



**ANNOUNCEMENTS**

The transition to the wet season gradually continued throughout June. It is still suggested that interest in the Windward Islands and Barbados continue with their water conservation measures. High certainty for below normal rainfall during the latter part of the wet/hurricane season (October to December) exists across the Caribbean, particularly the Leeward and Windward Islands.

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

Rainfall in the islands of the eastern Caribbean was normal to below normal. Trinidad and Dominica were normal; Tobago severely dry; Grenada extremely dry; Barbados and St. Lucia abnormally dry; and St. Vincent and Antigua moderately dry. Conditions in Guyana ranged from very wet in the west to normal in the east. Jamaica was severely dry in the south and moderately dry in the north. Rainfall in Belize ranged from normal in the south to exceptionally dry in the north.

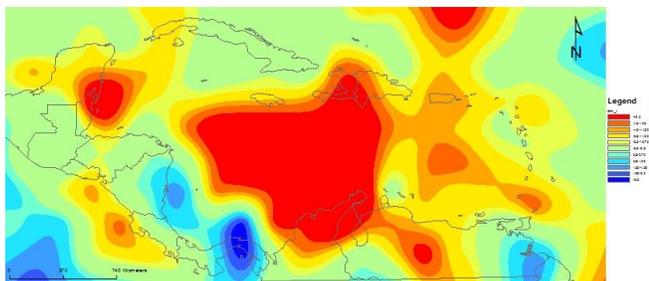


Figure 1. SPI for the Caribbean for June 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpnm/spimonitor.html>.

Most annual cropping takes place over a period of about three months. For the three month period, the islands of the eastern Caribbean were predominantly normal to below normal. Trinidad was normal to

abnormally dry; Tobago, St. Lucia and Dominica moderately dry; Grenada and St. Vincent extremely dry; Barbados severely dry; and Antigua abnormally dry. Conditions in Guyana ranged from moderately wet in the west to exceptionally dry in the east. Rainfall in Jamaica ranged from moderately wet in the west to moderately dry in the east. Conditions in Belize ranged from normal in the west to moderately dry in the east.

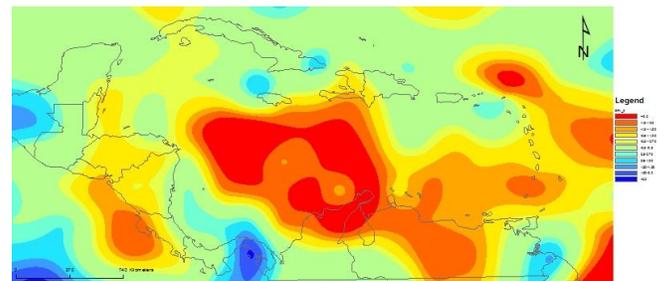


Figure 2. SPI for the Caribbean for April to June 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpnm/spimonitor.html>

The Atmosphere over the islands was relatively dry, stable and hazy for most of the month of June, except for some occasional periods of instability resulting from some shallow cloud patches of moisture that move over the islands, and a few tropical waves and trough systems that produced some significant rainfall. The high pressure system was often the dominant feature affecting the stability of the weather, often in collaboration with strong wind shear and Saharan dry air, which was accompanied by haze. The Tropical waves traversing the region produced some much needed rainfall

during the latter part of the month in the eastern Caribbean. Many islands observed a delay to the start of the wet season.

**NATIONAL OVERVIEWS**

**Antigua and Barbuda**

Although June marks the start of the rainy season across the region, Antigua and Barbuda once again experienced below average rainfall amounts. Total rainfall recorded at V.C. Bird Airport was 27.9mm over ten (10) measurable precipitation days of  $\geq 0.1$ mm of rainfall.

Table 1 Weather summary at VC Bird Airport for June 2014.

