



ANNOUNCEMENTS

The eastern Caribbean has entered a period of normal to below normal rainfall, in contrast to the previous two years. The north and west is likely to continue to be normal to above normal. **Temperatures are likely to continue to be above normal by up to 0.5 °C for at least the next three months.** The formation of National Tri-partite committees to sustain the activity and output of CAMI has begun. **CAMI collaborators continue to encourage feedback from farmers and the wider agricultural community on this bulletin.**

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR JUNE 2012

Apart from Trinidad that was moderate to very wet and Tobago that was normal, the islands of the eastern Caribbean experienced below normal rainfall for June. Grenada was exceptionally dry; Dominica extremely dry; Barbados, St. Vincent, St. Lucia and Antigua moderately dry. Conditions in Guyana ranged from moderately wet in the west to normal in the east. Jamaica was abnormally wet in the west and normal in the east. Rainfall in Belize ranged from normal in the west to extremely wet in the north and south. These can be seen in the Standardised Precipitation Index (SPI) map in Figure 1.

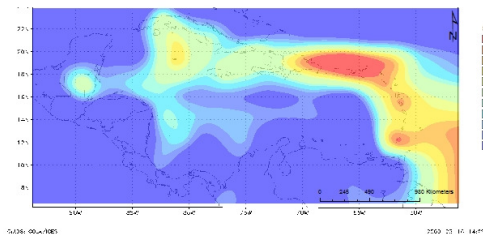


Figure 1. SPI for the Caribbean for June 2012. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>.

Most annual cropping takes place over a period of about three months or just over. In contrast to the June rainfall, the eastern Caribbean islands were normal to above normal for the period April to

June. Trinidad was extremely wet; Tobago very wet; Barbados moderately wet; and St. Vincent, St. Lucia and Antigua abnormally wet. Conditions in Guyana ranged from moderately wet in the northwest to normal in the east. Conditions in Jamaica ranged from moderately wet in the west to normal in the east, while in Belize the range was from normal in the west to exceptionally wet in the north. See Figure 2.

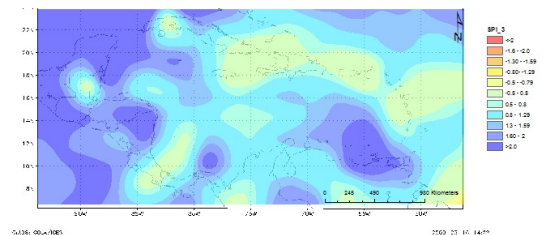


Figure 2. SPI for the Caribbean for April to June 2012 more information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>

NATIONAL OVERVIEWS

Antigua and Barbuda

Antigua experienced well below normal rainfall during June; the third lowest on record. The average total for the month was 13.5 mm; this was just 19% of the normal total (1981 – 2010). Tropical waves were responsible for over 75% of the rainfall. At the airport, the 5 rainy days (≥ 1 mm) were below

normal and the lowest for June since 2000. Further, there was no heavy rainfall days (≥ 10 mm), the first time since 1995. The mean temperature of 27.8°C was near normal but the lowest since 2009. Further, the mean daily maximum and minimum temperatures were below and near normal respectively. The outlooks call for near normal rainfall and temperature for July. Further, for the period July to September, below normal rainfall and near normal temperature are most likely. There is a mild meteorological drought, which started in February; that is causing great concern for farmers. Already, some produce are going scarce. The mild drought has made it conducive for land preparation; however, many farmers are looking forward for the rainy season to start to plant in earnest. Although the next three months are expected to be below normal, the next six months are projected to have above normal rainfall.

Barbados

Two tropical storms ('Chris' and 'Debby') formed during the month of June, bringing the total to four for the season so far. However, these all developed in the far western Atlantic and had no direct impact on weather conditions over the Lesser Antilles.

