



# CAMI MONTHLY BULLETIN

Caribbean Agro-Meteorological Initiative  
 Enhancing Farming through Weather and Climate Information



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## ANNOUNCEMENTS

The weak El Niño is likely to last until October and could strengthen resulting in a chance of below normal rainfall during the upcoming wet season. Impactful drought is highly likely to continue in much of the Caribbean at least until the end of May and into June. This is particularly so in Jamaica, the Leeward and Windward Islands, and Guyana.

## REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR APRIL 2015

The eastern Caribbean and Guyana were normal to below normal apart from St. Vincent and St. Lucia that were moderately wet. Trinidad and Tobago were normal; Grenada and Antigua moderately dry; Barbados normal to slightly dry; Dominica extremely dry; and Guyana normal in the west and slightly dry in the east. Conditions in Jamaica ranged from normal in the west to extremely dry in the east, but in Belize ranged from severely dry in the south to slightly wet in the north.

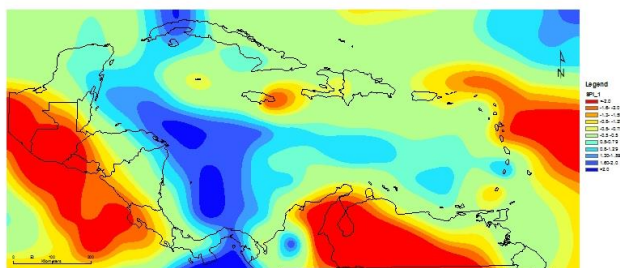


Figure 1. SPI for the Caribbean for April 2015. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

During February to April conditions were mixed over the eastern Caribbean and Guyana. Trinidad was slightly dry; Tobago and Grenada normal; Barbados slightly wet; St. Vincent moderately wet; St. Lucia normal to slightly wet; Dominica and Antigua severe to extremely dry; and Guyana slightly wet in the north to normal further south. Jamaica was

slightly wet in the west and normal in the east, while conditions in Belize ranged from moderately dry in the south to normal in the north.

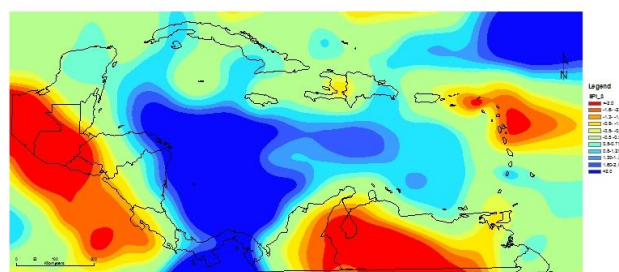


Figure 2. SPI for the Caribbean for February to April 2015. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

The strong Atlantic high pressure system continued to be the dominant feature throughout the month favoring a dry and stable atmosphere resulting in fair weather conditions, declines in rainfall, and strong winds. Hazy conditions were also observed.

## NATIONAL OVERVIEWS

### Antigua and Barbuda

A heatwave was experienced over the period April 24-30. It's the second heatwave on record for the month; the only other one was back in 1998. On the whole, it's the first heatwave since 2010. Meanwhile, night-time temperatures were, for the fourth consecutive month, above normal. The mean daily minimum (night-time) temperature for April was 23.9 °C, tying 2002, 1980 and 1973 for the sixth

warmest on record. Overall, the mean temperature for April was near normal – 26.2 °C. However, like the previous three months, this was the warmest April since 2010. April had twice as much rainfall as March; however, the rainfall for April, 29.0 mm, was below normal relative to the month, the lowest since 2006 and the 14<sup>th</sup> lowest on record. At the V. C. Bird International Airport, although the rainfall was below normal, the seven wet days (with  $\geq 1$  mm) and one heavy rainfall day (with  $\geq 10$  mm) were near normal. The highest 24-hour total was 10.3 mm; this is well below normal and lowest since 2003.

With the low rainfall for the month, the drought remains at serious levels. Surface and ground water continue to dwindle. However, the impacts of the drought continue to be masked by desalinated water resources, without which impacts would be far greater. At the moment, agriculture extension officers are indicating that two-thirds of farmers are unable to produce due to the drought. For those who are able to produce, it is mainly with the use of potable water, which has significantly increased the cost of production.

