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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 the end of the wet season, and in fact is quite likely to strengthen resulting in a much better than normal chances of below normal rainfall in most of the Caribbean. Though the impacts from the dry conditions will end during this wet season, the impacts are highly likely to continue until the end of June in some countries, particularly in the northern islands of the eastern Caribbean. It is also likely that extreme rainfall events will be fewer than normal.

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR MAY 2015

Normal to below normal rainfall conditions persisted in the islands of the eastern Caribbean. Trinidad was normal to slightly dry; Tobago, Barbados and St. Vincent severely dry; St. Lucia and Dominica extremely dry; and Antigua moderately dry. Guyana was exceptionally wet in the west and extremely wet in the east. Central portions of Jamaica were normal while the extreme west and east were slightly to severely dry. Conditions in Belize ranged from exceptionally dry in the south to normal in the north.

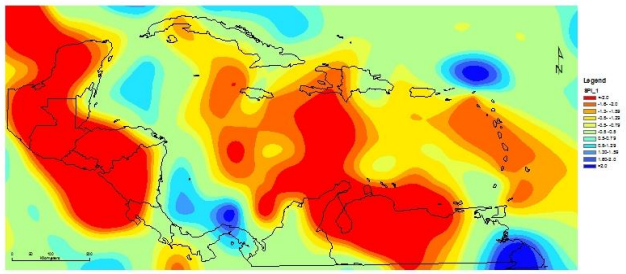

Figure 1. SPI for the Caribbean for May 2015. More information on the SPI can be viewed at http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/.

Most annual cropping takes place over a period of about three months. For March to May, normal to below normal rainfall was experienced in the eastern Caribbean islands. Trinidad was slightly dry; Tobago moderately dry; Grenada, Barbados, St. Vincent and St. Lucia normal; Dominica exceptionally dry; and Antigua severely dry. Guyana ranged from extremely wet in the west to slightly wet in the east. Apart from western and eastern extremes that were slight dry, Jamaica was normal, but Belize ranged from extremely dry in the south to normal in the north.

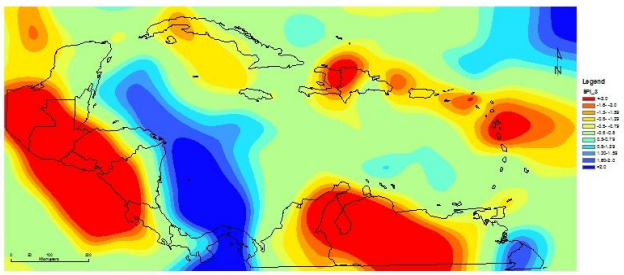

Figure 2. SPI for the Caribbean for March to May 2015. More information on the SPI can be viewed at http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/.

Though some tropical wave activity commenced in the Caribbean, the Atlantic high pressure system continued to be the dominant feature, favoring a dry and stable atmosphere. Hazy conditions also persisted. Throughout the month of May several persistent low pressure systems affected weather conditions across Jamaica.

NATIONAL OVERVIEWS

Antigua and Barbuda

May was severely dry with very warm nights. The month had a total of 20.8 mm; the lowest since 2001

and the fourth lowest on record dating back to 1928. At the V. C. Bird International Airport, the three wet days (days with at least one mm) tied the record lowest. There were no heavy rainfall days (days with at least 10mm), the first time since 2007. The maximum 24-hour total was 9.4 mm. Like most other months of the year, except March, the mean minimum (night-time) temperature was much higher than normal. It was 25.0 °C, the highest since 2010 and tied with May 1973 for the fifth highest for the month on record dating back to 1971. The other temperatures were near normal; the absolute maximum and minimum temperatures were 31.6 °C and 22.1 °C respectively.

With the very low rainfall for the month, the drought has dipped to severe levels, for the first time since it started back in September 2013. Naturally, surface and ground water levels continue to dwindle; according the water authority, all surface water catchments could be totally depleted by the end of July. Potable water from desalination is up to around 80% and rising. Many farmers remain out of business; however, for those with access to pipe-borne water, production continues but at a much higher cost.

Dominica

Dominica experienced extremely dry conditions during May. Apart from a tropical wave towards the latter part of the month which produced some much needed rainfall across parts of the island, the Atlantic high pressure system continued to be the dominant feature, favoring a dry and stable atmosphere. Hazy conditions were also observed.

