as a result of the passage of Tropical Storm Bertha. Farmers across the island embraced the rainfall events and began cultivating and fertilizing fields while others harvested. Some have begun the replanting of vegetables to ensure that the high demands are met for this upcoming independence season. At present, vegetables remain in abundance on the market to include, lettuce, tomatoes and cucumbers. There was also an increase in breadfruit and avocado pears.

The Black Sigatoka Disease continues to spread across the island. The number of Giant African Snails continue to increase with the increase in rainfall amounts as these conditions are favourable for reproduction. Green Scales, Greasy Spot and Brown Citrus Aphid were observed on citrus, Bacterial Leaf Spot and Phytophthora Rot in peppers and Ghost Spot on dasheen were among some of the pests/ diseases observed during the month.

**Grenada**

Rainfall for the month of August, 2014 was 142.7mm which was only 4.3mm below the average of 147.0mm and more than double that of August 2013. Very significant 24hour rainfall amounts of 40.1mm, 46.0mm and 18.2mm were recorded on the 7<sup>th</sup>, 10<sup>th</sup> and 15<sup>th</sup> respectively. There were 13days with rainfall over 1.0mm, 6days with rainfall below 1.0mm, 10days with a trace and only 2days with no rainfall.

Mean daily temperatures for the month of August was lower than that of last year’s by an average of 0.2°C, reaching a value of 27.7°C, while the mean maximum and minimum temperatures were 30.7°C and 24.8°C respectively. The highest temperature though was 32.2° C and occurred on the 19<sup>th</sup> while the lowest was 23.1°C and occurred on the 8<sup>th</sup>.

Strong winds generated moderate to rough seas causing small craft advisories to be issued on the 12<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup> of the month. Despite the moderate to rough seas at times, fishermen were able to venture out to sea bringing in yellow fin tuna, dolphin, king fish, bonito and some grunt and hind, even though the numbers are not as high as previous months.

With the increase in rainfall, farmers will now have to take the necessary steps to protect their crops from pests and diseases that comes along with increased moisture. Despite this, farmers had good production of cucumber, melon, pumpkin, avocado and seasoning peppers.

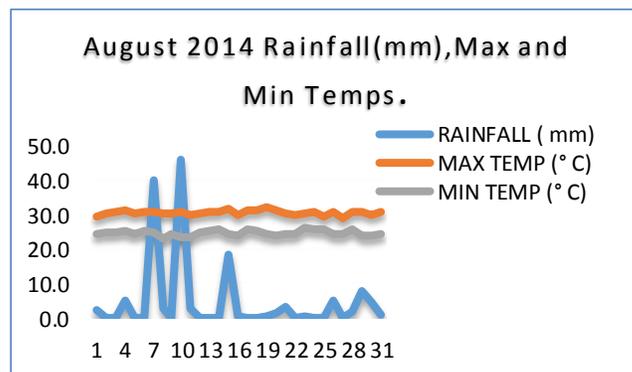


Figure 5 Daily rainfall and maximum and minimum temperatures at Maurice Bishop International Airport for August 2014.

**Jamaica**

The island experienced very little rainfall especially over eastern parishes during the first half of the month. However, towards the end of the month several tropical waves coupled with a few low level troughs dominated the weather resulting in moderate to heavy showers affecting sections of all parishes. During the month, Sangster in the northwest recorded 129.2 mm of rainfall, while Norman Manley in the southeast received 122.5mm of rainfall. There were eight rainfall days reported for Sangster while Norman Manley International airports recorded five rainfall days. Both stations received above average rainfall during the period, with Sangster recorded approximately 42% above the 1971-2000 mean while Norman Manley recorded a larger increase of 68% above the mean.

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

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	34.8 °C <b>(34.9 °C)</b>	35.0 °C <b>(34.6 °C)</b>
Lowest Minimum Temperature	23.0 °C <b>(23.5 °C)</b>	22.3°C <b>(22.4 °C)</b>
Rainfall Total	122.5 mm <b>(73.0)</b>	129.2 mm <b>(91.0)</b>
Rainfall days (≥1mm)	5 days <b>(7.3)</b>	8 days <b>(14.2)</b>

Values in red indicate the 1992-2011 (20-year) averages. Values in orange represent 1971-2000 mean.