Weather Summary for April at V.C Bird Int'l Airport	
Temperature	
Absolute Maximum	30.9°C
Mean Daily Maximum	30.1°C
Mean Daily	27.5°C
Mean Daily Minimum	25.3°C
Absolute Minimum	23.4°C
Warmest Day	28.2°C
Coollest Day	26.6°C
Rainfall	
Total	27.9 mm
Rainiest Day	7.0 mm
Measurable Rainfall Day (rainfall $\geq 0.1$ mm)	12
Days $\geq 1.0$ mm	10
Days $\geq 10.0$ mm	0
Days $\geq 20.0$ mm	0

A persistent dry and stable atmosphere from the 1<sup>st</sup> to the 3<sup>rd</sup>, restricted the formation of any significant clouds and showers over the island. From the 4<sup>th</sup> to the 7<sup>th</sup>, the 5.9 mm of rainfall can be attributed to some shallow cloud patches that move over the island. On the 12<sup>th</sup> and the 13<sup>th</sup> the islands received 1.8mm, due to a weak tropical wave which affected mainly the southern Windward Islands and to a lesser extent portions of the northern island chain. This brought a few scattered showers over the island, but from the 14<sup>th</sup> to the 18<sup>th</sup> a relatively stable atmosphere once again became the dominant feature over the island. Moisture ahead of a tropical wave brought about 7mm on the 21<sup>st</sup>, which is the highest 24 hour rainfall for the month, and there were 1.6 mm the following day. Lingering moisture led to 1.8mm of rainfall from the 24<sup>th</sup> to 25<sup>th</sup>. A more stable

and hazy atmosphere prevailed thereafter, apart from on the 30<sup>th</sup> when 2.6 mm of rainfall was recorded, due to the passage of another weak tropical wave.

The month's average air temperature recorded at the V.C Bird Int'l Airport was near average at 27.5°C. The highest maximum was 30.9°C on the 26<sup>th</sup> while the lowest minimum temperature of 23.4°C was recorded on the 30<sup>th</sup> and the average relative humidity for the month was 74.4%.

**Belize**

At the start of June the weather was rainy in the Toledo district and showery at Dangriga. Later during the day showers developed over northern and inland areas. More showers and thunderstorms developed the following day (2<sup>nd</sup>) in the early morning in the south of the country before spreading to the rest of the country. Later, showers developed over northern, central and coastal areas. More showers occurred in the south during the early morning of the 3<sup>rd</sup>. There were gusty winds from the east to southeast. Not much changed on the 4<sup>th</sup>, as showers during the early morning over southern Belize continued. The remnants of Tropical Storm Boris caused some rain over the Toledo district in the early morning and isolated showers elsewhere. Skies remained cloudy on 6<sup>th</sup> and 7<sup>th</sup> for much of the country. Showers developed in the south of the country early on the 8<sup>th</sup> as skies remained cloudy elsewhere across the country until the following morning. During the 10<sup>th</sup> and 11<sup>th</sup> a few showers and isolated thunderstorms developed inland. A tropical wave caused showers over central and southern portions of the country during the early morning of the 14<sup>th</sup>, with a gusty flow from the east, which continued into the 16<sup>th</sup>.

Due to another tropical wave, a few showers occurred over most districts during the afternoon and early evening of the 16<sup>th</sup>. Rainfall was highest in the west where Central Farm recorded 34.6mm, followed by Barton Creek with 32mm. The following day a few showers occurred over the southern portion of the country in the early morning. Later in the day showers occurred over other portions of the country. Late on the 18<sup>th</sup> showers were experienced in the extreme south that migrated to the north by early morning of the 19<sup>th</sup>, accompanied by gusty surface winds. Cay Caulker recorded gusts to

66.7km/hr, while San Pedro recorded gusts to near 52km/hr. On the 21<sup>st</sup> and 22<sup>nd</sup>, showers, accompanied by thunderstorms, again occurred in the south due to yet another tropical wave. By the following day these showers had extended north. On the morning of the 30<sup>th</sup> another wave was accompanied by only a small cluster of showers and thunderstorms in the extreme south.

