



ANNOUNCEMENTS

CAMI has begun an e-discussion that will embrace the suite of issues related to weather and climate influences on agriculture in the Caribbean, particularly issues that would have been raised in last years farmers' forums. If interested in taking part, click on <http://mail2.cimh.edu.bb/camionlineforum/>. CAMI continues to urge the National Meteorological Services to maintain regular contact with their farmers and extension services. The formation of tripartite (meteorologists, farmers and extension officers) committees to sustain activities at the national level have been recommended and are being pursued. CAMI encourages and will assist its meteorological services in developing their own national bulletins. CAMI collaborators continue to encourage feedback from farmers and the wider agricultural community on this bulletin.

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR MARCH 2012

In March 2012, except for Antigua that was moderately dry, the eastern Caribbean islands were predominantly normal to above normal. Tobago and Grenada were exceptionally wet; St. Vincent moderately wet; Barbados, St. Lucia and Dominica normal; and Trinidad extremely to exceptionally wet. Conditions in Guyana ranged from moderately wet in the northwest to moderately dry in the east, while in Jamaica they ranged from normal in the west to extremely wet in the east. Belize was abnormally to moderately wet. These can be seen in the Standardised Precipitation Index (SPI) map in Figure 1.

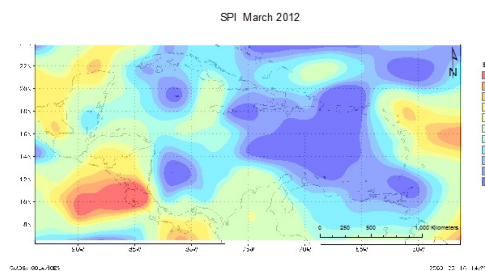


Figure 1. SPI for the Caribbean for March 2012. More information on the SPI can be viewed at <http://63.175.159.26/~cdpnm/spimonitor.html>.

Most annual cropping takes place over a period of about three months or just over. For the three month period of January to March 2012, the region of the eastern Caribbean and Guyana was predominantly normal to above normal except for the vicinity of Dominica, itself moderately dry. Trinidad was very wet; Tobago extremely wet; Barbados and St. Vincent moderately wet; St. Lucia and Antigua normal; and Guyana very wet in the west and moderately wet in the east. In Jamaica conditions ranged from moderately dry in the west to abnormally wet in the east, while in Belize the range was from moderately wet in the west to normal in the east. See Figure 2.

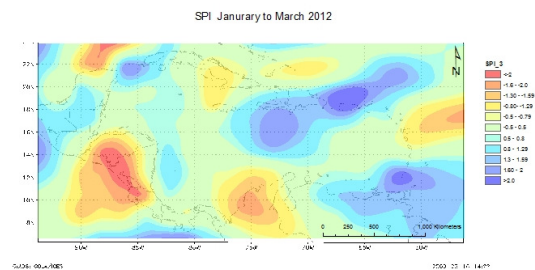


Figure 2. SPI for the Caribbean for January to March 2012 more information on the SPI can be viewed at <http://63.175.159.26/~cdpnm/spimonitor.html>

NATIONAL OVERVIEWS**Antigua and Barbuda**

Antigua experienced below average rainfall during March. The mean total for the month was 25.7 mm; which was only 50% of the normal total (1981 – 2010). This is the second lowest since 2005. Frontal troughs and advection were responsible for most of the rainfall. Notwithstanding the below average rainfall, at the airport, the 7 rainy days (≥ 1 mm) were near normal; however, there were no heavy rainfall days (≥ 10 mm). The mean temperature of 25.3°C was near normal and the mean daily maximum and minimum temperatures were also near normal. The outlooks call for below normal rainfall and near normal temperature for April. Further, for the period April to June, near normal rainfall and temperature are most likely. For much of the month, conditions remained conducive for land preparation and harvesting. With two consecutive months (February and March) of below normal rainfall totals during the regular dry season, farmers have begun to be significantly hampered and only those with irrigation systems are planting.

Barbados

Roughly 32 % of the total rainfall for March was observed on the 1st day of the month when some 12.1mm was recorded at the Airport, as a trough system traversed the area. The remaining 26.2mm was fairly evenly distributed during the remainder of the month although there were just 5 rain-days (rain-day= ≥ 1 mm) in total and 15 days during which no rainfall was recorded at the Airport! The long-term average number of rain-days for March is 8 and the 30-year average rainfall is 37.4mm.

Brisk low-level winds of between 37 and 46 km/hour dominated weather conditions across Barbados during the first dekade (ten days) of March. A 48.2 km/hour wind maximum occurred on the 5th of the month.

