



ANNOUNCEMENTS

The entire Caribbean should continue to monitor for low water availability over the coming months as the majority of the region enters or draws closer to its climatological dry season, particularly with an El Nino watch still in place. In the near future, drought concerns continue to exist in the vicinity of Jamaica. Drought concerns could likely evolve by later in the upcoming dry season, particularly in the eastern Caribbean.

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR NOVEMBER 2014

Normal to above normal rainfall were experienced during the month in the islands of the eastern Caribbean and in Guyana. Trinidad was moderate to very wet; Tobago exceptionally wet; Grenada and Antigua abnormally wet; Barbados, St. Vincent and St. Lucia moderately wet; Dominica normal; and Guyana ranging from exceptionally wet in the north to very wet further south. Jamaica was normal, and apart from small areas of abnormally dry and wet conditions, Belize was also normal.

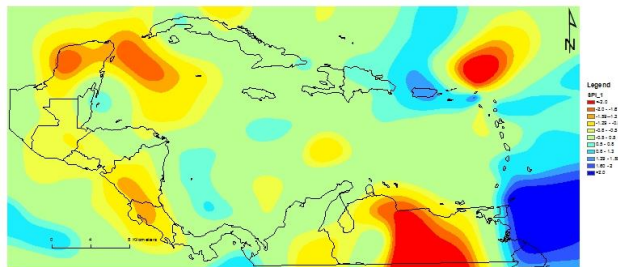


Figure 1. SPI for the Caribbean for November 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>.

Most annual cropping takes place over a period of about three months. For the three month period September to November, diverse rainfall conditions

were experienced across the eastern Caribbean and Guyana. Trinidad, Tobago and Barbados were moderately wet; Grenada very wet; St. Vincent, St. Lucia and Antigua normal; Dominica severely dry; and Guyana very wet in the north and moderately wet further south. Conditions in Jamaica ranged from normal in the west to extremely dry in the east, but Belize was abnormally wet in the west and south and moderately wet in the north.

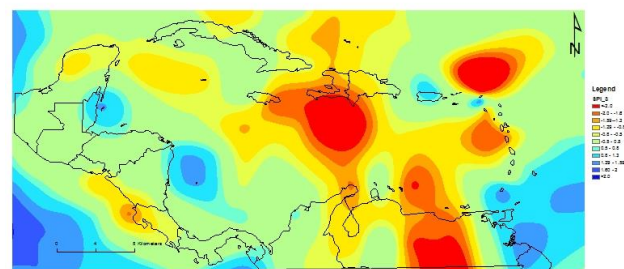


Figure 2. SPI for the Caribbean for September to November 2014. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>

The 2014 Atlantic Hurricane Season came to a quiet end with no development of tropical storms during November. Thus, the Season concluded with a total of nine named storms, six hurricanes and two major hurricanes. A number of trough systems affected the region, and between the 20th and 22nd, one of them interacted with the I.T.C.Z to produce significant rainfall in the eastern Caribbean. Early in the month tropical waves were also influential. Frontal troughs

also influenced the weather, particularly in northern regions.

NATIONAL OVERVIEWS

Barbados

November returned the highest rainfall total for the year so far at the Grantley Adams Airport. Of the 15 rain days experienced (rainfall ≥ 1 mm), only 5 of these had totals over 10 mm with 31.1 on the 8th and 13.6mm on 27th. The other significant rainfall days during the month occurred over a three-day period between the 20th and 22nd, when a trough system interacted with the I.T.C.Z to produce daily rainfall totals of 69.8mm, 59.0mm and 46.2mm respectively. These amounts over the three-day period represent 64% of the month's total of 273.1mm. The November total was also 60% above the long-term normal of 171.4mm. The rainfall distribution was also comparable across the rest of the island with a similar pattern at Golden Ridge in St. George, where 53.8mm, 44.0mm and 30.8mm fell over the three days, and a monthly total that reached 247.1mm over 21 rain days. Meanwhile, Barbados' cumulative rainfall total at the end of November at the Airport reached 1029.4mm or 79.4mm less than at the same time last year. In comparison, the 1981-2010 average cumulative total up to the end of November is 1180.59mm of rainfall.

