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ANNOUNCEMENTS

Rainfall quantities continue to increase across the Caribbean. However, below normal rainfall was still experienced over much of the region, with those countries experiencing normal wet season rainfall in October still not making up for the deficits of previous months. Some countries experienced some heavy rainfall events with flooding and landslides that impacted agricultural production, but most farmers would have benefitted from the long awaited significant increases in rainfall. With below normal rainfall being forecasted for much of the Caribbean (except in the northwest and west) into April 2016, concerns continue for low water availability into the dry season of 2016, with much of the region being on drought watches and warnings into January 2016

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR OCTOBER 2015

Apart from Tobago that was moderately wet, rainfall in the islands of the eastern Caribbean was normal to below normal. Trinidad and St. Lucia were moderate to slightly dry; Grenada, St. Vincent and Antigua, normal; Barbados moderately dry; and Dominica exceptionally dry. Guyana was moderately wet in the northern extreme and below normal in the east with the remainder being normal. Conditions in Jamaica ranged from moderately wet in the west to normal in the east, while Belize was normal.

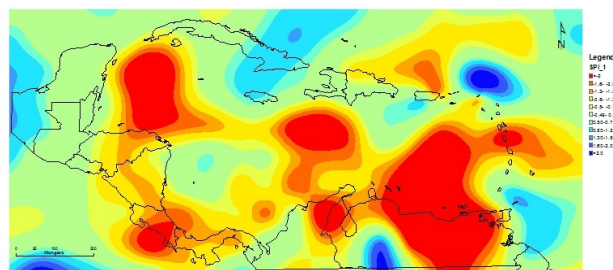


Figure 1. SPI for the Caribbean for October 2015. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

Most annual cropping takes place over a period of about three months. For the three month period the

islands of the eastern Caribbean were normal to below normal. Trinidad was severe to moderately dry; Tobago normal; Grenada and St. Vincent moderately dry; Barbados, St. Lucia and Dominica severely dry; and Antigua slightly dry. Conditions in Guyana ranged from moderately wet in the north to moderately dry in the east. Jamaica was predominantly normal with the east being normal to moderately dry, while Belize was exceptionally dry in the west to moderately dry in the east.

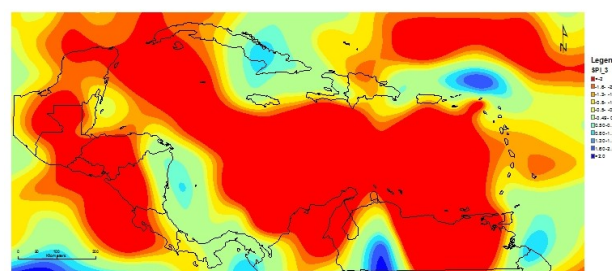


Figure 2. SPI for the Caribbean for August to October 2015. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

A series of troughs affected the islands during the month at times delivering significant and heavy rainfall, as like typical wet season months. Above normal, with record temperatures were observed in many parts of Caribbean during the month. Hurricane Joaquim continue to develop in the Caribbean reaching sustained speeds of up to 250km/hr, after causing much distress to The Bahamas

NATIONAL OVERVIEWS

Antigua and Barbuda

October started off on a very hot note as the island was in the grips of its second heatwave to date for the year. The highest temperature of 34.0 °C was recorded on the first day of the month, making it the fifth highest on record dating back to 1971. The sixth warmest temperature was also recorded during the month, reaching 33.9 °C. Further, the mean daily maximum temperature tied with five other years for the highest ever for October on record, while the mean daily minimum tied with 2001 for the highest on record for the month. Meanwhile, the mean temperature of 28.1 °C was well above normal and tied with 2001 for the third highest for October. The rainfall for the month was below normal – 90.7 mm, the fourth driest October since 2000. August to October is now the seventh driest such period on record, dating back to 1928. The number of wet days (days with ≥ 1 mm) and heavy rainfall days (days with ≥ 10 mm) recorded at the V.C Bird International Airport were both near normal. The maximum 24-hour total recorded was 34.9 mm.

The rainfall for the month had just minor impact on the drought, which is at serious levels. Surface catchments remain dry or below extraction levels. Ninety-two percent of the country's potable water continues to come from desalination and 8% from groundwater. Water production levels dropped by about 18% for the month; this resulted in a temporary widening of the deficit from an average of 1.5 million gallons per day to 2.5 million gallons.