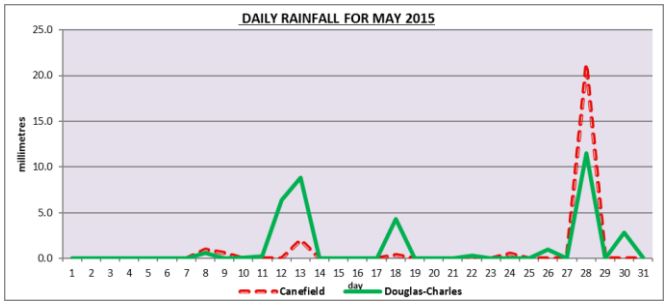

Figure 3 Daily rainfall at Canefield and Douglas-Charles Airports, Dominica during May 2015.

At the Canefield Airport, 25.7mm of rainfall was recorded which is about 28% of the mean. More than two-thirds of the total (21.2mm) fell on the 28th during the passage of the tropical wave. There were only 3 rainfall days for the month. The average air temperature was 29.3°C, which is 0.5°C above the mean. The maximum daily temperature recorded was 33.8°C on the 30th while the minimum was 22.0°C and recorded on the 26th. Average wind was south south-easterly at a speed of 11km/hr. There were significant gusts throughout the month, the highest being 63km/hr recorded on the 6th.

Douglas-Charles Airport also recorded below normal rainfall. A total of 36.1mm of rainfall was recorded which is about 15% of the monthly mean. The maximum daily total recorded was 11.5mm also on the 28th. There were 6 rainfall days. The average air temperature was 28.2°C. The highest temperature recorded was 30.7°C on the 4th and the lowest recorded was 20.6°C on the 5th. Winds maintained an east south-easterly direction at an average speed of 15km/hr. The highest wind gust recorded was 48km/hr on the 10th and 22nd.

The dry season has significantly affected all seven agricultural regions and forestry and wildlife division. Reports indicated that a large number of crops suffered from water stress due to below normal rainfall. Young plantain stems have lost their leaves or dried up, dasheen not planted in swamps saw losses as much as 45% and sweet potatoes in heavy clay soils could not be harvested. The only crops which were not affected by the high temperatures and lack of rainfall were pineapples and passionfruits. There was a slight increase in passionfruit production though reports indicated that some trellises were affected by bushfires. Ginger was also established. The West Region saw bushfires which lasted more than three days. The division of Forestry and Wildlife indicated that there were a number of bushfires and a few frogs died due to the dry conditions. *Black Sigatoka* incidents decreased in most of the regions.

Guyana

For the month of May, Guyana averaged 356mm of rainfall with 20 rain days. The highest monthly rainfall total was recorded at Kaieteur with 696.0mm of rainfall with 28 rain days. Region 3 recorded the highest monthly average with 450.3mm of rainfall. Most stations in Guyana recorded above normal rainfall for the month, except Charity and Anna

Regina. 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 5th.

The highest mean maximum temperature was recorded at Lethem Region 9 with a value of 31.4°C, which corresponds to the lowest mean maximum value recorded since the beginning of the year at that station. Lethem also recorded the highest temperature for the month with a value of 34.2°C on the 2nd. Kamarang recorded the lowest mean maximum temperature of 29°C and lowest mean minimum temperature was recorded at Ebini in Region 10, with 19.7°C, which was also below the station's long-term average by 3.3°C. Ebini also recorded the lowest daily minimum temperature of 16.4°C on the 4th .

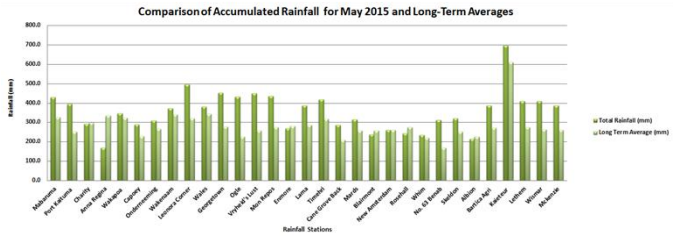

Figure 4 May 2015 rainfall compared with the long-term average for select stations in Guyana.

There were no reports of major impacts of the weather on agricultural production. 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.

The month of May marked the transition of Guyana from its primary dry season into the primary wet season. Thus, most parts of the country experienced generally very wet conditions, especially in the latter part of the month, which caused flooding in some agricultural areas.