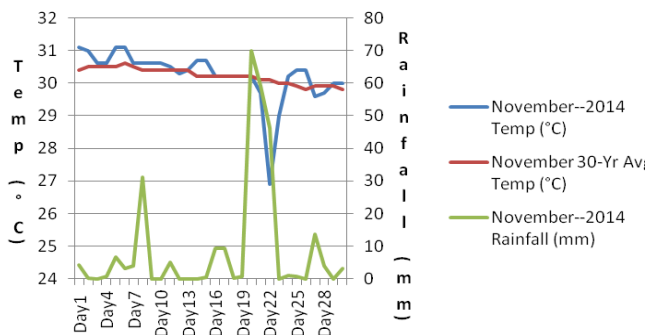


Figure 3 November rainfall and maximum temperatures, along with the 30 year average of maximum temperature at Grantley Adams Airport, Barbados.

During the first half of the month, daily maximum temperatures all exceeded the long-term average (1981 to 2010) of 30.2°C. These ranged between 30.3°C and 31.1°C. The highest maximum, 31.1°C occurred on the 5th and 6th. Over the remainder of

the month, daily maxima varied between 29.6°C and 30.4°C. The lowest minimum of 21.4°C was recorded on the 23rd.

During the month wind-speeds varied between 22 and 33 km/hr.

Belize

Mostly cool and dry weather prevailed for the first 4 days of the month. Due to a cold front, a few showers and periods of light rain along coastal areas moved inland after mid-morning of the 6th. On the 9th, a few brief showers occurred at the International Airport during the afternoon and evening as a cold front crossed Belize.

The second week in November turned out mostly sunny, dry and cool. During 12th, skies were cloudy at times with light showers over northern, central and offshore Belize. On the 14th, skies turned cloudy across much of the country. The cloudiness started in the south first and for the rest of the day skies remained cloudy and showers occurred at several northern stations and the International Airport. Cloudiness continued into the 16th for central and northern regions as a few showers and periods of light rain occurred. Weather conditions improved during the afternoon.

On the morning of the 18th, showers and thunderstorms developed over northern and coastal areas. The International Airport recorded 83.5mm of rain and Orange Walk 107.2mm that morning. Though the showers decreased later, skies remained cloudy throughout the day. A cold front crossed the north of the country early on the morning of the 19th, bringing cool, cloudy and rainy weather in coastal areas, and later several periods of rain with isolated thunderstorms to other areas. The rainy weather persisted into the 20th with periodic outbreaks of showers during the day.

On the 25th, a cold front caused rainfall in western and northern regions during the evening. The showers and thunderstorms headed east and southeast for coastal parts of the country on the 26th. Gusty winds accompanied the conditions as San Pedro, Ambergris Cay recorded wind gusts to 59km/hr, while Cay Caulker recorded gusts to 50km/hr. These conditions continued into the

following 2 days, accompanied by periods of rain. On the 30th, showers started over coastal waters around the cayes close to midday, then spread to much of the coast during the afternoon and evening. The International Airport measured 113.5mm of rainfall. The rainfall was also excessive in Belize City, where localized flooding occurred at many locations.

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

Station	Liber tad	Zoo	PGIA	Belmopan	Central Farm	Savannah
Elevation (m)	12	30	5	90	90	13
Rainfall (mm)	97.3	124.7	277.6	147.2	120.4	119.9
Mean.	92.6	191.6	199.4	194	177.3	209.3
Max	35.3	51.8	113.5	39.4	36.2	36.3
Rain days	5	11	10	9	7	10
Temp (°C)						
Mean	19.9	18.6	21.3	20.2	19.4	21.8
Min.						
Mean	19.4	20.3	21.6	20.1	20.0	21.8
Lowest	15.3	15.2	17.3	16.1	15.9	19.0
Min.						
Mean	29.3	28.2	28.1	28.5	30.6	29.4
Max.						
Mean	29.7	29.0	29.1	29.3	29.6	29.3
Highest	35.4	33.0	31.8	32.5	35.8	32.5
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

Dominica

At the Canefield Airport, 272.6mm of rainfall was recorded which is 7% above the mean. The highest daily total recorded was 48.7mm on the 20th as a trough system lingered across the region. There were 21 rainfall days which is more than normal and a 4-days dry spell towards the end of the month. The average air temperature recorded was 27.6°C. The maximum daily temperature recorded was 33.3°C on the 9th and 11th and the minimum was 21.9°C recorded on the 28th. Average wind was east south easterly at a speed of 6km/hr. The highest wind gust was 31km/hr recorded on the 15th.