Table 2 Rainfall and Temperature Summary for June 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>	53.2	144.4	20.1	103.5	93.9	223.2
Mean.	222.9	278.3	239.6	294.7	192.8	305.8
Max	36.4	91.7	7.3	27.2	34.6	96.9
Rain days	6	8	5	11	9	12
<b>Temp (°C)</b>						
Mean Min.	24.3	24.8	26.6	24.6	24.1	25.5
Mean	23.7	23.5	25.1	23.0	22.9	24.6
Lowest Min.	20.7	23.0	24.5	21.6	22.5	23.3
Mean Max.	31.7	31.8	31.2	31.7	32.4	32.5
Mean	32.6	32.5	31.5	32.4	32.9	32.2
Highest Max.	33.6	33.6	32.6	33.5	34.0	36.2

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 Canefield Airport recorded 104.4mm of rainfall, representing about 66% of the monthly mean. A maximum daily total of 63.2mm on the 29<sup>th</sup> made up 61% of the months total. This was as a result of a tropical wave traversing the area. There were 10 rainfall days, which is 6 days below average and two 5 days dry spells during the first and third quarters of the month. The average air temperature recorded was 29.3°C and this is 0.3°C above the mean. The maximum daily temperature recorded was 33.8°C on the 24<sup>th</sup> with the lowest being 22.9°C recorded on the 30<sup>th</sup>. The average wind direction was from the southeast at 7km/hr. The highest wind gust was 48km/hr recorded on the 27<sup>th</sup>.

The Melville Hall Airport recorded 128.8mm of rainfall and this is about 67% of the monthly mean. A total of 30.8mm recorded on both the 19<sup>th</sup> and 29<sup>th</sup>, as a result of tropical waves, contributed to the month's highest daily totals. Rainfall days were about average, with 18 days recorded. There was no

significant dry spell. The average air temperature recorded was 28.4°C, and that is normal for June. The highest temperature recorded was 31.4°C on the 26<sup>th</sup> and the lowest recorded was also 22.9°C on the 30<sup>th</sup>. Melville Hall Airport observed some breezy conditions. Wind from the east-southeast at an average speed of 15km/hr was recorded. The highest wind gust recorded was 74km/hr on the 29<sup>th</sup>, as a result of the passage of a tropical wave.

Despite the dry conditions farmers made use of the intermittent rainfall events and began the establishment of ground provisions to include yams, dasheen, tania, tolima and ginger. Vegetables like lettuce, cabbages and cucumbers remained in abundance on the market, while tomatoes and seasoning peppers were in low supplies.

Fungal spots and insect eggs were observed on celery. Due to the dry conditions an increase in the Red Palm Mite was observed in banana and plantain crops located underneath coconut trees. A large amount of the Giant African Snails was collected in the northern region. Farmers in the north began the rehabilitation of banana and plantain fields after being treated for the Black Sigatoka Disease. Spraying for the disease continued in some western and eastern regions.

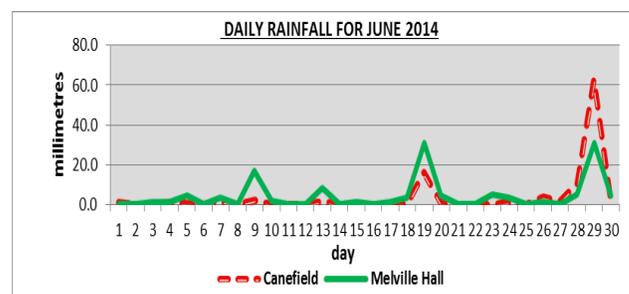


Figure 3 June 2014 daily rainfall at Melville Hall and Canefield

### Grenada

The maximum temperature of 32.4°C, which occurred on the 24<sup>th</sup>, is the highest June temperature over the last ten years, while the minimum temperature of 21.2°C on the 15<sup>th</sup>, is the lowest minimum over the last ten years. The month's total rainfall of 61.8mm is the lowest June total rainfall for the last ten years, and was as a result of westward moving tropical waves. The highest 24 hour total of 13mm fell on the 14<sup>th</sup>.

Average wind speeds of 28-37 km/hr with a gust of 72.2 km/hr on the 24<sup>th</sup> were realised during the month. As a result of the strong winds, moderate to rough seas were experienced and small craft marine advisories were issued on the 14<sup>th</sup>, 15<sup>th</sup>, 23<sup>rd</sup>, 24<sup>th</sup>, 25<sup>th</sup>, 27<sup>th</sup>, 28<sup>th</sup> and 29<sup>th</sup> of the month. Fisherfolk hardly ventured out of port because of the strong winds, rough seas and marine advisories. As a result fish catch for the month was minimal. Some Small Jacks, Tuna and Bonita were present on the market.