### Dominica

This month saw below normal rainfall being recorded at Canefield and normal rainfall at Douglas-Charles.

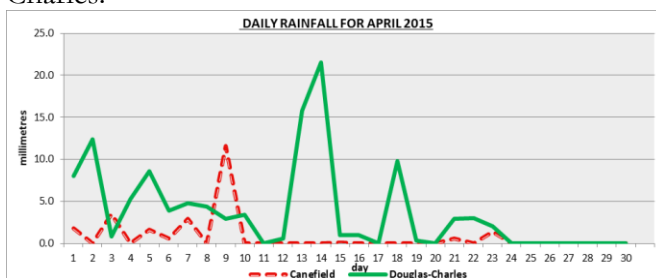


Figure 3 Daily rainfall at Canefield and Douglas-Charles Airports, Dominica during April 2015.

At the Canefield Airport, 24.1mm of rainfall was recorded which is about 44% of the mean. The monthly rainfall was skewed to the right with approximately 91% of this total being measured during the first 10 days of the month. The highest daily total recorded was 11.6mm on the 9<sup>th</sup>. There were 6 rainfall days; two days below the average. The two dry spells observed during the month from the 10<sup>th</sup> were separated by just 1.4mm of rainfall on the 23<sup>rd</sup>. The average air temperature was 28.0°C. The maximum daily temperature recorded was 33.8°C on

the 26<sup>th</sup> and 29<sup>th</sup> while the minimum was 21.1°C recorded on the 5<sup>th</sup>. Average wind was south-easterly at a speed of 9km/hr. The highest wind gust was 50km/hr recorded on the 12<sup>th</sup> and 13<sup>th</sup>.

During the month, 112.4mm of rainfall was recorded at Douglas-Charles. This is about 65% of the mean. The maximum daily total recorded was 21.5mm on the 14<sup>th</sup>. There were 17 rainfall days; two days above average. A 7-day dry spell occurred towards the end of the month. The average air temperature was 27.0°C. The highest temperature recorded was 30.5°C on the 30<sup>th</sup> and the lowest recorded was 19.7°C on the 5<sup>th</sup>. Winds maintained an east south-easterly direction at an average speed of 13km/hr. The highest wind gust recorded was 57km/hr on the 10<sup>th</sup>.

Light showers were observed in the central and western regions during the first week of the month, which was followed by a dry spell which lasted the rest of the month. The dry conditions impacted vegetation and crops such as melons and pumpkins which were significantly affected by leaf curling. Onions were also affected and 35% of the crop was lost. Bush fires were also observed. The other regions reported normal rainfall amounts and an increase in vegetable production. The North East reported another successful onion season and in the North the banana plantlets (resistant to *Black Sigatoka*) at the smart greenhouse are developing and will soon be available for select farmers. The farmers in The Valley were significantly affected by the diamond black moth, *Plutella xylostella*, as they were not able to apply the recommended insecticide due to the frequent light showers.

### Grenada

April was dry, hazy and windy. Low level moisture was the lowest for the year thus far. A total of 5.9mm of rain fell during the month making it the 4th lowest April rainfall over the last thirty years. The lowest April rainfall, 3.2mm, fell in 2006; while the highest, 224.2mm, occurred in 2004. There were twenty (20) days with no or insignificant rainfall this month, resulting in a total that was way below the thirty years average of 33.1mm.

The month's lowest minimum temperature of 22.4°C took place on the 7<sup>th</sup>. The monthly average

was 25.1°C while the highest maximum of 30.9 °C occurred on the 14<sup>th</sup>, with 29.9°C being the mean.

Winds were consistently strong, at a daily average of about 24km/hr. As a result, small craft advisories due to resulting rough seas were issued, by the Meteorological Office on the 16<sup>th</sup>, 17<sup>th</sup>, 18<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> of the month. Nevertheless, fisherfolk enjoyed a relatively good month’s catch. Tuna, Bonita, ocean-jar, round robin, small jacks, and snapper were available on the market for customers. While the dry season raged on, some fruits and root tubers were still present on the market. Dasheen, Tannia, Eddoes, Carrots, Sapodillas, plantains and cucumber were available in good quantities.

