CAMI MONTHLY BULLETIN

Caribbean Agro-Meteorological Initiative

Enhancing Farming through Weather and Climate Information

Volume 2 Issue 1 **October 2011**

ANNOUNCEMENTS

The Caribbean Agro-Meteorological Initiative (CAMI) will conduct farmers forums in Barbados, Jamaica and Belize in the month of November. These forums will help farmers become more self-reliant in dealing with weather and climate issues that affect agricultural production on their farms. For further information contact the National Meteorological Services in these countries.

CAMI will continue to encourage and assist its NMS in developing their own national bulletins. As training continues through 2012, more agri-relevant information will be included. CAMI collaborators welcome feedback from farmers and the wider agricultural community on this bulletin, indicating usefulness, relevance, appropriateness of language and possible changes to be made.

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR OCTOBER 2011

Based on Standardised Precipitation Index (SPI) analysis, in the eastern Caribbean and Guyana, there was a clear distinction between the north and the south, with the south being generally above normal and the north below normal. Trinidad was generally moderately wet and Guyana ranged from moderatel to very wet. Tobago, Grenada, Barbados, St. Vincent, St. Lucia and Dominica were normal. However, Antigua was moderately dry. Further to the west Jamaica was moderately wet. Apart from the northern extreme that was abnormally wet, rainfall in Belize was near- normal.

Most annual cropping takes place over a period of about three months or just over. A look at the three month rainfall totals ending in October for the eastern Caribbean and Guyana, shows that apart from Tobago that was moderately dry, the region's rainfall was generally normal to above normal. Trinidad, Barbados and St. Lucia were normal; Grenada, St. Vincent, Dominica and Antigua abnormally wet; and Guyana ranged from moderately wet in the west to normal in the east. Conditions in Jamaica ranged from moderately wet in the west to normal in the east, while Belize was normal in the south and abnormally wet in the north.

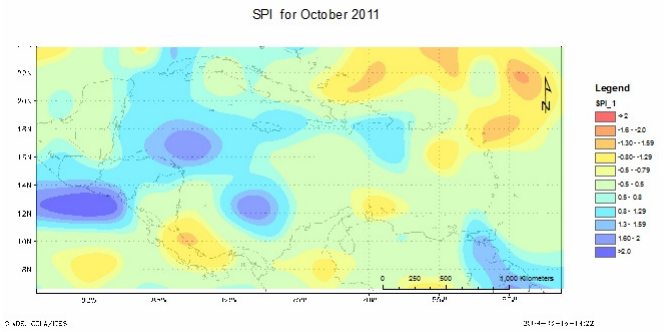

Figure 1. Standardised Precipitation Index (SPI) for the Caribbean for October. More information on the SPI can be viewed at http://63.175.159.26/~cdpmn/spimonitor.html.

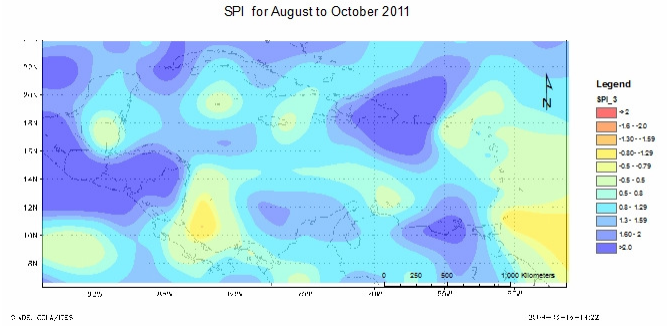

Figure 2. SPI for the Caribbean for August to October, 2011. More information on the SPI can be viewed at http://63.175.159.26/~cdpmn/spimonitor.html

Temperatures in the region were generally above normal for October with notable exceptions in the

northern portion of the eastern island chain. The national overviews that follow elaborates these points.