Meanwhile, a number of weak tropical waves traversed the eastern Caribbean but these produced very little rainfall in Barbados. Mostly dry, dusty and windy conditions were observed throughout the month with wind-speeds averaging 29.6 km/hour. The long-term average (1981-2010) wind-speed for June is 20.4 km/hour. A wind maximum of 48.2 km/hour was recorded on June 7th.

The above conditions contributed to a 'dry' start to the 'wet' season. As a result, 20.6mm of rainfall or just 20% of the long-term average of 103mm (1981-2010) was observed. This was the third lowest total for any June since records were kept at the Airport between 1942 and the present. The seven rain days (≥ 1 mm) was also four below the long-term average for June. Nevertheless, the cumulative rainfall total for 2012, at the end of June, reached 482mm. This was well above the 30-year cumulative average of 391.6mm.

The highest maximum temperature recorded was 31.2°C on June 28th and the lowest minimum was

22.0°C recorded on 1st. The average day-time air temperature was 28.5°C while average night-time air temperature was 26.5°C. The night-time temperatures in combination with night-time average relative humidity of 85% resulted in some warm nights in June.

Belize

An extensive and persistent canopy of cirrus clouds persisted over Belize during the first few days in June. However, an unstable upper level environment produced an outbreak of showers and thunderstorms which started in the south on June 4th. These showers eventually coursed north along the coast producing copious rainfall all across the country. Pomona and Melinda in Stann Creek recorded the highest rainfall of 165mm, followed by the International Airport with 132mm. Weather conditions improved the following day as skies turned out sunny for most of the country. On June 6th more intense showers and thunderstorms developed in the south during the early morning hours and headed north before dissipating south of Belize City. Barton Creek in western Belize recorded 30mm rainfall, while Savannah and Punta Gorda in the south measured 26mm. Weather conditions improved later in the day. Warm and generally good weather prevailed for the remainder of the week.

Windy southeasterly that developed on June 10th persisted the following week. The International Airport recorded a wind gust to 29.6 km/hour during the morning of 11th. San Pedro, Ambergris Cay recorded a wind gust of 44.5 km/hour.

A tropical wave crossed the country on the 14th, producing showers and thunderstorms mainly in the south of the country. This extended to central and coastal areas into 16th. On 17th, the International Airport recorded 96.8mm, Pomona in the Stann Creek district measured 140mm, while Middlesex, also in the Stann Creek district recorded 86mm.

The following day, the International Airport registered 54.2mm, Libertad in the north recorded 70mm, Pomona in the Stann Creek district measured 140mm, and Middlesex also in the south recorded 175mm. During the latter part of the week of 18th, showers and thunderstorms occurred over inland and northern parts of the country.

Over the weekend of 23 June, a trough extending from the center of TS Debbie produced showers and thunderstorms mainly inland and in the north of the country. The position and behavior of tropical storm Debbie became the focus of attention during the final week of June. A narrow band of showers over southern Mexico and the Yucatan Peninsula invaded Belize from the northwest on June 25 and reached coastal areas. Several showers and thunderstorms over the northern, central and coastal parts of the country into the early morning of June 26th were experienced. The International Airport recorded 28.8mm rainfall and Chaa Creek in the west 26mm. Weather conditions improved during the final days of the month as a dry and gusty east to southeasterly surface flow prevailed over the northwest Caribbean and Belize. A tropical wave crossed the Caribbean coast of Nicaragua Friday evening with little impact on the country's weather.