The highest maximum temperatures recorded for Sangster Airport was 35.0°C (19<sup>th</sup> August) which exceeded the 20-year mean, while 34.8°C (18<sup>th</sup> August) was reported for Norman Manley Airport.

**St. Lucia**

August brought a significant amount of rainfall to Saint Lucia and this alleviated some of the water shortage problems affecting the water providers and vital sectors such as Agriculture, Tourism and Construction. However, rainfall remained below average for most of the monitoring stations, particularly in the north of the island. The rainfall was well distributed on a weekly basis.

Table 3 August 2014 monthly averages at Hewanorra Airport

Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	90	13	28.0	81	164.6
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil Temp (°C)	
30.5	25.7	7.8	7.3	29.3	

Table 4 August 2014 monthly averages at George Charles Airport

Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	90	07	28.0	80	151.6
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil Temp (°C)	
30.6	24.9				

**St Vincent and the Grenadines**

There were a few days that had thunderstorms activity which were associated with the passage of tropical waves. The highest winds gusted at around 55.6 km/hr at the E.T. Joshua Airport on the 13<sup>th</sup>. Saharan dust haze, while present did not significantly reduce visibility across the islands. Sea-swells were most times moderate in open waters, with above normal sea swells, resulting in few small-craft advisories being issued.

At the E.T. Joshua Airport-Arnos Vale, total rainfall was 234.1mm. This was 2.9 mm lower than the average for August (1981-2010). There were 22 rain-days, this was two (2) days more than the average for

this station; with the highest 24-hour rainfall (41.5 mm) being recorded on the 10<sup>th</sup>. There were only two (2) consecutive days with rainfall <1mm (2<sup>nd</sup> to 3<sup>rd</sup>). The rainfall distribution showed the first dekad (ten-day period) with ~41%, the second dekad had 15%, and the third dekad had 44%.

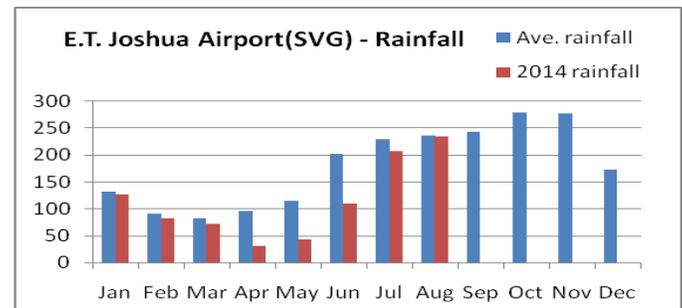


Figure 6 Monthly rainfall at E.T. Joshua Airport for 2014 (up until August) compared to the averages for each month.

The average maximum temperature was 30.5°C, and the average minimum temperature was 25.3°C. The extreme maximum temperature was 31.4°C, which was 0.5°C less than the 30 year average, while the extreme minimum temperature of 23.3°C was 0.4°C higher than the 30 year average. The mean relative humidity was 77.5%, 0.4% lower than the 30 year average.

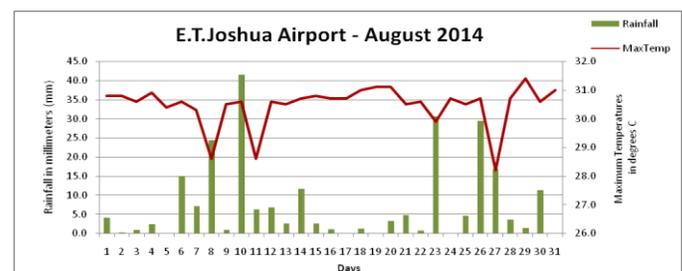


Figure 7 August 2014 daily rainfall and temperature at ET Joshua Airport.