Although farmers cleared their lands and started planting, the markets were littered with provisions, plantains and other vegetables, cherries, breadfruit, tomatoes and mangoes.

### Jamaica

Throughout the month, the island experienced very little rainfall activity especially over the eastern section of the island. During the month, Sangster in the northwest recorded 45.2 mm of rainfall, while Norman Manley in the southeast had no rainfall recorded. There were five rainfall days reported for Sangster. Sangster recorded below average rainfall or approximately 44% of the 1971-2000 mean. The highest maximum temperature recorded for Sangster Airport was 34.6°C (16<sup>th</sup>) which exceeded the 20 year mean by 0.2°C while 33.7°C (22<sup>nd</sup>) was reported for Norman Manley Airport.

Table 3 Climatological Statistics for Manley and Sangster Airports for June 2014.

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	33.7 °C (34.3 °C)	34.6 °C (34.4 °C)
Lowest Minimum Temperature	22.7 °C (23.5 °C)	23.9°C (22.5 °C)
Rainfall Total	0 mm (65.0)	45.2 mm (102.0)
Rainfall days (≥1mm)	0 days (5.6)	5 days (13.2)

Values in red indicate the 1992-2011 (20-year) averages.

Values in orange represent 1971-2000 mean.

### St. Lucia

The first two weeks of June were very dry, especially in the south of the island. Hewanorra recorded a 25-day dry spell which started on 23<sup>rd</sup> May and ended on 16<sup>th</sup> June. The second half of the month, however, was very much wetter. Most of the

monitoring stations recorded below average rainfall and 1 dry to 2 dry spells.

According to reports from the Water & Sewerage Company Inc (WASCO,) the water level in the John Compton Dam continued to drop rapidly and severe water shortages were experienced in most parts of the island.

Table 4 June monthly averages at Hewanorra Airport

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
4	90	17	28.3	76	62.5
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20cm (°C)	
31.2	26.4	8.5	9.0	30.4	

Table 5 June 2014 monthly averages at George Charles Airport

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	100	10	28.4	76	92.3
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20cm (°C)	
30.9	25.4				

### St Vincent and the Grenadines

Occasionally cloudy conditions produced light to moderate showers which helped to ease dry conditions. There were a few days (25<sup>th</sup>, 28<sup>th</sup>, and 30<sup>th</sup>) with light thunderstorm activity as tropical waves traversed the islands. Brisk winds were observed throughout the month, with the highest wind gust being recorded on the last day of the month as 52 km/hr in Arnos Vale. Sea-swells were most times moderate in open waters; with above normal swells being triggered by brisk winds. Occasional hazy conditions were experienced during the second and third week, intermittently reducing visibility.

Total rainfall recorded at E.T. Joshua Airport was 108.9 mm; this is 93.7 mm less than the average (1981-2010) for June. There were 13 rain-days, which is 6 days below the average for this station. The highest 24 hour total (35.1 mm) was recorded on the 29<sup>th</sup>. There were three periods of three (3) consecutive days with rainfall <1mm (1<sup>st</sup> to 3<sup>rd</sup>, 6<sup>th</sup> to

8<sup>th</sup> and 10<sup>th</sup> to 12<sup>th</sup>). The first dekad (ten-day period) had ~9%, the second dekad had 20%, and the third dekad had ~70% of the total rainfall.

The average maximum temperature was 31.0°C, and the average minimum temperature was 25.6°C. The extreme maximum temperature was 32.2°C, which was 0.7°C more than the 30 year average, while the extreme minimum temperature of 22.7°C was 0.4°C less than the 30 year average. The mean relative humidity was 3.4 % lower than the 30 year average of 77.4%.