Table 1 Rainfall and Temperature Summary for June 2012 for stations in Belize

Station	Liber-tad	Zoo	PGIA	Belmo-pan	Central Farm	Savannah
Elevation (m)	12	30	5	90	90	13
Rainfall (mm)	319	172	423	195	163	371
Mean.	217	294	240	292	186	306
Max	112	117	134	70	49	98
Rain days	10	11	15	11	8	15
Temp (°C)						
Mean Min.	23.6	24.0	25.4	24.0	23.8	24.5
Mean	23.7	23.4	25.0	22.9	22.9	24.2
Lowest Min.	20.8	23.0	22.5	22.5	22.4	22.4
Mean Max.	33.6	32.8	31.0	32.2	32.9	32.4
Mean	32.6	32.5	31.5	32.5	33.0	32.2
Highest Max.	37.4	35.0	33.4	35.1	35.4	34.0

Dominica

June normally marks the start of the 'wet' season in Dominica; however this June was the fifth driest since record-keeping began in 1982 and the 2nd driest in the last 10 years at the Canefield Airport. 69.3mm of rainfall was recorded which is about 43% of the monthly mean. A tropical wave affecting the area on the final day of the month produced the highest daily total of 32.2mm, which is almost half of the monthly total. 18 dry days were recorded with an 11 day dry spell spanning the second and third weeks. Canefield records 14 dry days on average during the month of

June. Averaged air temperature was 29.6°C which is 0.5° greater than the monthly mean. The highest maximum temperature was 33.6°C on June 27th while the lowest minimum temperature was 22.9°C on the 4th.

59.5mm of rainfall was recorded at the Melville Hall Airport. This is the 4th driest June on record since 1969. The monthly total was 31% of the 30 year mean. The highest daily total of 14.4mm was also recorded on the 30th during the passage of the wave. 19 dry days were recorded with a maximum dry spell of 7 days. Melville Hall records 12 dry days on average. Averaged air temperature was 29.3°C which is 0.8° above the mean. The highest maximum temperature was 32.4°C recorded on the 6th, 24th and 25th while the lowest minimum temperature was 23.5°C recorded on the 9th.

Maximum gust recorded was 54km/hour on the 6th at Canefield and on the 18th at Melville Hall. Haze was also recorded at both stations throughout the month.

On rainfed farms, there have been reports of 'browning' occurring on parsley and celery and a mature plantain crop had to be cut as the trees wilted. No planting of vegetables was done during the first 3 weeks of June; however roots crops such as yams and potatoes were planted.

Grenada

Although several waves formed in our area, there were no significant developments. Only one thunderstorm day was noted during the month compared with an average of nine. The most significant feature was a dense layer of dust haze which has been attributed to the reduced moisture in the atmosphere and consequentially the reduced occurrences of precipitation.

Rainfall for the month of June 2012 recorded at the Maurice Bishop International Airport, totalled 50.4mm. This translates to 79.4mm or 61% lower than the average of 129.8mm. This figure also represents the lowest total for the past 6 months and also ever recorded during the month of June, over the past 27 years of operation. The highest recorded total for June was 222.0 mm recorded in 1996 as illustrated in Figure 3 below.

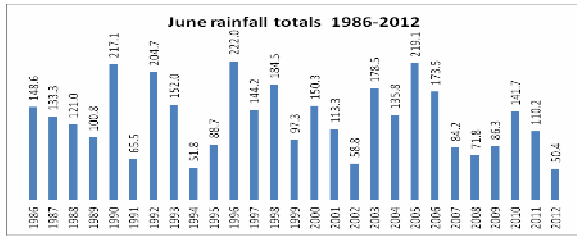


Figure 3 Historical June rainfall totals at MBIA, Grenada.

The highest maximum and lowest minimum temperatures recorded were 31.5°C and 21.4°C respectively on June 21st and 27th. The mean maximum and minimum temperatures for the month of June are 32.0° C and 22.9° C.

Guyana

Guyana had an average of 214.2mm of rainfall with an average of 15 rainfall days. June has an average of 337.1mm with 20 rainfall days but this was not indicated by the rainfall values which showed that Guyana was below its normal climatological average. Port Kaituma in Region 1 recorded the highest monthly rainfall with 496.0mm; also Bartica Forestry in Region 7 recorded 489.7mm for June. St Denny Mission in Region 2 recorded the highest one day rainfall total of 114.2mm on the June 06th. 5 rainfall stations across Guyana recorded rainfall values above their climatological normal, while forty stations 40 recorded below their rainfall normal. Regional Classification of the rainfall data for June indicated that Region 2 (Pomeroon Supernaam) recorded the highest average with 289.2mm of rainfall.