**Trinidad and Tobago**

Total rainfall for the month amounted to 171.2 mm or 65 % of the 1981-2010 average at Piarco, while at Crown Point it totalled 166.0 mm or 105 % of the average. At Piarco, mean daily temperatures exceeded the 1981-2010 average by 0.5°C to reach 27.5°C while the mean maximum and minimum temperatures were 32.7 °C and 24.3°C respectively. Crown Point observed a mean temperature of 27.3 °C while the mean maximum and minimum temperatures were 30.7 °C and 25.3°C respectively. The first ten-day rainfall total at Piarco in north

Trinidad amounted to 40.2 mm but this would have been higher in a few areas such as Debe and environs in south Trinidad and Port of Spain and environs in northwest Trinidad. During the first ten days, maximum temperatures soared above 33.0°C on each day except the wettest day and peaked at 34.2°C on the 5<sup>th</sup>. Average daytime temperatures remained at 28.5 °C while minimum night temperatures were relatively cool, averaging 24.1 °C.

The second ten-day period turned out to be slightly drier than the first, even though there were two days of extremely heavy downpours in Trinidad. Tobago, on the other hand Tobago was much drier with only one day being considered as wet. In Trinidad, 10-day rainfall totals ranged from as low as 25.0 mm in the extreme north-western areas to as high as 70.0 mm in a few eastern areas of the island. The 5<sup>th</sup> was the wettest day, producing 30.7 mm in Port of Spain and environs. During the period, daily maximum temperatures reached a high of 33.6 °C and averaged 33.1 °C, while daily temperatures averaged a warm 28.8 °C, at Piarco. Across in Tobago, 10-day rainfall totals remained below 30.0 mm with the wettest day occurring on the 5<sup>th</sup> when 19.3 mm was recorded in the Crown Point district. The last ten days of August turned out to be reasonably wet. At Piarco, ten-day rainfall reached 100.0 mm with days nine and tenth 9<sup>th</sup> and 10<sup>th</sup> being the wettest days when 44.8mm of rain was measured in total. Across at Crown Point in Tobago, ten-day rainfall totals reached 70.1 mm but most of this rainfall occurred on the 6<sup>th</sup> when 40.4 mm was recorded. During the period daily maximum temperatures averaged 32.6 °C and reached a high of 33.2 °C, while daily temperatures averaged a warm 28.4 °C at Piarco.

The rainfall during the month, even though reduced in terms of percentage of average, would have benefited agriculture significantly and was sufficient to continue improving water available for agricultural purposes going into September. In addition, the rainfall would have benefited topsoil moisture and boosted moisture content to levels that were sufficient to limit irrigation needs on the hot and drier days. The combination of rainfall with high temperatures would have provided favourable conditions for some agricultural insect pests, fungal spores and diseases to thrive; however, days with

heavy downpours may have been beneficial in washing away some these spores and pests. The episodes of torrential rainfall resulted in pockets of flooding in the Debe agricultural district and environs in South Trinidad, where farmers lost thousands of dollars in crops. Similarly, rainfall resulted in flooding in a few areas of northwest Trinidad, especially in the Port of Spain and neighbouring districts.

### REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

**ENSO**-neutral conditions persist with Eastern Pacific equatorial Sea Surface Temperatures (SSTs) at near 0.5°C above average. Most models indicate a continued upward trend to about 0.5-1.5°C above average by December 2014 to February 2015, initiating a weak to moderate event. This is a development the region should continue to monitor closely, as it may have implications for rainfall during the late wet season and into the 2015 dry season. Due to ENSO, there is a real chance for below-normal rainfall and above normal temperatures south of 20°N into February 2015.

**Caribbean SSTs** are near to below average, and this is predicted to remain throughout the forecasting period with only a slight probability of any change occurring north of the Greater Antilles. **The Trade Winds** are near average but could get stronger during the forecasting period, particularly in the southern Caribbean around the ABC Islands. Below average temperatures and stronger trade winds slow down strong convection, thus potentially reducing precipitation and stormy events throughout the wet season, especially in the Eastern Caribbean.