Some farmers took full advantage of the increased rainfall and moved ahead with seeding crops. Others are being cautious, keeping an eye on the weather over the upcoming weeks before kick starting their planting campaign. Livestock farmers have stated that although ponds remain dry, there has been improvement in feed for cattle.

Dominica

Unstable conditions associated with a series of trough systems dominated the weather conditions

for October. This resulted in a normal to moderately dry pattern across the island.

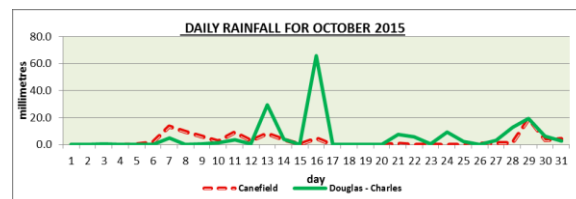


Figure 3 Daily rainfall at Canefield and Douglas-Charles Airports, Dominica during October 2015.

Canefield Airport recorded below normal rainfall. The total for the month amounted to 94.2mm, just about half of the monthly mean. The maximum daily rainfall of 19.1mm was recorded on the 29th. There were 15 rainfall days with a five days dry spell during the beginning of the month and 10 days dry spell during the latter half of the month. The average air temperature of 29.3°C remained above the mean by 0.8°C. Record maximum temperature of 35.5°C was observed on two consecutive days (3rd and 4th). The minimum temperature was 22.3°C recorded on the 15th. The average wind direction was from the south at 7km/hr. The highest gust recorded was 43km/hr on the 11th.

Douglas-Charles Airport recorded below normal rainfall. A total of 180.9mm was recorded and this is just over half of the monthly mean. The maximum daily rainfall of 65.7mm was recorded on the 16th. There were 15 rainfall days with six days dry spell during the beginning of the month. The average air temperature was 29.3°C and this is 1.3°C above the mean. Record daily maximum temperature of 33.9°C was recorded on the 1st. The minimum was 22.6°C recorded on the 17th. The average wind direction was east south easterly at 11km/hr. The highest wind gust recorded was 49km/hr on the 13th.

Jamaica

Throughout the month of October troughs were the dominant weather features affecting the island. During the month, Sangster in the northwest recorded 261.5 mm of rainfall, while Norman Manley in the southeast recorded 152.3 mm of rainfall. There were fourteen (14) rainfall days reported for Sangster while Norman Manley International Airport had six (6) rain days. Both Manley and Sangster received above the average

rainfall for the month based on the thirty year rainfall means.

The highest maximum temperature recorded for Norman Manley Airport was 35.1°C (9th) meanwhile Sangster Airport reported 34.0°C (14th) breaking the 20-year record for both airports.

Table 1 Climatological Statistics for Manley and Sangster Airports, Jamaica, for October 2015.

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	35.1 °C (34.1 °C)	34.0 °C (33.8 °C)
Lowest Minimum Temperature	24.6°C (23.1 °C)	21.0°C (22.4 °C)
Rainfall Total	152.3 mm (116.0)	261.5 mm (161.0)
Rainfall days (≥1mm)	6 days (9.5)	14 days (18.0)

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

Values in orange represent 1971-2000 mean.

St. Lucia

Saint Lucia continued to experience below normal rainfall for 2015. At Hewanorra Airport the rainfall amount was 84.7 mm (40%) less than the average and at George Charles Airport it was 184.9 mm (73%) below the average. At the Hewanorra Airport, the number of rainy days were close to the expected number for this time of year but the number of extremely rainy days were less. At GFL Charles there were fewer rainy days and this was the second driest October in the 42 years of recorded data for this location. There were 14 rainy days and 2 dry spells at Hewanorra, while George Charles recorded 11 rainy days and 4 dry spells.

November, which is the final month of the official Hurricane season, is usually one of the wetter months of the year. The climatological mean rainfall for October at Hewanorra is 178.5 mm and 226.2 mm at George Charles. The precipitation is usually due to surface and upper level troughs and isolated moisture surges embedded in the easterly trades. Some precipitation is also due tropical waves and other tropical systems but these become less frequent as the rainy season slowly comes to an end.