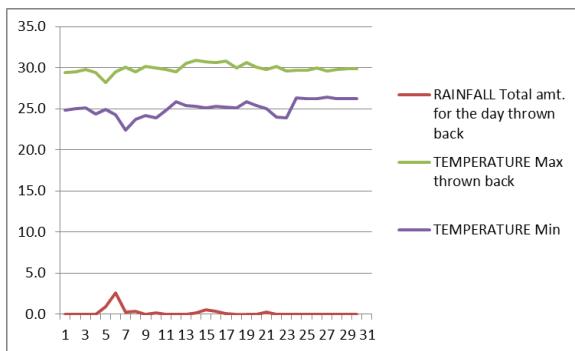


Figure 4 Daily rainfall and maximum and minimum temperatures at Maurice Bishop International Airport, Grenada for April 2015.

### Guyana

For the month, Guyana’s rainfall averaged 84.7mm with 9 rain days. The highest monthly rainfall total was recorded at Awarewaunau in Region 9, with 261.7mm in 10 rain days. Region 9 also recorded the highest monthly average with 115.8mm. Mabaruma in Region 1 was the station that recorded the lowest monthly rainfall total with 5.7mm of rainfall. This value was a mere 3.9% of the long-term value of the station for the month. Most stations in Guyana recorded below normal rainfall totals for the month.

The highest mean maximum temperature was recorded at Lethem, Region 9, with 33°C, which was below the station’s long-term average by 0.1°C. Lethem also recorded the highest 24-hour temperature for the month with a value of 36.0°C on the 8<sup>th</sup>. Of the stations analysed, Georgetown recorded the lowest mean maximum temperature of 29.4°C. The lowest mean minimum temperature was recorded at Timehri in Region 4, with 20.9 °C. This

value was also below the station’s long term average by 1.4°C. This station also recorded the lowest minimum 24-hour total of 18.5 °C on the 5<sup>th</sup>.

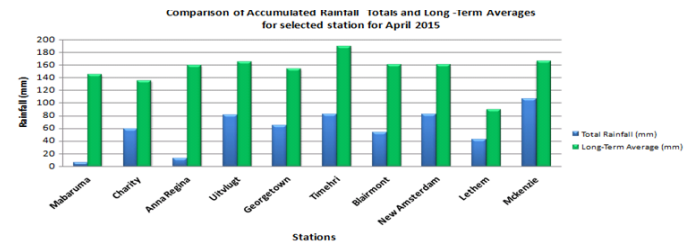


Figure 5 April 2015 rainfall compared with the long-term average for select stations in Guyana.

Generally dry conditions were experienced over most of Guyana. There were no major impacts of the weather on agricultural production reported. However, in some regions there were reports of the shortages of water supply for domestic purposes. In the Buxton/Friendship area, many farmers complained about the lack of rain since most of their crops are rain-fed. Nevertheless they also make use of a small reservoir to irrigate their crops.

### Jamaica

There was a sharp decrease in rainfall occurrence across most parishes for the month. Both Manley in the Southeast and Sangster in the Northwest recorded well below their monthly rainfall means.

Table 1 Climatological Statistics for Manley and Sangster Airports for April 2015.

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	32.0 °C <b>(33.2 °C)</b>	33.9 °C <b>(32.8 °C)</b>
Lowest Minimum Temperature	22.8 °C <b>(21.7 °C)</b>	22.7°C <b>(21.1 °C)</b>
Rainfall Total	0 mm <b>(30.0)</b>	20.2 mm <b>(62.0)</b>
Rainfall days (≥1mm)	0 days <b>(4.2)</b>	3 days <b>(9.6)</b>

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

During the month, Sangster in the northwest recorded 20.2mm of rainfall, while Norman Manley in the southeast received no rainfall. There were three (3) rainfall days reported for Sangster while Norman Manley International airports had zero (0) rain days. Sangster received about 33% of the average (1971-2000 mean).



The highest maximum temperature recorded for Sangster Airport was 33.9°C (21<sup>st</sup>), which exceeded the 20-year extreme maximum temperature average. Meanwhile 32.0°C (25<sup>th</sup>) was reported for Norman Manley Airport.