June was warmer than normal, average Maximum temperature for the month was 31.3°C when compared to the climatological maximum of 29.7°C. Lethem (Region 9) recorded the highest average monthly maximum temperature of 32.8°C; and reported the highest one day maximum temperature on the 21st with 34.8°C.

Jamaica

Jamaica continues to experience a significant reduction in the levels of rainfall activities across the island and June was no exception to this fact. Throughout the month, the island was affected mainly by High Pressure Ridges. During the month of June the island observed one major rainfall event and this resulted in flash flooding mainly over sections of eastern parishes. Two Tropical Storms

developed across the Northern Atlantic and the Gulf of Mexico, respectively during the month; however, these systems had little or no impact of the island's weather.

Norman Manley recorded below average rainfall or approximately 84% of the 1971-2000 mean, while Sangster recorded 26% above the 30 -year mean. During the month, Sangster in the northwest recorded 128.5mm of rainfall, while Norman Manley in the southeast recorded 54.4mm. There were five days of rain for both International airports.

The highest maximum temperature recorded for Sangster Airport was 35.8°C (23th June) while 33.9°C (8th June) was reported for Norman Manley Airport.

Table.2 Climatological Statistics for Manley and Sangster Airports for June 2012

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	33.9 °C (34.3°C)	35.8 °C (34.4°C)
Lowest Minimum Temperature	23.8 °C (23.5°C)	23.0 °C (22.5°C)
Rainfall Total	54.4 mm	128.5 mm
Rainfall days (≥1mm)	5 days (5.6)	5 days (13.2)

Values in red indicate the 1992-2010(19-year) averages.

St Lucia

Rainfall for June at Hewanorra was very low. A mere 52.4 mm was recorded and this represents about 45 % of the long term mean. The rainfall was poorly distributed in that the earlier part of the month was dry and almost half of the rainfall occurred during the last 4 days of the month. There were only 12 rainfall days. George Charles in contrast was wetter and had a total of 105.4 mm from only 7 rainfall days.

July is a month of high rainfall and humidity with rainfall figures ranging from 44 to 321 mm at Hewanorra and from 49.5 mm to 381.6 mm at George Charles. Farmers should therefore ensure proper drainage in their fields to avoid problems associated with excess soil moisture and high humidity.

The seasonal precipitation outlook for the July, August and September period indicate the likelihood

for rainfall to be near normal (with some possibility of below normal) or to range from about 424 mm to 522 mm in Vieux-Fort and 601 mm to 708 mm in Castries.

Table 3 June monthly averages at Hewanorra

AVERAGE MONTHLY DATA FOR HEWANORRA					
Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	90	15	28.4	76	52.4
Temp (oC)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
31.0	26.3	9.2	8.2	29.5	

St Vincent and the Grenadines

Total rainfall recorded for June 2012 at E.T. Joshua Airport Arnos Vale, was 99.0mm. This was less than half the June average of 202.6mm. This decrease was anticipated since the March rainfall outlook.

Among the thirteen rain-days, the highest daily rainfall was 18.8mm recorded on the 19th. The longest dry spell was at the beginning of the month (1st to 4th). High pressure ridges dominated the weather conditions during the month of June. However, there were a few days with light to moderate thunderstorm activity as tropical waves affected the islands. Occasionally, Saharan dust haze reduced visibility. Halo phenomena, due to cirrostratus clouds, were visible on some days.

The average maximum temperature was 30.8 °C while the average minimum temperature was 25.5 °C.