November rainfall t Douglas-Charles was 334.4mm. This is about 5% above the mean. The maximum 24-hour total recorded was 121.9mm on the 7th due to the passage of a trough system. There were 27 rainfall days, which is more than normal, with no significant dry spells. The average air temperature was 27.5°C. The highest temperature recorded was 30.7°C on the 5th and the lowest recorded was

20.6°C on the 28th. Winds maintained an east south east direction at an average speed of 13km/hr. The highest wind gust recorded was 69km/hr on the 17th and 20th.

Heavy rains were reported across the island, which affected the establishment of vegetables. Land preparation was unable to be undertaken for these crops and some pest and diseases were recorded. Vegetables grown in greenhouses, however, were not affected. Establishment of root crops continued with dasheen and yams being the main crop. The Black Sigatoka management program is ongoing. Trainings in alternative measures of control such as the use of tea manure and composting were done. Farmers adopting these techniques, along with de-leafing and spraying, are showing positive results and this should become part of the farm work schedule.

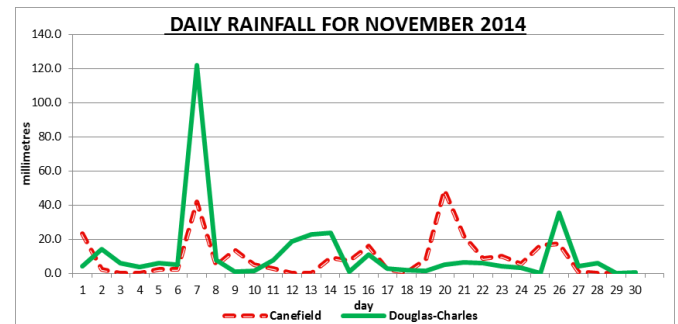


Figure 4 Daily rainfall at Canefield and Douglas-Charles Airports, Dominica during November 2014.

Grenada

For the third consecutive month, Grenada received above normal rainfall. Rainfall for the month was 213.3 mm, which is the sixth highest November on record. The month recorded 254.91% more than the 60.1 mm for 2013 and 31.1% more than the long term average of 162.7mm. Significant 24hour rainfall of 14.2mm, 10.8mm, 56.5mm, 24.3mm, 14.5mm and 20.7mm were recorded on the 9th, 12th, 13th, 14th, 16th and 19th. There were sixteen (16) days with rainfall below 5.0mm, four (4) days below 10.0mm and two (2) days each with a trace and zero rainfall.

Mean daily temperature for the month was 27.2°C, which was the same as last year's. The mean maximum temperature was 30.4°C and the mean minimum temperature was 24.1°C respectively. The highest maximum temperature of 31.6°C was recorded on the 2nd of the month and was the same

as last year's, while the lowest minimum was 22.2°C recorded on the 18th and 20th.

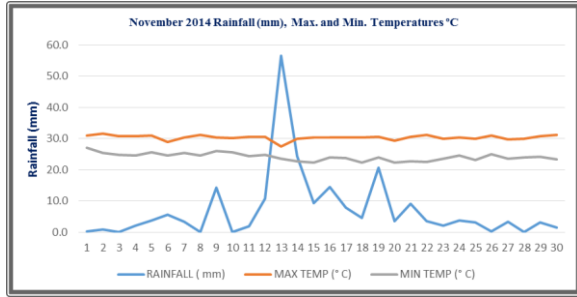


Figure 5 Daily rainfall and maximum and minimum temperatures at Maurice Bishop International Airport, Grenada for November 2014.

Winds were generally from the E-ENE at 28-37km/hr, with a gust of 70km/hr in showers on the 13th. The seas were mostly slight to moderate with marine advisories issued on the 6th – 8th, 20th – 23rd and 25th. Sea users were cautioned and fishing was not so great during the month with the exception of catches in some Ocean Gar, Yellow Fin Tuna, Hind and Conch (Lambi).