**St Lucia**

April was relatively dry and produced below average rainfall at both Hewanorra and George Charles Meteorological Offices. Most of the rainfall was recorded during the second and third weeks of the month. There were three significant dry spells at Hewanorra and George Charles Met. Offices.

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

Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	100	16	27.3	74	32.6
Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil Temp (°C)	
30.4	25.4	9.2	8.6	29.1	

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

Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
6	100	09	27.5	74	58.4
Max Temp (°C)	Min Temp (°C)				
29.8	24.3				

May is the fifth driest month at George Charles and the third driest at Hewanorra. It is sometimes wet, but in most cases it is dry and marks the end of the dry season. Significant dry spells are common during the month of May. The mean rainfall figures for May are 76.2 mm at Hewanorra and 135.5 mm at George Charles and on average there are 14 rainy days.

**St Vincent and the Grenadines**

Majority of the rainfall was associated with weak unstable conditions that moved across the islands during the first 15 days of the month. Sunshine alternated with patches of cloudiness throughout the remainder of the month. On a few occasions, large halo phenomena - due to cirrostratus clouds - were

visible. Many days turned hazy as thin layers of Saharan dust filled the air. Brisk winds flowed mostly from an east to east southeasterly direction, veering occasionally to the North-east. The highest gust at E.T. Joshua Airport - Arnos Vale was recorded as 48km/hr on the 1<sup>st</sup>. These brisk winds agitated seas to become moderate in open water, with only a few days being rough. E. T. Joshua Airport recorded 151.5mm for the month. This was 55.6mm more than the climatological average.

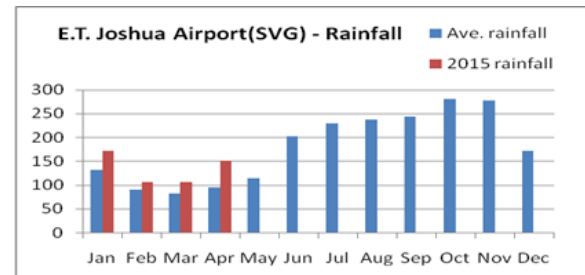


Figure 6 Actual monthly rainfall totals at E.T. Joshua Airport, St. Vincent and the Grenadines for 2015 so far, along with the average for all months.

The highest 24 hour rainfall of 61.4mm occurred on the 2<sup>nd</sup>. The first dekad (ten-day period) of the month recorded 69.8% of total rainfall, with the second dekad 24.6% and the third only 5.5%. There were 16 days with rainfall ≥ 1mm. This was two days more than the climatological average for this station. There were 14 days with < 1mm of rainfall, with 8 of those days being consecutive, occurring at the end of the month (23<sup>rd</sup> – 30<sup>th</sup>).

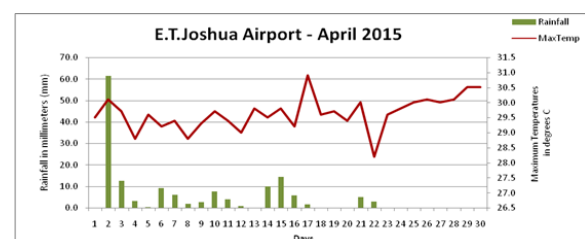


Figure 7 April 2015 rainfall and maximum temperature at E.T. Joshua Airport, St. Vincent and the Grenadines.

The average maximum temperature recorded at this station was 29.6°C, while the average minimum temperature was 24.0°C. Extreme maximum temperature was 30.9°C, which was 0.3°C lower than the 30 year average; and the extreme minimum temperature was 22.2°C, 0.1°C above the 30 year average for E.T. Joshua Airport. Mean relative humidity was 74.0 %, 0.5% lower than the long term (1981 – 2010) average.

## Trinidad and Tobago

April's rainfall total at Piarco in Trinidad was 17.4mm or 29.6% of the 1981-2010 average, while at Crown Point in Tobago it was 26.8mm or 64.4% of the 1981-2010 average.