NATIONAL OVERVIEWS

Antigua and Barbuda

Below normal rainfall was experienced for October with 71.6mm; this was only 44% of the normal total (1981 – 2010). This is the lowest total since 2000 and the 14th lowest on record for the month. Although a number of factors favoured more rainfall, hostile upper level wind shear retarded the development of rain-producing systems. At Coolidge, the number of rainy days (>= 1mm) of nine was also below normal with one heavy rainfall day (>= 10mm). A tropical wave was the main rain-producer for the month with over 40% of the total rainfall. The mean temperature at Coolidge for October of 27.6°C was near normal. The mean daily maximum and minimum temperatures were below and above normal respectively. The outlook calls for near normal rainfall and temperature for November and November to January. The weather for October allowed for a lot of field preparation and planting by farmers. However, the above normal rainfall of previous months is still hampering some farmers, mainly in low lying areas where soil moisture levels are still quite high. Local agricultural products are now very low to scarce as a result.

Barbados

Rainfall was evenly distributed during the month although they were two significant rainfall events: one of these occurred on day 6 as a surface trough interacted with the I.T.C.Z to produce 37.2mm at the Airport. The second event occurred on day 25 and while it resulted in just 10.6mm at the Airport, there were reports of torrential rains and flash-flooding in some western sections of the island. This activity was due to the passage of a deep-layered trough system over the area which resulted in mostly localized convection over some sections of the island.

The rainfall total of 147.7mm at the Grantley Adams Airport was 87 % of the 30-year mean of 169.9mm but was way below last year's total of 457.2mm, which was largely due to the passage of 'Tomas'. Meanwhile, the cumulative total rainfall at the Grantley Adams Airport up to the end of October of 1298.0mm was 40% above the long-term cumulative average for the same period of 919mm. There were 19 rain days (rainfall >1mm) and seven days of heavy rainfall (>10mm). Over at Golden Ridge in St. George, there were 21 rain days and also 7 significant rain days with total rainfall for October of 169.7mm.

The highest maximum temperature recorded was 31.9°C which occurred on the first of the month and the lowest minimum was 21.3°C occurring on the 22nd and 23rd.

Belize

A cold front early in the month moved across the Gulf of Mexico then became stationary near the Yucatan Peninsula on Oct.2nd. The position of the front produced extensive rainfall over Belize with the International Airport recording 25.1mm of rainfall. Belmopan, the capital, measured 38.4mm. Punta Gorda in the south recorded 54mm. Near the middle of October, the remnants of tropical depression#12-E moved across Belize from Guatemala. Late in the evening of Oct.13th, it produced 106mm of rainfall at the International Airport. Another cold front, which entered the Gulf of Mexico, moved across Belize Oct.19th with a surge of showers over the northern districts of the country. The season's eighteenth tropical depression formed on Oct.,23rd over the western Caribbean. The depression became Tropical Storm Rina on Oct.24th and later became Hurricane Rina on Oct. 25th. Rain and showers associated with the hurricane affected mainly the northern districts on Oct.26th. At the end of the month, a surface trough over the western Caribbean produced several showers. In summary, the central, coastal and southern parts of the country received rainfall amounts in excess of their normals. One station Barton Creek (BTC) exceeded its normal by 84%.

Dominica

Canefield Airport on the south-west coast of the island recorded 169.4mm of rainfall which is about 90% of the average amount. Maximum amount was 25.5 mm on the 24th during the passage of a trough system. Average air temperature for the month was 28.2°C which is 0.3° below the average. Highest temperature was 32.7°C recorded on the 1st, 6th and

8th while the lowest, 22.3°C, was recorded on the 21st.

Melville Hall Airport on the north-east coast recorded 366.9mm of rainfall which is about 15% above the normal total. Its maximum amount was 90.9mm recorded on the 24th. Averaged air temperature was 27.3°C which is 0.9° below normal. Highest temperature was 32.1°C recorded on the 1st while the lowest, 22.0°C, was recorded on the 22nd.

Flash flood warnings were released for areas prone to flooding, especially the Layou area, on the 28th. Following the collapse of the Mattieu Dam in the Layou valley on July 28th 2011, the raised river bed makes it prone to flooding. Farmers in the valley have already lost land and the bridge which provided access to their farms was washed away. Intense rainfall in the Pond Case area makes the Layou River hazardous to farmers working nearby and to motorists and pedestrians downstream.