The month saw Farmers continuing to enjoy good production in Pumpkin and the introduction of Ginger, Saffron and Limes on the market.

Jamaica

Cold fronts and troughs were the main weather features for the month with High pressure systems making appearances for less than 25% of the times. This however was not reflected in the rainfall amounts as both airports recorded well below their 30-year mean figures. Sangster International airport (Sangster) in the northwest recorded 56% of its 30 year mean, while Norman Manley International airport (Norman Manley) in the southeast received 39% of its 30 year mean. It was also noted that although the 20-year rain day average was exceeded for Manley the rainfall amount was very insignificant thus resulting in below mean value. During the month, Sangster recorded 57 mm of rainfall, while Norman Manley recorded 33 mm. There were ten rainfall days reported for Sangster, while Norman Manley had nine rainfall days during the month.

Sangster Airport recorded 33.1°C (27th), which exceeded the 20-year mean for extreme maximum

temperature for the station, while 33.7°C (18th) was reported for Norman Manley Airport.

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

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	33.7 °C (33.9 °C)	33.1 °C (32.8 °C)
Lowest Minimum Temperature	22.9 °C (22.3 °C)	22.9 °C (22.0 °C)
Rainfall Total	33.0 mm (85.0)	57.0 mm (102.0)
Rainfall days (≥1mm)	9 days (5.7)	10 days (15.1)

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

St Lucia

Rainfall for the month far exceeded the average, such that the totals ranked as the 7th wettest since 1973 at Hewanorra (245.4mm) and the 9th at George Charles (311.3mm) since 1967. Average rainfall totals for November are 178.5 mm and 223.0 mm for Hewanorra and George Charles respectively. There were 23 rainy days at both Hewanorra and George Charles.

Table 3 November 2014 monthly averages at Hewanorra Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	90	14	27.8	80	245.4
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
30.4	25.5	8.4	6.5	28.4	

Table 4 November 2014 monthly averages at George Charles Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	100	08	27.8	79	311.3
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
30.2	24.6				

St Vincent and the Grenadines

Weather conditions at the start of the month began with tropical waves and trough systems affecting the islands, resulting in some moderate showers and cloudy skies. A few areas reported flooding and landslips on the 7th and 8th November. By the start of the second and third weeks, the islands saw some improvement in weather conditions.

Rainfall at the E.T. Joshua Airport totalled 362.1mm. This was 84.5mm more than this station’s average of 277.6 mm (relative to 1981-2010). There were 26 rain-days, which was also greater than the average for this station. The highest 24 hour rainfall recorded at the E.T. Joshua Airport (72.4 mm) was recorded on the 9th. There were no significant dry spell periods. The first dekad (ten-day period) had 49.2% of the rainfall, the second 38.1%, and the third dekad 12.7%.

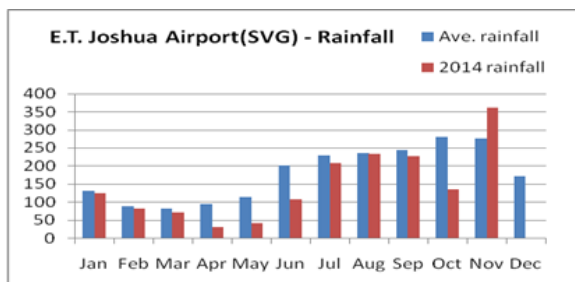


Figure 6 Monthly rainfall for 2014 up until November 2014 compared with the average.

Maximum temperatures recorded at the E.T. Joshua Airport – Arnos Vale, ranged between 29°C and 32°C, with minimum temperatures ranging between 23°C and 27°C. Average maximum temperature was 31.5°C, and the average minimum temperature was 25.0°C. The extreme maximum temperature was 31.7°C, this was 0.2°C more than the 30 year average, while the extreme minimum temperature was the same as the 30 year average of 22.6°C.