Meanwhile, a multi-layered cloud-mass filtered out most of the direct sunlight during this time period and this contributed to the relatively cool day-time temperatures that were experienced. The extreme

maximum temperature reached during this same ten-day period ranged between 27.6° and 29.5°C. The lowest minimum of 21.9° C occurred on the 2nd.

During the last two dekads, a layer of African Dust enveloped the region resulting in reduced visibilities across the chain. The arrival of the dust coincided with reduced wind-speeds as a series of trough systems moved across the central Atlantic, weakening the Atlantic High Pressure ridge in the process. Thus, wind-speeds decreased to an average of 27.8 km/hour while maximum temperatures ranged between 29.5° and 30.2°C during the last eight days of the month.

The outlook for the month of April is for easterly winds averaging 15 knots and a mostly broken to overcast multi-layered cloud mass to dominate conditions over the island. Some significant convection is likely to occur from around the 20th of April.

Belize

Windy southeasterly flow was evident between 1st and 3rd March, resulting in the dry weather across the country.

However from 4th, cloudy skies and a gusty northerly to northwesterly surface flow characterized weather conditions as a cold front approached and crossed Belize resulting in showers across the country. A mixture of showers, rain and cloudy skies dominated the weather for the next three days.

The remainder of the month turned out to be dryer as the influence from the passed cold front declined, with the odd sporadic. The final week in March continued seasonally warm. A slack pressure gradient, which developed during the week, kept surface winds light and daytime temperatures fairly warm.

Dominica

Both Canefield and Melville Hall Airports recorded slightly above average rainfall for the month of March. Canefield in the south-west recorded 53.7mm which is 4.7mm greater than the mean while Melville Hall in the north-east recorded 120.6mm which is 7.8mm greater than the mean. The first two dekads of the month were particularly dry during

which farmers would most likely have depended entirely on irrigation methods. The longest dry spell was 10 days at Melville Hall and 13 days at Canefield. These spells were broken during the early hours of the 25th when weak unstable conditions which affected the island produced the maximum daily rainfall at both airports. 23.4mm was recorded at Canefield while 71.3mm was measured at Melville Hall.

Averaged temperature for Canefield was 26.8°C which is 0.1° below the mean and Melville Hall’s temperature was 25.6°C which is 0.8° below the mean. Maximum temperatures recorded were 31.8°C on the 25th at Canefield and 29.6°C on the 23rd and 25th at Melville Hall while the minimum temperature was 20.4°C recorded on the 20th at both stations.

March was a breezy month at Canefield. Maximum gust recorded was 55.6 km/hour recorded on the 4th. At Melville Hall, the highest gust was 59.3 km/hour. A layer of Saharan dust haze was persistent throughout the month, particularly at Canefield where visibility was reduced to as low as 12km on the 20th.

Grenada

The month of March began with an overlap of continuous downpours from February, as a result of the trough in our area. This heavy rainfall lingered for about the first 4 days of the month and caused major flooding and landslides on the Northern sector of the island. Total rainfall recorded by the national Water and Sewerage Co. (NAWASA), from the Mt. Horne rain gauge was- 166.7mm, while at Peggy Whim some 199.3mm were collected; thus making the cumulative total – 366mm.

Total rainfall recorded at the Maurice Bishop International Airport, however, was 81.9mm. This total surpassed the average of 27.7mm by 200%, a new record for March in 27 years of operation. The previous record was 62.3mm recorded in 1986 (see Figure 4).

The highest temperature for March was 30.2°C, on the 14th while the lowest temperature was 21.3° C and occurred on the 2nd March. Table 1 below indicates the averages for selected elements.



Figure 3 Flooding at Peggy Whim, Grenada during March 2012

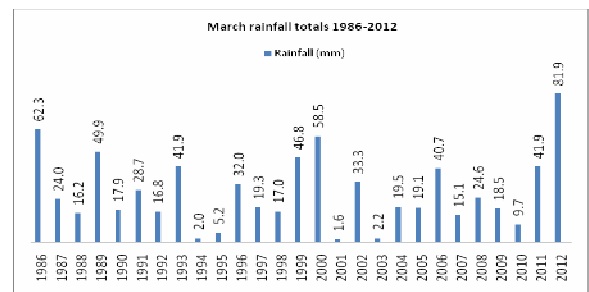


Figure 4 March rainfall totals at the Maurice bishop Airport

Table 1. Summary of March weather means

Weather Element	Mean
Air temperature	26.3
Dew Point	23
Sea Level pressure	1014.2
Wind direction	10
Speed	9
Relative Humidity	82

Guyana

A ridge of high pressure along with a mid-level anticyclone was responsible for most of the weather conditions experienced in Guyana in March.