Over 1,000 acres of rice lands on the Essequibo Coast was affected by floodwaters which had accumulated due to excessive rainfall, in the latter part of the month.

Jamaica

There was increased rainfall activity across most northern and western parishes. However, Manley in the Southeast and Sangster in the Northwest both recorded below their means.

During the month, Sangster in the northwest recorded 12.3 mm of rainfall, while Norman Manley in the southeast received 7.6 mm. There were three (3) rainfall days reported for Sangster while Norman Manley International airports recorded only one (1) rain day. Both Manley and Sangster received about 11% of the average rainfall for May.

The highest maximum temperature recorded for Sangster Airport was 34.6°C (5th May). Meanwhile, 33.9°C (31th May) was reported for Norman Manley Airport. It was noted that the extreme maximum temperature was exceeded at both airports.

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

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	33.9 °C (33.7 °C)	34.6 °C (33.5 °C)
Lowest Minimum Temperature	23.5 °C (23.1 °C)	23.1°C (21.8 °C)
Rainfall Total	7.6 mm (67.0)	12.3 mm (106.0)
Rainfall days (≥1mm)	1 days (8.5)	3 days (14.2)

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

St Vincent and the Grenadines

Dry and warm conditions were experienced across St. Vincent and the Grenadines (SVG). A few tropical waves that traversed the area produced very little precipitation, and as a result water stress in plants and shrubs could be seen, as leaves turned yellow and curled under. The water intake across SVG is also a concern as 3 major catchment systems fell below 50%. Moderate to fresh breezes flowed predominantly from an east-northeasterly direction, occasionally veering to the south-east. The highest gust at E.T. Joshua Airport - Arnos Vale was recorded on the 10th at 59km/hr. These brisk winds agitated seas to become moderate in open water, with only a few days being rough. Layers of Saharan

dust filled the air on many days, occasionally reducing visibility.

Average May rainfall is 114.4 mm rainfall; but May 2015 fell significantly below average, with only 23.0mm recorded by month's end.

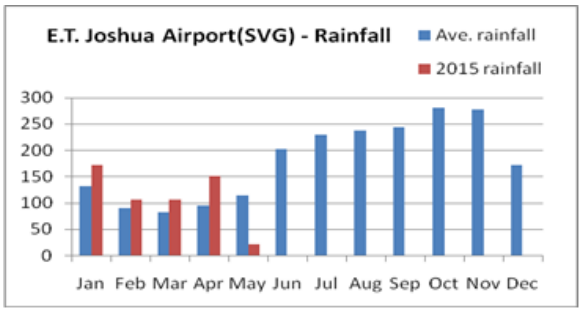

Figure 5 Actual monthly rainfall totals at E.T. Joshua Airport, St. Vincent and the Grenadines up to May 2015, along with the average for all months.

The highest 24-hour rainfall of 3.4mm occurred on the 28th. The first dekad (ten-day period) recorded only 3.9% of total rainfall, with the second dekad having 37.4% and the third recorded 58.7% of the total rain fall. There were 9 days with rainfall ≥ 1mm, which was seven days less than the average (16 days) for this station. There were 22 days with < 1mm of rainfall, with 10 of those days being consecutive, occurring at the beginning of the month (1st – 10th).

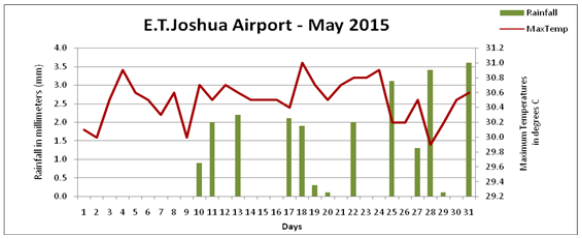

Figure 6 May 2015 rainfall and maximum temperature at E.T. Joshua Airport, St. Vincent and the Grenadines.

Temperatures across the island ranged from a high of 32°C to a low of 21°C. The average maximum temperature recorded at this station was 30.5°C, while the average minimum was 25.4°C. Extreme maximum temperature was 31.0°C, which was 0.6°C lower than the 30 year average, and the extreme minimum temperature was 22.9°C, 0.3°C lower than the average for E.T. Joshua Airport. Mean relative humidity was 73.5 %, 1.6% lower than the long term (1981 – 2010) average.