Extremes for June, 2012 (date of occurrences): Barometric Pressure – highest 1019.8mb (1st), lowest 1012.8mb (12th); Air Temperature – highest 31.5°C (11th), lowest 23.5 °C (21st); Relative Humidity – highest 92% (15th), lowest 61% (16th).

Trinidad and Tobago

Climatologically, June is the start of the rainy season in Trinidad and Tobago. This year the Rainy season officially started on 23rd May 2012. Rainfall recorded at the Observing station in Piarco International Airport, Trinidad was 269.7 mm. This amount was 9% above the long-term average (1971 to 2000). Rainfall at the A.N.R. International Airport, Crown Point, Tobago was 121.3 mm, 18% below the long-

term average. There was no dry spell for the month of June.

There were no reports of damages to the Agricultural community.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

Rainfall in the Caribbean during July-August-September may likely become consistent with typical El Niño conditions. This means an increased likelihood of a north west to south east gradient of normal to above normal rainfall in the Greater Antilles and normal to below normal in the Lesser Antilles and Guyana, especially from the onset of the late rainy season in September. By contrast, the so-called ‘mid-summer drought’ often experienced by central Caribbean countries in July and August is somewhat likely to be more pronounced than on average, despite the emerging El Niño.

As in any six month forecast, there is considerable uncertainty as to the development of rainfall activity in the region, although forecasting confidence is improving as the Caribbean entered summer. With very likely El Niño conditions in the Pacific while near-normal SSTs being forecasted in the Caribbean and wider tropical Atlantic, it is likely that rainfall in the south-eastern half of the Caribbean will generally be below normal during the late rainy season, i.e. September till November. This certainly does not contradict the regional data that suggests that the Antillean territories appear to have entered a normal to below normal regime since June.

Though cooler than the previous two years, European models continue suggest that 2 m air temperatures are likely to be above normal. This could be by as much as 0.5 °C for much of the Caribbean for the period July to September. The Northern portions of the Caribbean should show similar above normal pattern to the past two years. This pattern is likely to continue until the end of the year.

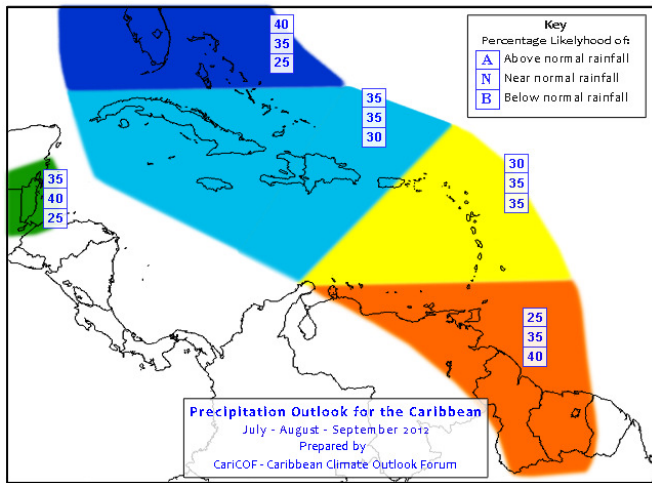


Figure 4 The July to September 2012 Rainfall Forecast

Current SST observations and predictions suggest that surface waters in the region will be cooler than in past two years, and nearer to normal. This is likely to continue until the end of the year.

ENSO Conditions:

After La Niña conditions in the early months of the year, equatorial sea surface temperatures (SSTs) are now about 1°C above average in the central Pacific. If the deviation remains above 0.5°C above normal for several months, an El Niño event will be declared, which most global models see as the most likely scenario by the end of summer (beginning of the late rainy season). This is broadly consistent with the previous (i.e. June to August) prediction, albeit with more certainty. At the time of writing, though, atmospheric conditions are not yet much controlled by ENSO, but should gradually become so as summer comes to an end. Importantly, by fall, El Niño should depress storm activity – thus intense rainfall events – over the Caribbean.

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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