March for Guyana can be classified as a month that was relatively dry. The average rainfall across Guyana was 53.8mm and an average of 6 raindays. The highest monthly rainfall total recorded across Guyana was 165.4mm which was recorded in St. Denny’s Mission in Region 2. Anna Regina, also in

Region 2, recorded the highest one day total of 84.7mm. When compared to what is expected climatologically in March the average rainfall across Guyana was almost reduced by half of the total recorded for the average in March (Climatologically March is expected to have an average rainfall of 104.6mm). A total of 39 rainfall stations across Guyana reported rainfall values below their climatological average.

March was warmer than average which was associated with the fair (dry) weather. The highest one day maximum temperature was recorded at Lethem in Region 9 with a value of 34.5° C on the 26th March, 2012. Lethem also had the highest overall mean average temperature for the month with 32.7°C compared with 27.8°C which is climatologically expected, therefore resulting in a 5° C in temperature increase for the month.

Jamaica

March generally signifies the end of the dry season in Jamaica. Throughout the month, the island was affected equally by Low Level Troughs as well as weak to moderate High Pressure Ridges.

During the month, Sangster in the northwest recorded 25.2mm (48% of 30 year mean) of rainfall, while Norman Manley in the southeast recorded 71.5mm (298% of 30 year mean – well above normal). There were six (6) rainfall days for Sangster, while Norman Manley recorded five (5) rainfall days.

The highest maximum temperatures recorded for Sangster Airport was 32.5°C (3rd March) while 32.2°C (7th March) was reported for Norman Manley Airport. Satellite imagery confirmed significant cloud development with possible rainfall activity mainly over eastern and central parishes.

Table 2 Climatological Statistics for Manley and Sangster Airports for March 2012

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	32.2 °C (32.7 °C)	32.5 °C (32.5 °C)
Lowest Minimum Temperature	21.2 °C (21.1 °C)	21.2 °C (20.1 °C)
Rainfall Total	71.5 mm	25.2 mm
Rainfall days (≥1mm)	5 days (4.5)	6 days (10.5)

* Values in red indicate the 1992-2011 averages

St Lucia

At Hewannorra Airport, the rainfall was poorly distributed throughout the month. There were only 6 rainfall days and three dry spells of at least five days. The total monthly rainfall represents 88% of the long term mean. At George Charles, a similar situation existed in terms of rainfall days and dry spells, but the total (79.3 mm) slightly exceeded the mean of 74.2 mm.

Average dry bulb temperature (26.5 °C) was equal to the long term mean, the average maximum (temperature 29.2 °C) was lower than the long term mean (29.4 °C) and average minimum temperature (24.5 °C) exceeded the long term mean (23.6 °C) for Hewanorra.

April, which is usually wetter than March, has on average 13 rainfall days and a mean of 75 mm at Hewanorra and 89.2 mm at George Charles. The seasonal precipitation outlook for the April, May and June period indicate the likelihood for rainfall to be near normal or to range from about 194 mm to 306 mm in Vieux-Fort and 252 mm to 430 mm in Castries.

St Vincent and the Grenadines

The total rainfall for February 2012 was 140.3 mm. This was more than the climatological average (86mm) for this station. There were thirteen days with rainfall > 1mm, and eighteen days with < 1mm of rainfall. The longest dry spell lasted five days. The first day of the month had the highest 24 hour rainfall of 66.7 mm. There were two days with rainfall over 25.4mm. The appearance of the Halo phenomena around the sun was due to the presence of cirrostratus clouds. Hazy conditions were experienced due to a Sahara dust layer reducing visibility to less than 5km on some occasions.

Extremes for December, 2011 (date of occurrences): Barometric Pressure – highest 1019.3 mb (5th), lowest 1011.8 mb (22nd, 23rd); Air Temperature – highest 30.2°C (30th), lowest 21.0°C (2nd); Relative Humidity – highest 92 % (1st, 2nd), lowest 61 % (7th, 8th, 23rd).

Trinidad and Tobago

The dry season in Trinidad and Tobago has continued to be above normal. March, which is climatologically the driest month during the year,

showed that rainfall totals for both islands continued to be above normal. Rainfall recorded at the Observing station in Piarco International Airport, Trinidad was 133.9 mm. This amount was 390% of the long-term average (1971 to 2000). Rainfall at the A.N.R. International Airport, Crown Point, Tobago was 162.3 mm, 403% of the long-term average. There were dry spells within the last week of March 2012 for both islands.