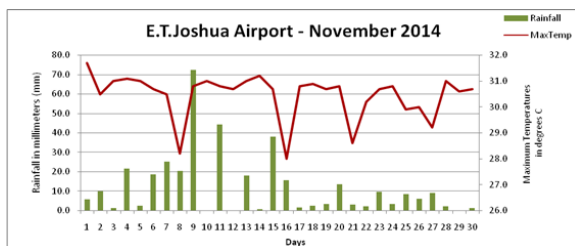


Figure 7 November 2014 Daily rainfall and temperatures at E.T. Joshua Airport, St. Vincent and the Grenadines

Mean relative humidity was 80.0%, 2.9 % higher than the 30 year average. Sea swells were most times slight to moderate in open waters, with a few days being rough in open waters prompting the issuance of small craft advisories and warnings. Moderate east to east-northeasterly winds prevailed throughout most of the month with maximum winds in the Arnos Vale area being recorded as 54km/hr on the 6th. There were periods where Saharan dust haze occasionally reduced visibility across the island.

Trinidad and Tobago

At Piarco, Trinidad the total rainfall was 311.9 mm, making November 2014 128% wetter than average (relative to 1981-2010). Rainfall accumulation at Crown Point, Tobago was 383.9mm; which represents 186% of the 1981-2010 average. Mean maximum, minimum and daily temperatures were 31.6°C, 23.6°C, 27.6°C respectively at Piarco, while at Crown Point they were 30.6°C, 24.6°C and 27.5°C.

At Piarco in Trinidad, during the first ten-day, rainfall amounted to 107.5mm as the 5th, 6th and 9th each yielded rainfall above 18.0 mm. Day nine was the wettest with 46.8 mm recorded. At Crown Point in Tobago, the ten-day rainfall total was 140.7mm with the bulk of the rainfall occurring on days six through nine when 30.6mm, 9.2mm, 60.3mm and 29.4 mm were recorded respectively. During the period, temperatures were slightly higher as daily temperatures and maximum temperatures averaged 28.9°C and 33.2°C respectively, while the maximum temperature was 33.9°C on day five at Piarco. At Crown Point, daily maximum temperatures reached a high of 32.3°C on the 2nd, but averaged 31.3°C over the period, while minimum temperature was 23.7°C and averaged 25.0°C over the period.

Excessively wet conditions occurred during the second dekad. It was especially heavy on 12th, 13th and 18th in Trinidad, when 38.5mm, 45.2mm and 39.8 mm respectively fell. At Crown Point the wettest days were on the 12th, 13th, 16th with 46.9 mm, 51.8mm and 37.2mm. Ten-day rainfall total was 180.5 mm at Piarco while at Crown Point it was 188.0 mm. These represented 58% and 49 % of the month’s rainfall total at both stations, respectively. Temperatures during the period decreased slightly

when compared with the first ten days. Ten-day mean maximum temperature at Piarco stood at 29.9°C with the highest maximum and minimum temperatures being 32.5°C and 22.5°C respectively; while the mean daily temperature was 26.6°C. At Crown Point, the ten-day mean maximum and daily temperatures were 31.6°C and 28.5°C respectively with highest maximum and minimum temperatures being 30.0°C and 27.0 °C respectively.

The final ten days were drier, with rainfall at Piarco of 23.9 mm. Most of this rainfall occurred on the 21st and 23rd, with 15.8mm and 6.6mm respectively. At Crown Point, the rainfall amounted to 55.2mm. The majority of rainfall fell on 21st, 22nd, 23rd and 28th, with 19.7 mm to be the wettest day on the 21st followed by the 22nd with 17.0 mm.

The excessive rainfall received during the second dekad of the month resulted in flooding in certain areas, loss of crops and negatively affected agriculture. Notable rainfall events received at both ends of the month would have assisted with crop growth and development. In general, the mixed conditions would have been beneficial for most crops that were not affected by flooding. The rainfall events and associated conditions would have stifled heat and water stress potentials; at the same time, the rainfall would have aided crops and pastures to appear greener with biomass growth.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

El Niño conditions have been looming for some time now, but only in the last month have the conditions exhibited El Niño type Sea Surface Temperatures (SSTs), with 0.8 °C above average. ENSO-neutral conditions still persist, but most models suggest a maintenance of the SSTs between 0.5-1.0°C above average during the next few months and up until March to May 2015, initiating a weak El Niño event. This is a development the region should continue to monitor closely, as it may still have implications for rainfall for the 2015 dry season, particularly in the eastern Caribbean and the Guianas. There is a real chance for below-normal

rainfall and above normal temperatures south of 20°N through May 2015, but in the latter part of the dry season, in particular, can increase chances for above-normal rainfall in the Greater Antilles and The Bahamas.