Grenada

In Grenada, a special midweek fortnightly farmers' market began during the month of October. Attending the end of October market, farmers feedback regarding weather effects on their cultivations varied. For cash crops (pepper, tomato, lettuce, etc) farmers were adversely affected by the heavy rainfall, while for traditional tree crops (banana, plantian, avocado, etc) farmers had "smiling" yields.

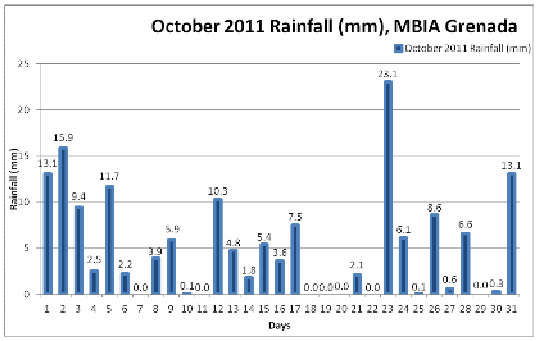

Figure 3. Daily rainfall (mm) for October 2011 at the Maurice Bishop International Airport, Grenada

Rainfall for October at the MBIA was 158.7mm which is slightly above the month's average of 142.6mm. Although October's rainfall total was less than that of the previous month, there was a better "spread" of rainfall days and this contributed to the cries from some farmers of too much rain in October.

On Wednesday the 5th October, between 1200 noon & 1:00 pm local time, a squall line which moved from Southeast to Northwest, produced sharp showers and a wind gust of up to 35 knots (40 mph) in some parts of the island. The cool downdraft from the associated deep convective clouds resulted in a temperature drop from 30.4°C at noon to 22.9°C within a one-hour time frame at the airport.

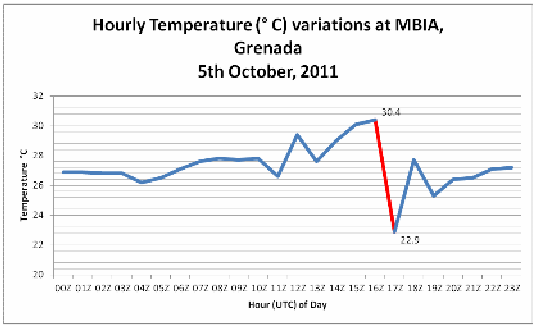

Figure 4. Hourly Temperature variations at MBIA, 5th October, 2011

Guyana

Climatologically, the month of October is considered as dry in Guyana, with average rainfall of 110.2mm and 10 rain-days. However, October 2011 was classified as wet, with average rainfall of 237.8mm and 15 rain-days. All stations recorded above their normal rainfall, while 96% of the stations recorded rainfall that is in excess of the country's normal for the month. The highest twenty-four hour rainfall was recorded at the No.73 rainfall station (Region 6) on the 23rd, 165.5mm. Other significant daily rainfall amounts recorded during this month were as follows; 151.4mm at St.Denny Mission (Region 2) on the 23rd, 116.9mm at Spring Land Forestry (Region 6) on the 23rd, 112.5mm at Skeldon (Region 6) on the 20th, 101.2mm at Supenaam (Region 2) on the 30th, 101.8mm at Good Success (Region 3) on the 20th, 97.7mm at Little Biaboo (Region 5) on the 20th.

Being a traditionally dry month, October is the month in which the rice farmers on the Coast Plane harvest the cereal. Farmers are usually negatively affected by excess rainfall during the harvesting period, be it by loss of grains due to rain drops or the delay in harvesting due to excess water in the soil. In the period under review, there were few reports of farmers delaying the harvesting due to the

above normal conditions. The sugar industry, which also depends on the dry season to harvest, did not report any significant losses in workable days in the month. The others crops, on the other hand, benefited from the excess rainfall.