Temperatures varied very little during the first dekad, as moderate rainfall occurred on the 3<sup>rd</sup> and 4<sup>th</sup> in Trinidad. In Tobago, temperatures decreased slightly as there was moderate to heavy rainfall on the 3<sup>rd</sup> and 4<sup>th</sup>. Overall, the ten-day rainfall total was 6.2 mm at Piarco and 22.5 mm at Crown Point, and this would have been similar in other districts across the country. The average maximum and minimum temperatures decreased by 0.4<sup>o</sup>C in Tobago. Maximum temperatures peaked at only 32.8<sup>o</sup>C at Piarco and 31.7<sup>o</sup>C at Crown Point.

Average temperatures increased during the second dekad as moderate rainfall occurred on the 14<sup>th</sup> and 18<sup>th</sup> in Trinidad. In Tobago, temperatures increased as there was scanty to moderate rainfall with a relatively wet day occurring on the 15<sup>th</sup>. The ten-day rainfall total was 11.1mm at Piarco and 3.7mm at Crown Point, and this would have been similar in other districts across the country. Compared to the previous dekad, the average maximum temperature decreased by 0.8<sup>o</sup>C, while minimum temperatures increased by 1.41<sup>o</sup>C in Trinidad. In Tobago, maximum and minimum temperatures increased by 1.1<sup>o</sup>C and 0.8<sup>o</sup>C respectively. Maximum temperatures peaked at 32.2<sup>o</sup>C at Piarco and 32.3<sup>o</sup>C at Crown Point.

Very little to no rain fell over Trinidad and Tobago during the third dekad as persistent hot and dry conditions continued to affect the farming community. Average temperatures increased during the third dekad in Trinidad. And Tobago. The ten-day rainfall total was 0.1mm at Piarco and an unmeasurable amount at Crown Point. Compared to the previous dekad, the average maximum temperature increased by 1.1<sup>o</sup>C, while minimum temperatures decreased by 0.4<sup>o</sup>C in Trinidad. In Tobago, maximum temperature decreased by 0.5<sup>o</sup>C while minimum temperatures increased by 0.5<sup>o</sup>C. Maximum temperatures peaked at 33.1<sup>o</sup>C at Piarco and 30.2<sup>o</sup>C at Crown Point.

Moderate to heavy rain during the first dekad would have been adequate for normal plant daily water requirement, especially in Tobago. With scanty to moderate rains occurring on a few days during the second dekad, the conditions would have slightly improved for agriculture during and immediately following those days. However, with little or no rain falling during the third dekad, weather conditions would be unfavourable for agriculture, especially with the potential for the increase in heat and water stress.

### REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

Weak **El Niño** conditions are likely to continue well into the Caribbean wet/hurricane season, with some possibility of strengthening to moderate. It is likely that the rainy season will produce less than normal rainfall with higher temperatures south of 20°N, particularly if the El Niño strengthens.

**Caribbean Sea Surface Temperatures (SST)** are 0.5<sup>o</sup>C above-average around the Caribbean and -1.5<sup>o</sup>C to average further east. Cooling is however possible in the near future, but would be monitored as the El Niño can also trigger warming of waters late in the calendar year. **The Trade Winds** are above average at this time, and though the predictability is low, could get stronger during the forecasting period, particularly in the vicinity of the ABC Islands. Any further cooling is likely to reduce convective potential and therefore rainfall.

### May to October 2015

With a weak El Niño being established that can possibly strengthen to moderate, there is great uncertainty in the early part of the wet season. Only in the Windward Islands where normal to below normal conditions are expected, and contrastingly in the vicinity of Jamaica and the Cayman Islands where the expectation is for normal to above normal, are there any high confidence in the climate signal.

On the other hand, normal to below normal rainfall is expected with greater certainty over most of the Caribbean for August to October, except in the vicinity of Trinidad and Tobago and Belize where

normal to above normal rainfall is more likely. The forecast is particularly with high confidence for normal to below normal rainfall over the Greater Antilles and the ABC Islands.

It is expected that drought impacts would be alleviated over most of the Caribbean by July. However drought impacts are highly likely to continue until the end of May into June.