Caribbean Sea Surface Temperatures (SST) are 1°C above-average north and north-east, but average east, of the Caribbean. However some cooling is expected that would decrease the SSTs to below normal. **The Trade Winds** are around about average at this time but could get stronger during the forecasting period, particularly in the southern Caribbean around the ABC Islands. Above average temperatures cater to above normal rainfall in the near future, but this could change in the latter part of the dry season, possibly resulting in below normal rainfall, particularly if trade wind strength increases and the El Niño develops.

December 2014 to February 2015

Two different pictures are painted for the eastern and western Caribbean for the period December 2014 to February. The chance of normal to above normal rainfall with a greater than average chance for above normal exists from the Leeward Islands south to include the Windwards and Trinidad and Tobago, much of the Guianas and the ABC islands. On the other hand, the opposite is expected in the vicinity of The Bahamas, Cuba and Turks and Caicos Islands, with a higher likelihood for normal to below normal.

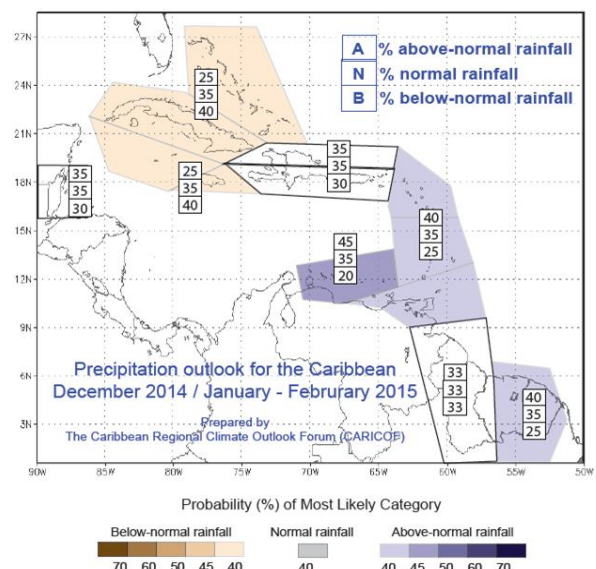


Figure 8 The December 2014 to February 2015 rainfall forecast

March to May 2015

Very little predictability exist for the Caribbean apart from in the vicinity of the Windward Islands where there is a greater than normal chance for above normal rainfall. Increased predictability in the near future is likely, particularly if the El Niño develops, which could render much of the eastern Caribbean and the Guianas drier than normal. This situation will continued to be monitored, and it is recommended that attention be paid to future updates.

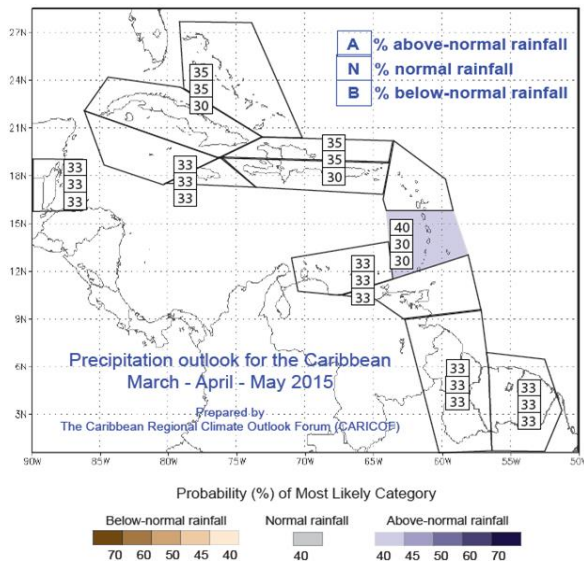


Figure 9 The March to May 2015 rainfall forecast

Prepared by

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