Trinidad and Tobago

May's rainfall total at Piarco in Trinidad was 18.5mm or 14.9% of the 1981-2010 average. At Crown Point in Tobago, May's total was 5.3 mm or 6.3% of the 1981-2010 average.

Very little or no rain fell over Trinidad and Tobago during the first dekad as persistent high temperatures and harsh, dry weather conditions continued to affect the farming community in the country. Average temperatures increased during the first dekad with only scanty rainfall at Piarco. In Tobago, temperatures also increased, while there was little rainfall occurring on the 8th. Overall, the period was a dry one with a total of 0.2mm at Piarco and 1.2mm at Crown Point. The average maximum temperature decreased by 0.1°C, while minimum temperatures increased by 0.2°C in Trinidad. In Tobago, maximum temperature increased by 0.8°C while minimum temperatures decreased by 0.5°C. Maximum temperatures peaked at 33.7^{0}C at Piarco and at 32.5 ^{0}C at Crown Point.

During the second dekad. hot, harsh, dry weather conditions continued to affect the farming community. Overall, there were 2.4mm of rainfall at Piarco and 2.0mm at Crown Point. This would have been similar in other districts across the country. Compared to the previous dekad, the average maximum temperature did not vary in Trinidad and Tobago, while minimum temperatures increased by 1.0°C in Trinidad and 0.1°C in Tobago. Maximum temperatures peaked at 33.7^{0}C at Piarco and at 32.0^{0}C at Crown Point.

During the last ten days, the absence of sufficient rainfall remained a major concern for farmers as agriculture fields continued to experience dry and harsh conditions, even though moderate to heavy rainfall occurred in most districts during the 28th and overcast conditions dominated at least two of the ten days. The rains on the 28th aided in improving the ten-day rainfall total, with 11.2 mm recorded at Piarco. Tobago on the other hand continued to receive harsh conditions with areas in the Crown Point district receiving a meagre 0.5 mm of rainfall during the period, and this would have been similar in other parts of the island. During the period, hot conditions also affected the farming community, with maximum temperatures soaring to a high of

34.3^{0}C in Trinidad and 32.4^{0}C in Tobago. Accompanying these hot days were relatively warm nights with minimum temperatures being as high as 26.4^{0}C.

The absence of adequate rainfall amounts in Tobago would have increased irrigation needs while heat and water stresses in plants and animals would have increased.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECASTS

Weak **El Niño** conditions persists and are likely to continue well into the Caribbean wet/hurricane season, with a high likelihood of strengthening to moderate by midway through the season and could even be stronger still by the end of the season. It is increasingly likely that the rainy season will produce less than normal rainfall with higher temperatures south of 20°N, particularly if the El Niño continues to strengthen.

Caribbean Sea Surface Temperatures (SST) are 0.5°C above-average around the Caribbean and -1°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 in the Atlantic is likely to reduce convective potential and therefore rainfall.

June to November 2015

Apart from in The Bahamas where there is a greater than normal chance for above normal rainfall, normal to below normal conditions are expected for the Caribbean for June to August. The confidence for this is particularly high over the Windward, ABC and Cayman Islands. Similar conditions are expected for the September to November period, but with less confidence of normal to below normal rainfall over the Cayman Islands.