#### **September to November 2014**

Normal to below normal rainfall, with greatest likelihood of below normal, is expected across the majority of the Caribbean with highest certainty over Belize and a lesser extent over most of the islands. The exceptions are in the southern Caribbean in the vicinity of Trinidad and Tobago and the Guiana, and north around the Bahamas where there is only slightly better than average chance or normal to below normal rainfall.

**December 2014 to February 2015**

Normal to below normal conditions, with greatest likelihood for below normal, are forecasted for the eastern Caribbean from the Leeward Islands southward to the Guianas, with greatest certainty for below normal in the vicinity of the Windward and the ABC islands, and Guyana. Contrastingly, normal to above normal rainfall, with highest likelihood for above normal, is expected in the northern Caribbean, inclusive of The Bahamas and Cuba. Greater uncertainty exists in the remainder of the Caribbean.

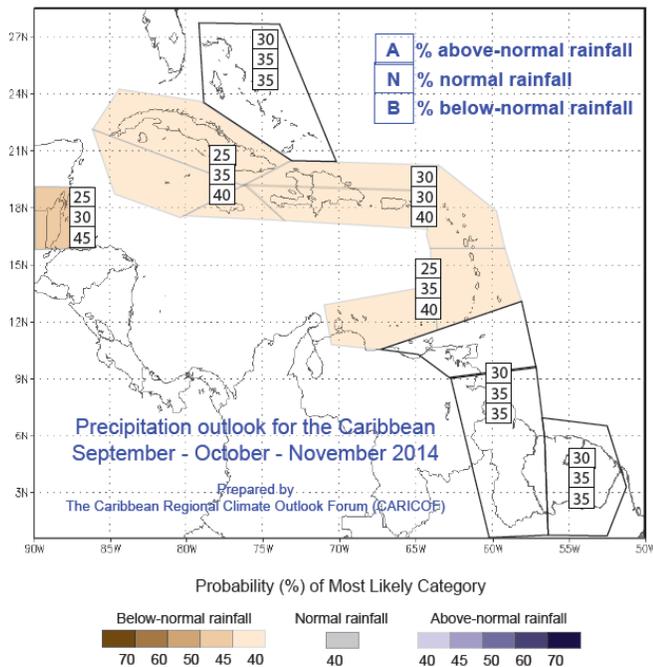


Figure 8 The September to November 2014 rainfall forecast

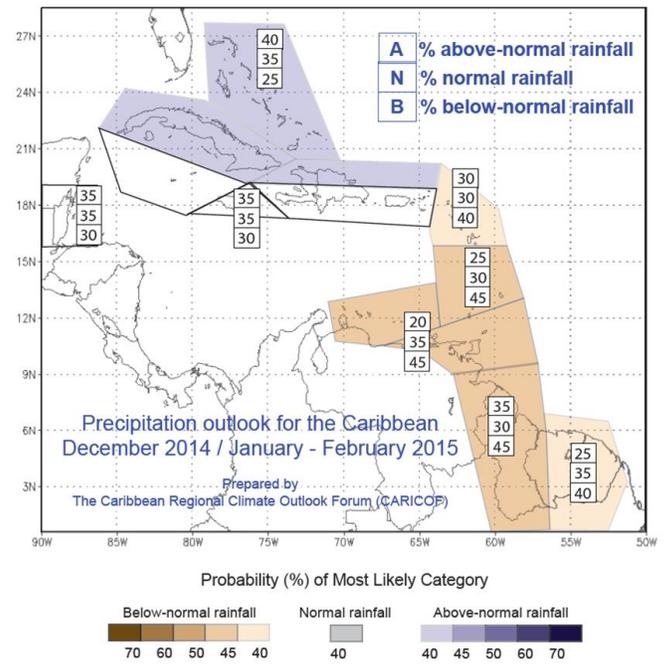


Figure 9 The December 2014 to February 2015 rainfall forecast

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**Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana,**  
**Jamaica, St Lucia, St Vincent and the Grenadines and Trinidad and Tobago**  
*CAMI is funded by the European Union in partnership with the institutions that have prepared this bulletin, along*  
*with the Caribbean Agricultural Research and Development Institute and the World Meteorological Organization*