Rainfall totals reached above average for both islands on 1st March 2012 as a result of a trough system across the Windward Islands. On 1st March 2012, Piarco, Trinidad recorded 42.2 mm which was 123% of the long-term average while Crown Point, Tobago recorded 100.7 mm which was 250% of the long-term average. There were no reports of damages to the Agricultural community. However, Tobago which was more affected by rainfalls, had reports of residential and street flooding, landslides and damages to residential roofs.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

The distinction in rainfall between the above normal southeastern-most Caribbean and the below normal northwest continues, but with a general tendency towards normal precipitation in the southeastern portion of the Caribbean. Regional data suggest that the eastern Caribbean in general may be moving toward a period of normal to below normal rainfall. However, as the same data, as well as forecasts from four state-of-the-art global models indicate, the extreme southeastern Caribbean may well maintain its above normal characteristic for a bit longer, especially in the vicinity of Trinidad and Tobago and Guyana. By contrast, the northwestern third of the Caribbean is expected to continue facing dryer than normal conditions, albeit less pronounced. From Puerto Rico southeastward down to Barbados, near-normal rainfall is more likely to occur. Presently, due to prevailing climate conditions, models do not clearly indicate a favoured scenario for Belize, though.

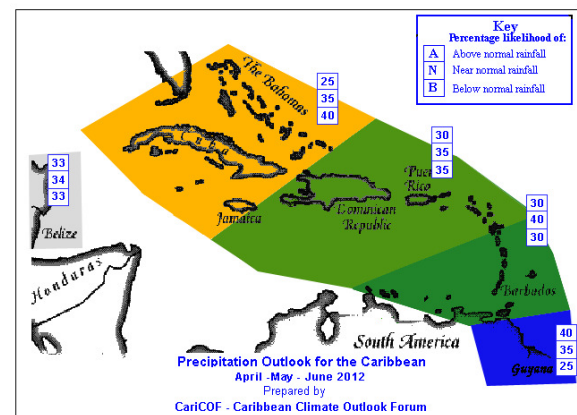


Figure 5 The April to June 2012 Rainfall Forecast

There is some uncertainty as to the development of rainfall activity in the region beyond June. With ENSO neutral conditions in the Pacific and near-normal SSTs being forecasted in the Caribbean and wider tropical Atlantic, it is likely that the area forecasted for above normal rainfall in the eastern Caribbean will disappear. This certainly does not contradict the regional data that suggests that the region appears to be entering a normal to below normal regime during April to June (which we believe should manifest quite early on in the period). Note that, as spring and the dry season in the Caribbean comes to an end in the latter part of this period, a clearer ENSO signal with increasing high pressure anomaly over the area is expected, possibly leading to a more confident rainfall outlook beyond June. The suggestion is that the rainfall will be normal to below normal as the end of the six month period approaches. This would suggest a normal to below normal first half of the rainy season. The state of the ENSO will continued to be monitored.

Air temperature at 2 m should be near normal in the region for the period April to June. Data show that the Atlantic subtropical high pressure (i.e. Bermuda-Azores High) was enhanced during the past weeks, which resulted in enhanced easterly trade winds, stirring up some relatively cool waters from depths in the North Atlantic. Consequently, models suggest that Sea Surface Temperatures (SST) in the region should also be near normal throughout the period. However as we move beyond June, models are suggesting a move towards above normal air temperatures of up to 0.5 °C starting from the west of the Caribbean and

moving eastward across the basin. This may again have implications for flower abscission and other high temperature impacts, as this comes during the relatively warmer summer period, and the increase is on average, indicating that on some days the temperature increase can be greater than 0.5 °C.

ENSO Conditions:

Equatorial sea surface temperatures (SST) have rebounded to slightly above average in the central Pacific, clearly continuing the trend of a disappearing La Niña observed in the previous months. Furthermore, beyond the trending neutral ENSO conditions, global models are indicating a possible emergence of El Niño by the end of summer (latter part of Caribbean wet season). Atmospheric conditions consistent with La Niña are consequently fading from climate observation and forecast maps. Therefore, La Niña – like rainfall conditions are slowly disappearing from the Caribbean. It should be noted, though, that April to June is a period of quick reversals and possible evolution of El Niño conditions, leaving us with considerable uncertainty beyond June. The state of the ENSO will continue to be monitored.

Prepared by

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***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***