This year the seasonal rainfall outlook for the November 2015 to January 2016 suggests that likely

that rainfall will be below normal or to range from 206 mm to 339 mm at Hewanorra and from 195 mm to 399 mm at George Charles.

The average air temperature at Hewanorra Airport and GFL Charles were above average for the month.

Table 2 October 2015 monthly averages at Hewanorra Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	Rainfall Mean (mm)	Rainfall Total (mm)
5	100	12	29.1	210.9	126.2
RH (%)	Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)
78	31.9	26.6	8.6	7.1	29.1

Table 3 October 2015 monthly averages at George Charles Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	Rainfall Mean (mm)	Rainfall Total (mm)
5	100	7	29.6	252.7	67.8
RH (%)	Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)
75	32.4	25.5			

St. Vincent and the Grenadines

Instability, tropical waves and troughs accounted for the rainfall recorded at the E. T Joshua station for October. Rainfall total at the E. T. Joshua Airport for the month was 223.1mm. October receives 280.1 mm rainfall on average. There was no difference between the number of rain days (19), and the average for the month. Maximum gusts in the Arnos Vale area were recorded on the 11th as 52km/hr.

The highest 24-hour rainfall was on the 29th with 45.5 mm. Rainfall distribution showed the first dekad (ten-day period) recorded 35.9% of total rainfall, the second 23.3% and the third 40.8% of the total rainfall. There were 12 days with < 1mm of rainfall.

Temperatures across the island ranged from a high of 33.7°C to a low of 21.1°C. The average maximum temperature recorded at this station was 32.9°C, while the average minimum temperature was 23.7°C. Mean relative humidity was 74%, 4% lower than the long term (1981 – 2010) average.

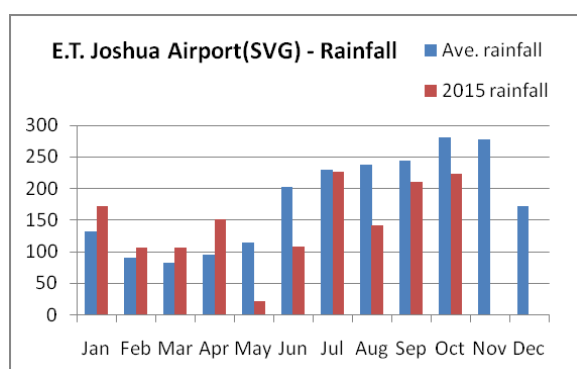


Figure 4 Average monthly rainfall along with the monthly 2015 totals to date, at E.T Joshua.

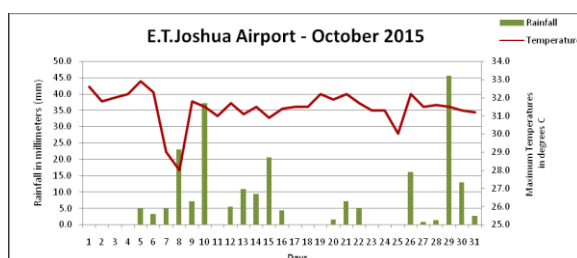


Figure 5 October daily rainfall and mean temperature for October 2015 at the E. T. Joshua Airport, St. Vincent and the Grenadines.

Trinidad and Tobago

The rainfall total for October 2015 at Piarcó in Trinidad was 136.0 mm or 65.7% of the 1981-2010 average. On the other hand, at Crown Point in Tobago, rainfall was 234.7mm or 138.1% of the 1981-2010 average.

Rainfall total during the second half of the first dekad was much more favourable for rain-fed agriculture in Trinidad. While in Tobago, the rainfall total for the dekad was favourable for agriculture, with significant improvement for water harvesting with the occurrence of moderate to heavy rainfall from the 4th to the end of the first dekad. Maximum temperatures for the dekad peaked at 35.2 °C at Piarcó and at 31.7 °C at Crown Point.

The second ten days produced mixed conditions with equal number of dry and wet days, which was encouraging for agriculture in general. The 12th turned out to be the wettest day during the period, with 11.7mm at Piarcó out of a total of 20.3mm over the entire period. Conditions in Tobago were similar with the 11th to 13th producing 20.7 mm of rainfall out of the 21.7 mm recorded over the entire ten days at Crown Point. Ten-day temperatures averaged 28.6°C at Piarcó, while maximum temperatures

peaked at 34.4°C. At Crown Point, ten-day temperatures averaged 28.3°C with maximum temperature peaking at 31.8 °C.