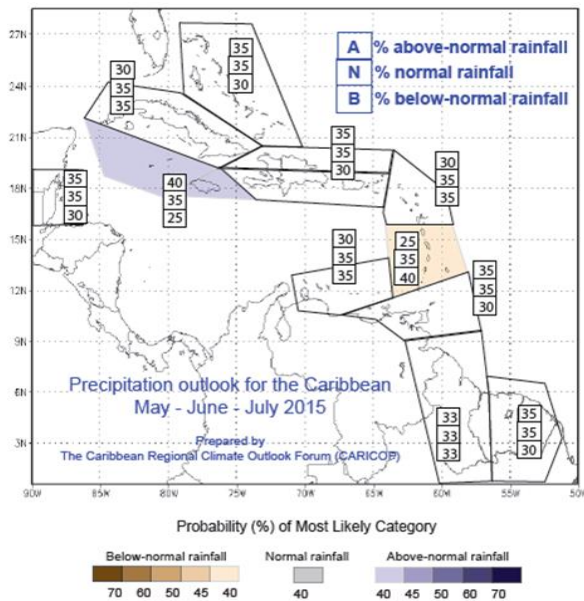


Figure 8 The May to July 2015 rainfall forecast

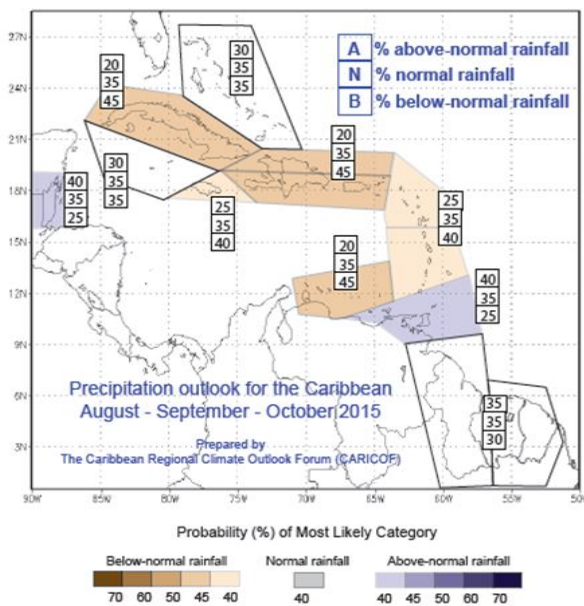


Figure 9 The August to October 2015 rainfall forecast

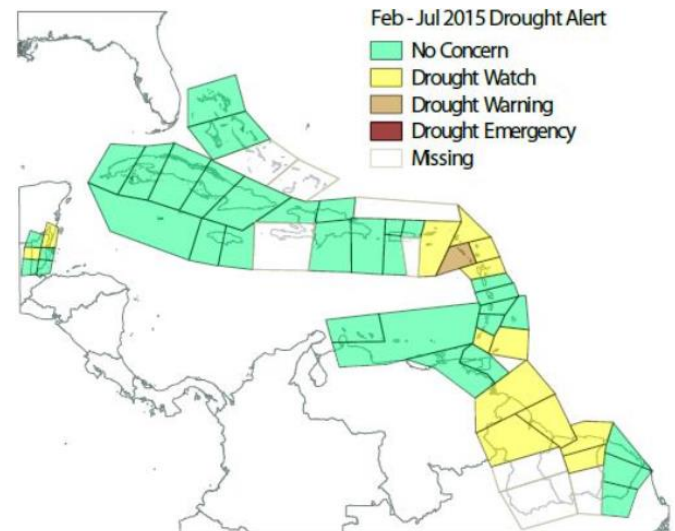


Figure 10 Drought Alert map produced at the end of April 2015 based on actual and forecasted rainfall (SPI) for the period February to July 2015.

### Forecast Implications for Agriculture

With much of the Leeward and northern Windward Islands experiencing below normal conditions for the past three months at least, cropping would have been significantly affected by limited water availability; or by high irrigation use and therefore costlier production. Part of Jamaica, particularly in the east would have had similar experiences. Such impacts are likely to continue, at least until the end of May, and possibly into June in these parts of the region. Though still likely to be below what is normal rainfall (recognizing that below normal rainfall during the wet season will still produce adequate rainfall for agricultural production), the region's agriculture should see increasing and satisfactory levels of water by July. Further, there is the likelihood for fewer episodes of flooding during the heart of the wet season due to the likely below normal conditions, which the region's climatologists will continue to monitor and update.

**Prepared by**  
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