The mean maximum recorded air temperature for the month was 32.4˚C, which is above the climatological average (31.5 ˚C), with the highest maximum daily air temperature of 36.0˚C recorded on the 25th at the National Weather Watch Centre (Timehri Region 4). The mean minimum air temperature was 22.6˚C, which is also above the climatological average (22.3 ˚C), with the lowest daily minimum air temperature of 21.0 ˚C recorded on the 22nd at National Weather Watch Centre. The average daily sunshine hours was below climatological average. The highest amount of sunshine hours (10.9 hours) was recorded on the 22nd at the National Weather Watch Centre.

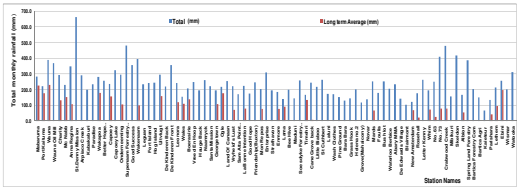

Figure 5. Comparison of rainfall along with long-term average for October 2011

Table 1. Average reports for synoptic stations in Guyana

Synoptic Stations.	Total Monthly Rainfall (mm).	Number of rain days (Greater than 1 mm).	Average Maximum Temperature (C).	Average Minimum Temperature (C).	Average Sun Shine Hours.
N.W.W.C	166.9	15	32.4	22.6	5.8
Georgetown	194.7	13	31.3	24.6	6.2
Ogle	219.2	14	30.8	24.2	***
Ebini	213.6	15	33.2	22.3	6.8
New Amsterdam	123.6	12	32.1	23.89	5.9
Lethem	135.0	8	33.6	24.5	7.5
Mabaruma	285.0	18	31.4	22.1	***

key * - no record**

Jamaica

For the month of October most of the rainfall was produced by troughs or low pressure areas. Both International airports exceeded their 30 year mean value; Sangster recorded 229mm which is 42% above the mean while Manley recorded 266mm which is 129% above the mean. Significant rainfall was received over sections of the island. One system, Tropical Storm Rina produced showers across the island towards the end of the month. The highest maximum temperatures recorded at Manley were 34.2°C (3rd October) while for Sangster it was 34.8° C (1st October).

St Lucia

Below normal rainfall was recorded in October for Saint Lucia as was the case in September. This was reflected in the records for both the GFL Charles and Hewanorra airports. The total rainfall measured at Hewanorra was 174.9mm which is 81.6 per cent of the 1973-2011 mean and at GFL Charles the total was 184.5 mm which is 67.3 per cent of the 1967-2011 mean. There were 23 rainy days (>0.1mm) at Hewanorra with highest daily rainfall of 33.8mm and 25 at GFL Charles with a highest daily measurement of 37.9mm. For both stations concerned, about two thirds of the rainfall occurred during the first half of the month and this coupled with the few dry days and high humidity provided the perfect recipe for the growth and proliferation of the dreaded black sigatoka disease in the banana and plantain fields. Since rainfall for the remainder of the year is expected to be normal to slightly above normal, banana farmers in Saint Lucia should take all measures to minimize the spread of this disease on their fields.

Average dry bulb (28.1^0C) and maximum temperatures (31.0^0C) were above normal at Hewanorra and this has been the trend for most of this year. The average minimum temperature was also slightly higher than the mean at Hewanorra.

Average dry bulb (28.4^0C) and maximum temperatures (31.5^0C) were above normal at Hewanorra and this has been the trend for most of this year. The average minimum temperature was equal to the mean at Hewanorra but it too has been trending above normal this year.

St Vincent and the Grenadines

The monthly total rainfall for October was 243.7mm. Although this amount was below the climatological average for this station, it was well distributed throughout the dekads (10 day periods). The first dekad had 39.5% of the total rainfall. The second dekad had 26.1%of the total rainfall, and third dekad had 34.4% of the total rainfall. There

were eight days with less than 1mm of rainfall with no significant dry spell. There were twenty 23 days with rainfall >1mm. The highest 24 hour rainfall was 28.3mm recorded on the last day of the month.