Rainfall for the last dekad was favourable for agriculture in both Trinidad and Tobago. The first half of the dekad yielded the most rainfall in Tobago with the 24th being the wettest with 32.4 mm at Crown Point, while in Trinidad, the second half of the dekad yielded the most with the 25th being the wettest with 32.4mm of rainfall recorded at Piarcó. Maximum temperature peaked at 34.9°C at Piarcó and at 32.5°C at Crown Point.

The conditions would have been encouraging for agriculture particularly in Tobago but still a cause for concern in the sector. The heavy rainfall events early in the period would have provided good opportunities for capturing rainwater and storing for use later on during the drier days.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECASTS

The **El Niño** remains strong and could strengthen even further. The El Niño event is highly likely to last until April 2016. It is highly likely that the rainfall, particularly in the eastern Caribbean and the Guianas, will continue to be less than normal, with higher temperatures south of 20°N. This is likely into the northern hemisphere spring (and at least until April). However, in the northwest Caribbean in the vicinity of The Bahamas and Cuba, the likelihood for above normal rainfall through April 2016 becomes increasingly likely.

Caribbean Sea Surface Temperatures (SST) are up to 1°C above-average north and east of the Caribbean with **trade winds** speed around average and upper level winds stronger than usual. **The Trade Winds** are hardly predictable at this time, but are expected to be strong in the southern Caribbean in the vicinity of the ABC islands. The strong upper level winds are likely to depress convective, and therefore rainfall, development. This is despite the higher than normal **SSTs**, which would have typically increased convection.

November 2015 to April 2016

The Bahamas, Cuba and Belize are likely to experience normal to above normal rainfall during November 2015 to January 2016. However, the eastern Caribbean, from the Guianas to the Leeward Islands is more likely to experience normal to below normal rainfall, with greatest confidence for below normal rainfall over Guyana and the ABC islands. There is uncertainty of what will happen with the rainfall over Hispaniola and Jamaica for this three month period.

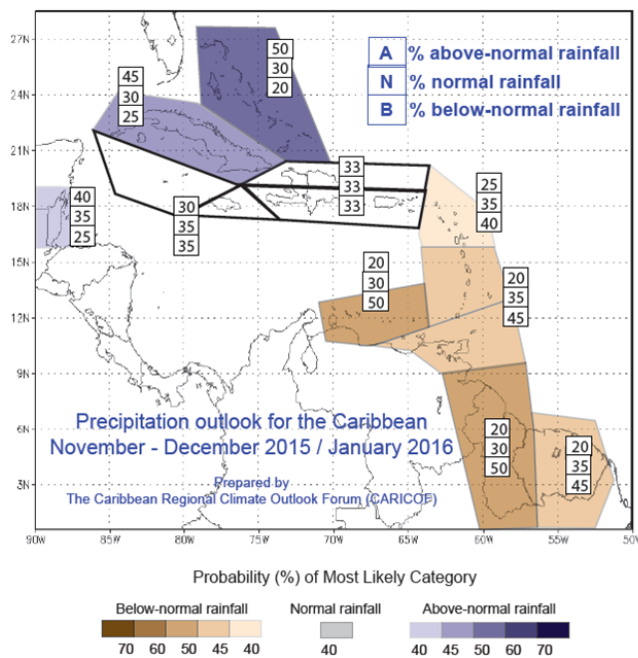


Figure 6 The November 2015 to January 2016 rainfall forecast

The trend toward normal to above normal rainfall in the northwest continues during the February to April 2016 period, particularly over The Bahamas and Cuba. However, the eastern Caribbean, including the Windward, ABC Islands, and the Guianas, along with Jamaica, are more likely to experience normal to below normal rainfall during this period. There is however greater uncertainty in the remainder of the Caribbean, including Puerto Rico and Leeward Islands, southern Hispaniola, and Cayman Islands.