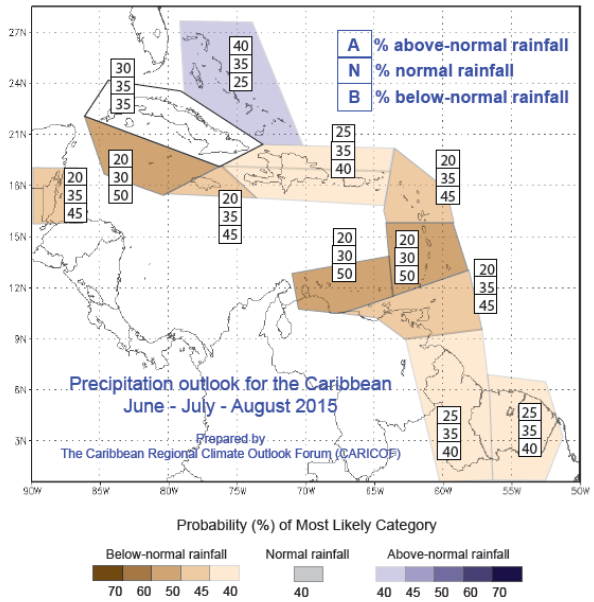

Figure 7 The June to August 2015 rainfall forecast

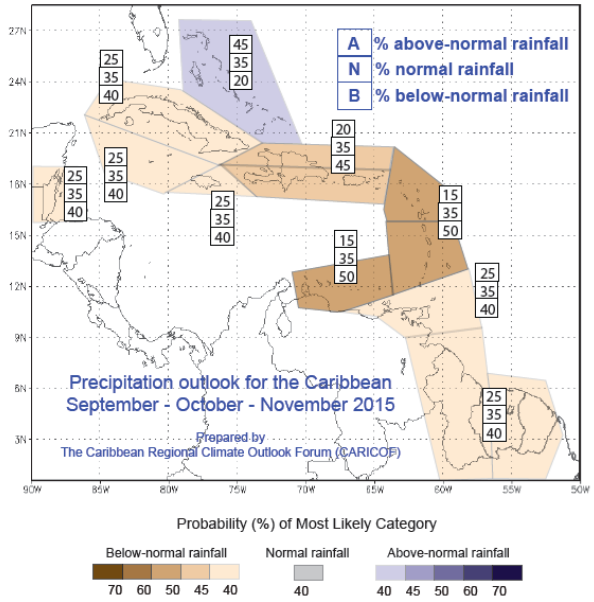

Figure 8 The September to November 2015 rainfall forecast

With the wet season expected to produce less rainfall than normal, this is likely to be associated with a less active hurricane season and one with fewer extreme rainfall events that will cause flooding and landslides. Though a normal to below normal rainfall season is likely, there should still be enough rainfall to reverse the impacts from the harsh dry conditions currently plaguing many parts of the Caribbean. However, there is some concern that with the current and predicted El Niño conditions, the wet season could end earlier than normal, and with a normal to below

normal 2016 dry season being possible, that water reserves approaching the end of 2015 into 2016 could be worryingly low. Conditions will be monitored throughout the coming months.

It is expected that drought impacts would be alleviated over most of the Caribbean by the end of July in August. However drought impacts are highly likely to continue until the end of June in some countries, particularly in the northern half of the eastern Caribbean.

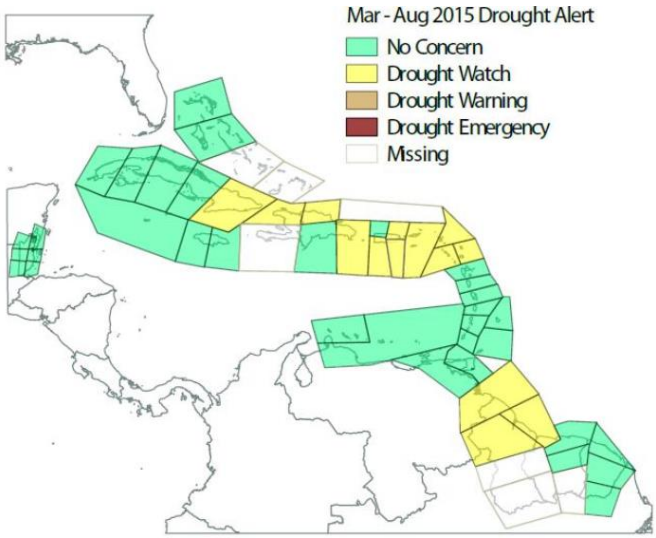

Figure 9 Drought Alert map produced at the end of April 2015 based on actual and forecasted rainfall (SPI) for the period March to August 2015.

Forecast Implications for Agriculture

With many of the eastern Caribbean islands experiencing below normal conditions for the past three to four months at least, cropping would have been significantly affected by limited water availability or by high irrigation use, and therefore by costlier production. Though rainfall during the next 3 to 6 months is increasingly likely to be below normal (and 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. Some countries, particularly those in the northern half of the eastern Caribbean, will continue to be impacted during June, with inadequate soil moisture unless supplemented by irrigation. These countries will continue to have either lower than normal levels of production or production will be costlier, likely increasing prices of these commodities. Further, there is the likelihood for fewer extreme rainfall events that could trigger flooding and landslides, particularly during the first half of the wet season.

Prepared by

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