Extremes for October, 2011 (and date of occurrences): Barometric Pressure - highest 1015.7 millibars (3rd), lowest 1008.5 millibars (21st); Air Temperature – highest 32.4^{0}C (1st), lowest 22.6^{0}C (13th)

Trinidad and Tobago

Rainfall recorded at the Observing station in Piarco International Airport, Trinidad was 268.3mm. This amount was 22% above the long-term average (1971 to 2000). Rainfall at the A.N.R. International Airport, Crown Point, Tobago was 189.5mm, 14% below the long-term average. There were no significant dry spells for both islands.

Rainfall at Piarco, by the end of the second dekad, was 97% of the long-term average. The rainfall amounts were equivalent to the long-term average by the middle of the third dekad. On the 15th of October, rainfall amounts totalled 68.7mm which brought the rainfall total to 88% of the long-term average. There was major flooding and landslides in parts of Trinidad. There were also reports of infrastructural damages.

On the 19th October 2011, at Crown Point, rainfall total was 34.0mm which brought the rainfall total to 72% of the long-term average.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECASTS

The rainfall outlook for the Caribbean for November, 2011 to January 2012 suggests that the eastern Caribbean and Guyana are expected to experience above normal rainfall conditions. There is highest certainty in the region of southern portion of the chain, which includes the Windward Islands, Barbados and Trinidad and Tobago. Jamaica is more likely to receive closer to normal rainfall and Belize normal to above normal rainfall.

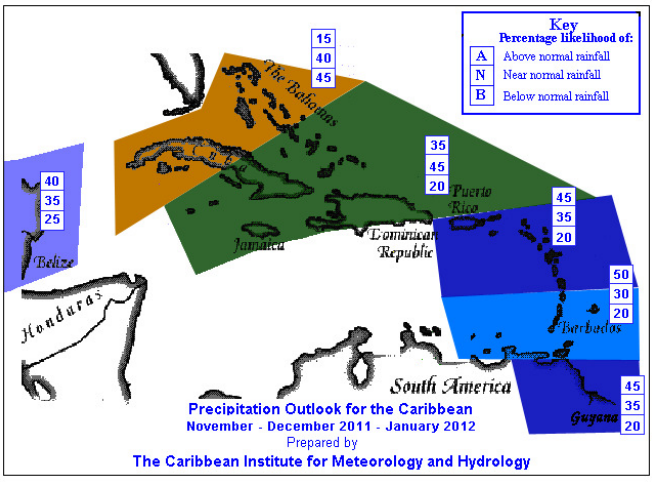

Figure 6. Precipitation Outlook for the Caribbean November–December, 2011- January, 2012

For the six month period November, 2011 to April, 2012, there will be a continued distinction in rainfall between the southeastern and the northwestern Caribbean with Belize beginning to experience, generally below normal rainfall and the eastern chain and Guyana receiving above normal rainfall. In between these two zones, the remainder of the Greater Antilles, like Jamaica should receive near-normal rainfall. The above average air temperatures experienced in the basin for the majority of the year will give make way to normal to below normal conditions with some dominance of below normal, particularly in the western Caribbean. Over the six month period above normal SSTs will peter out toward the southern portion of the eastern chain by February 2012 and result in normal SST across the basin.

ENSO Conditions:

La Niña conditions are present across the equatorial Pacific and are expected to strengthen and continue through the Northern Hemisphere winter 2011-12. Abnormal atmospheric circulation patterns are also consistent with La Niña. These developments may have implications for climate conditions in the Caribbean basin. During the six month period November 2010 to April 2011, La Niña conditions translated into above normal rainfall.

Prepared by
Caribbean Institute for Meteorology and Hydrology (CIMH) and the National Meteorological Services of Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St Lucia, St Vincent and the Grenadines and Trinidad and Tobago
CAMI is funded by the European Union in partnership with the institutions that have prepared this bulletin, along with the Caribbean Agricultural Research and Development Institute and the World Meteorological Organization