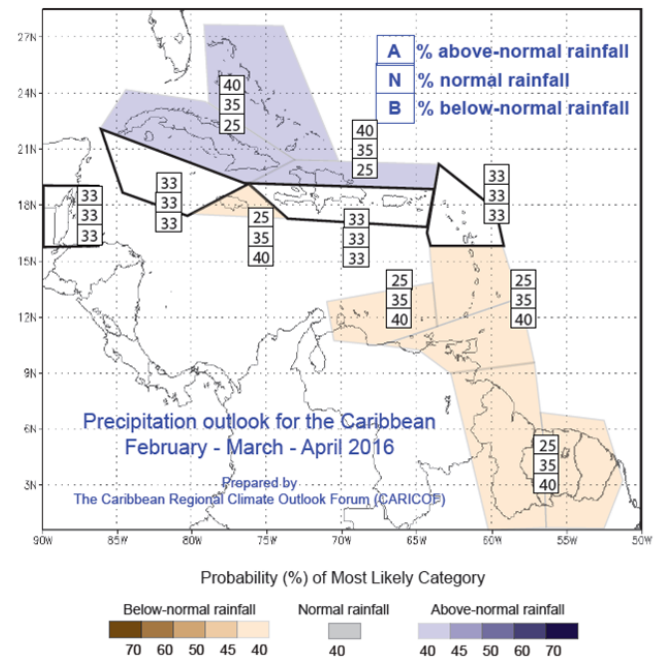


Figure 7 The February to April 2016 rainfall forecast

The remainder of the wet season is highly likely to produce less rainfall than normal, with fewer than normal tropical cyclones (and less cyclone energy) with fewer wet days. However there is increasing likelihood that the fewer wet days could produce heavier rainfall events. However, as the region quickly approaches the end of the wet season, plans to counter any impacts from low rainfall should be brought in place. It is still suggested with a normal to below normal 2016 dry season being likely (particularly until April) in the eastern Caribbean, the Guianas and Jamaica that plans to counter any low water availability be put in place. Water reserves approaching the early months of 2016 (at least until April 2016) are likely to be worryingly low. Conditions will, as usual, be monitored throughout the coming months, with a possibility that at some point in time a recommendation that some parts of the Caribbean, particularly in the eastern Caribbean, be placed under warning to mobilise resources in preparation for any inevitability.

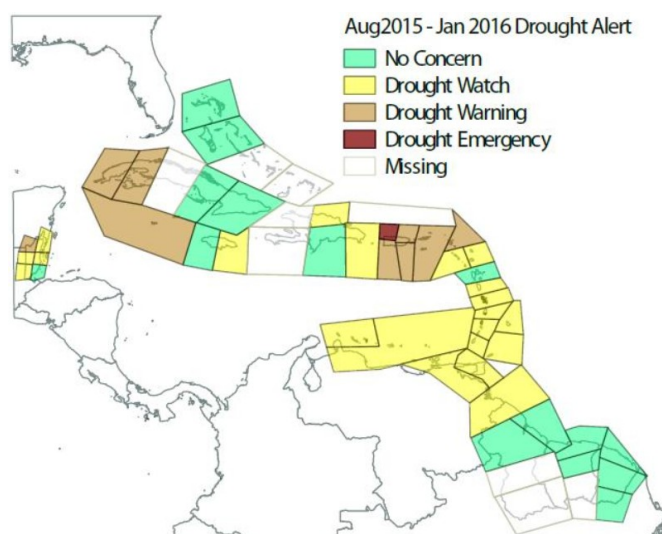


Figure 8 Drought Alert map (based on the SPI forecast) for the end of January 2016, based on actual and forecasted rainfall for the period August 2015 to January 2016.

Though with some replenishment during September and October and more likely in November, irrigation sources in some countries are still depleted, and the upcoming dry season is also likely to deplete the recovering sources again. This would particularly apply to the eastern Caribbean and parts of Jamaica and Belize. This may less apply to the northern parts of the Guianas, as these areas enter one of their two annual wet seasons. However there may be some concerns in the Guianas in early 2016 once this wet season ends and goes into the first dry season of 2016, around February 2016. Those with irrigation sources may soon want to consider the area of their farms that may reasonably be satisfied by these depleted sources, or whether more drought tolerant varieties/species are worthwhile.

Forecast Implications for Agriculture

Farmers would have welcomed the increased rainfall during October, in light of the very late, but predicted, start to the 2015 rainy season. Rains, however, still have not made up for the deficit accumulated from since early in 2015 and it is still likely that November will end the rainy season with a high likelihood of below normal rainfall during the dry season that is likely to impact agricultural production negatively in the early months of 2016, at least until April. This is particularly so in the eastern Caribbean and Guyana (after January 2016).

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