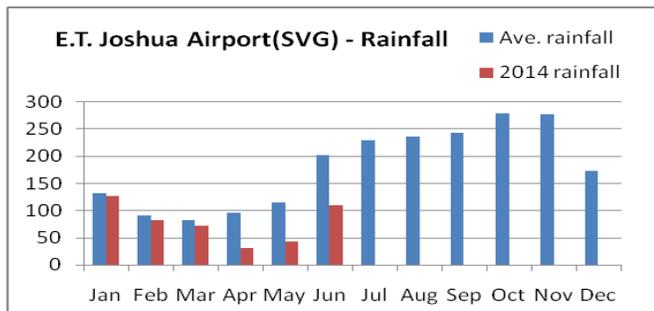


Figure 4 Monthly rainfall at E.T. Joshua Airport until June 2014 and the averages for each month..

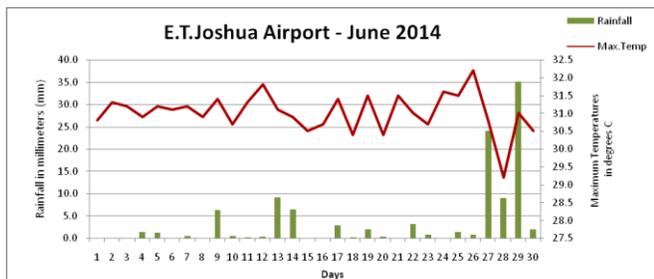


Figure 5 June 2014 daily rainfall and temperature at ET Joshua Airport.

### Trinidad and Tobago

Total rainfall for the month amounted to 140.8 mm or 56% of the 1981-2010 average at Piarco while at Crown Point it totaled a meager 55.7 mm or 38% of the average. At Piarco, mean daily temperatures exceeded the 1981-2010 average by 1.7°C to reach a mean of 28.1°C while the mean maximum and minimum temperatures were 34.4°C and 23.6°C respectively. Crown Point observed a mean temperature of 27.7 °C while the mean maximum and minimum temperatures were 30.2°C and 25.8°C respectively.

The first five days of June produced mostly warm dry weather across the country with rainfall

occurrences being mostly scanty and in confined areas. Starting on the 6<sup>th</sup> and continuing into the 9<sup>th</sup>, a wet weather regime brought significant rainfall to both islands, but moreso to Trinidad. The 6<sup>th</sup> and 7<sup>th</sup> in Trinidad were excessively wet, producing 22.3 mm and 39.1 mm of rainfall respectively, which mostly accounted for the 10-day rainfall total of 67.0 mm. At Crown Point, Tobago, conditions were less wet, with day’s 6, 7 and 8 totalling, 17.4 mm of rainfall, leading to a ten-day total of 20.0 mm. The second ten days of June continued the increasing trend of rainfall, with the period producing several episodes of moderate to severe rainfall, but these were mostly in Trinidad. The second ten-day rainfall totals amounted to 50.0mm at Piarco and 20.0mm at Crown Point but this may have been greater at other locations. The last ten days of June produced less rainfall than the second ten days, and would have eroded some of the water gains made during the second ten days. The rainfall amounts were still significant, with ten-day rainfall accumulation of 25.0mm at Piarco and 15.0 mm at Crown Point.

Rainfall over the month would have been very beneficial to agriculture in general and was sufficient to maintain the water available for agricultural purposes, but would not have affected significantly the agriculture water shortage accumulated over the last four months. At the same time, the rainfall would have provided good topsoil moisture and boosted moisture content for the coming days, especially for farmers using water management strategies such as grass and plastic mulching. The rainfall amount was also sufficient to reduce irrigation needs on drier days following the wet days. However, the combination of rainfall with high temperatures would have provided favourable conditions for some agricultural insect pests, fungal spores and diseases to thrive.

**REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST**

### ENSO Conditions

ENSO-neutral conditions persist with Eastern Pacific equatorial Sea Surface Temperatures (SSTs) still at 0.5 °C. Most models indicate a continued upward trend to about 0.5-1.5°C above average between October and December, initiating an El

Niño event by the end of this July to September period. 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 a shift to, and in some cases maintenance of, below-normal rainfall south of 20°N for July to September, with the likelihood for below normal rainfall increasing substantially into October to December

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

SSTs are 0.5-1.5°C above average around Hispaniola and The Bahamas, and below-average to the east of the Antilles, and near average elsewhere. The above average SSTs in the north are expected to return to around normal, with not much change elsewhere. The Trade Winds are expected to be stronger than average particularly in the southern Caribbean around the ABC Islands, until December. Cool Atlantic temperatures slow down strong convection, thus potentially reducing precipitation throughout the wet season, especially in the Eastern Caribbean.

**July to September 2014**

Normal to below normal rainfall expected across the Windward Islands, in particular, and the Guianas, with highest probability of below normal. Below normal conditions are also most likely in the Leeward Islands and Greater Antilles, except Cuba. A clear climate signal is not detected across the remainder of the Caribbean.

**October to December 2014**

Normal to below normal conditions, with greatest likelihood for below normal, are forecasted for the Caribbean basin except for Belize and The Bahamas. Fairly high certainty of below normal conditions exists, particularly for the Leeward and Windward Islands.

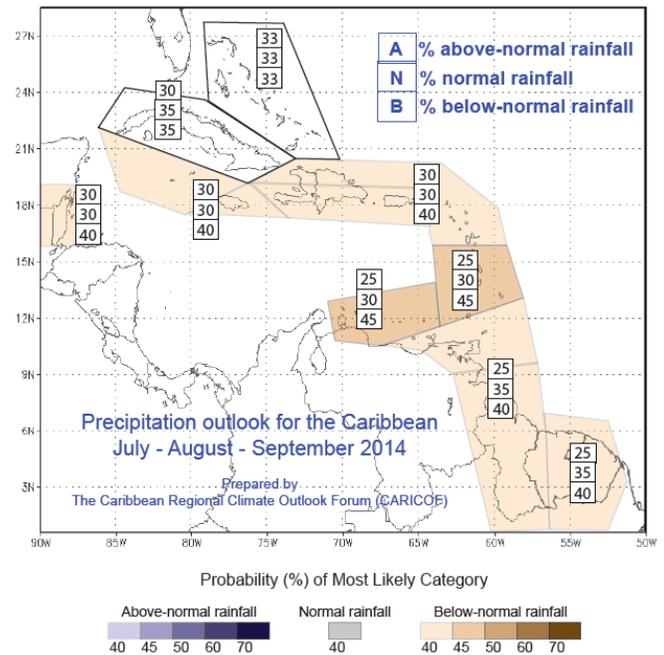


Figure 6 The July to September 2014 rainfall forecast

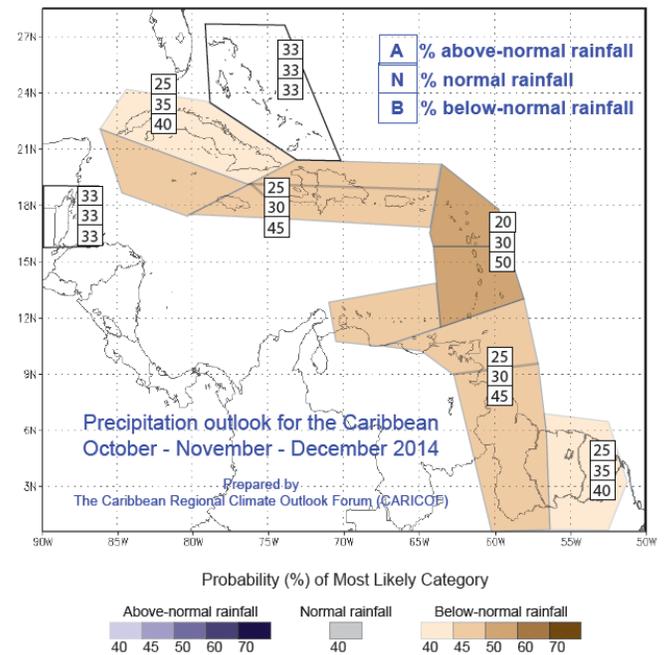


Figure 7 The October to December 2014 rainfall forecast

**Prepared by**  
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