



ANNOUNCEMENTS

The formation of tripartite (meteorologists, farmers and extension officers) committees to sustain activities at the national level have been recommended and are being pursued. Inaugural meetings begin in June, 2012. **CAMI partners trained in estimating crop water use and irrigation requirements.** 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 MAY 2012

The eastern Caribbean and Guyana experienced normal to above normal rainfall for May. Trinidad and St. Vincent were very wet; Tobago and Antigua moderately wet; Grenada and Barbados exceptionally wet; St. Lucia extremely wet; Dominica normal; and Guyana ranged from very wet in the northwest to normal in the east. Jamaica was abnormally dry, but conditions in Belize ranged from moderately wet in the south to exceptionally wet in the north. These can be seen in the Standardised Precipitation Index (SPI) map in Figure 1.

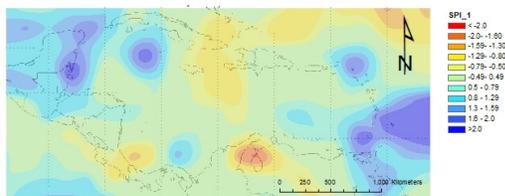


Figure 1. SPI for the Caribbean for May 2012. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>.

Most annual crops are grown over a period of approximately three months. Rainfall in the eastern Caribbean was normal to above normal during the three month period of March to May. Trinidad, Tobago and Grenada were exceptionally wet; Barbados and St. Vincent extremely wet; St. Lucia

and Antigua abnormally wet; Dominica normal; and Guyana ranged from moderately wet to normal. Jamaica was normal in the west and abnormally wet in the east. Conditions in Belize ranged from moderately wet in the south to exceptionally wet in the north. See Figure 2.

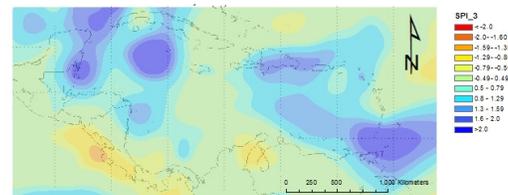


Figure 2. SPI for the Caribbean for March to May 2012 more information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>

NATIONAL OVERVIEWS

Antigua and Barbuda

Antigua experienced above normal rainfall during May. The average total for the month was 126.5 mm; this was 122% of the normal total (1981 – 2010). Although this total is above normal, the last three years have had higher totals. Rainfall for the month was highly variable spatially and temporally; totals ranged from 64.3 to 222.8 mm. Record one-day rainfall totals were experienced on May 5th in some places including at the airport which had 77.9 mm,

99% of which fell in three hours causing moderate flash flooding in some low-lying and flood prone areas. This rainfall and most of the rainfall for the month (over 70%), was caused by deep layered troughs during the first half of the month. At the airport, the 14 rainy days (≥ 1 mm) were also above normal and third highest since 1994. Further, there was an above normal number of heavy rainfall days - five (≥ 10 mm), the highest since 2004.

The mean temperature of 26.3°C tied with three other years for the third lowest on record. Further, the mean daily maximum temperature tied with 1971 for the lowest on record while the minimum temperature was near normal.

The outlook calls for near normal rainfall and temperature for June. Further, for the period June to August, below normal rainfall and near normal temperature are most likely. The wet weather experienced during the first half of May prompted many farmers to do a lot of planting during the latter part of the month.

Barbados

During the first dekad in May some 91.6mm of rainfall was recorded, as a lingering trough system impacted the eastern Caribbean. Of the final tally of 16 rain days for the month, 7 of these occurred in this ten-day spell with the most significant events on the 2nd, 4th and 10th of May producing 27.0, 26.9 and 17.0mm respectively. The long-term average number of rain days (days with rainfall ≥ 1 mm) for May is eight.

Over the next 10 to 15 days Barbados experienced brief passing showers as the high pressure ridge dominated conditions across the island chain once more. Moderate easterly breezes averaging 27.8 km/hour were almost double the 14.8 km/hour average which was observed during the first dekad (ten day period).

There was a gradual transition to the official start of the 2012 hurricane season in the immediate vicinity of the island chain, with the arrival of a number of tropical waves during the latter half of the month. Most of these were dampened due to the strength of the high pressure ridge. However, one such wave interacted with another trough system resulting in

two more days of significant rainfall events on 28th and 29th. These combined systems contributed 21.4 and 25.1mm respectively to the final rainfall total of 166.4mm, which was well above the 30-year normal of 79.0mm.

The highest maximum temperature recorded was 30.9°C on May 22nd and the lowest minimum was 21.5°C on 1st.

A strong high pressure ridge is forecasted to dominate for much of June with brisk easterly trade winds averaging 27.7 km/hour. However, the westward-moving tropical waves are expected to ride the equatorial side of the ridge with a frequency of four to five days.

Belize

Generally, the weather for the country for the first week of May was hot and mostly dry. On May 10th a cold front became stationary over the central Gulf of Mexico. A weak ridge of high pressure over Florida and the eastern Gulf of Mexico produced a gusty easterly flow over Belize and coastal waters at the start of the weekend. As moisture and instability increased over the region, the weekend of May 12th and 13th became noticeably cloudier with showers forming over mainland Belize.

The surface trough moved inland over Nicaragua early morning of May 15th. Several showers and thunderstorms developed along coastal Belize during the morning before heading inland. More showers occurred across the country the following day. For the next few days (May 18th-May21st) the trough remained almost stationary just east of Belize. The position of the surface trough meant almost uninterrupted periods of rain and showers across the country.

Some of the most intense rainfall was recorded late on 20th and on the 21st. The International Airport recorded 101.3mm, followed by the Belize Zoo with 90.2mm. When weather conditions started to improve on 23rd it lasted until the start of the final weekend in May. An increase in moisture across the region generated showery weather for the weekend. The showers were very intense on 27th morning as an upper level trough extending south across the Gulf of Mexico provided very unstable conditions

over Belize. The International Airport recorded 31.4mm for that day. Surface winds measured at the International Airport gusted to 64 km/hour, while at San Pedro, Ambergris Caye wind gusts to 57 km/hour were measured.

Considerable moisture over the region from the surface to upper levels supported several showers and thunderstorms especially along coastal and northern portions of Belize. This would be the general trend in the weather to the end of May.

The very rainy weather during the final two pentads in May caused flooding in the Belize district and resulted in several small farmers suffering crop losses in the thousands of dollars (BZE) (<http://edition.channel5belize.com/archives/71268>).

Table 1 Rainfall and Temperature Summary for May 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)	311	302	420	108	184	327
Mean.	102	138	118	103	84	99
Max	86	90	101	57	97	93
Rain days	11	10	14	7	12	16
Temp (°C)						
Mean Min.	22.7	22.7	24.4	23.0	22.6	24.5
Mean	22.6	n/a	24.5	22.1	21.8	23.7
Lowest Min.	20.4	21.4	21.9	21.0	20.2	22.9
Mean Max.	33.8	33.2	30.9	33.3	34.0	32.5
Mean	33	34.2	33.8	34.1	34.6	33.2
Highest Max.	36.4	35	32.3	35.5	37.0	34.5

Values in **Green** represent amounts above the monthly average; values in **Red** represent means below the monthly average.

Dominica

May is considered a transition month as the ‘dry’ season ends and the ‘wet’, which coincides with the hurricane season, begins. During the month 240.5mm of rainfall was recorded at the Melville Hall Airport which is normal, with a total of 25 rainfall days. Maximum rainfall amount was 30.6mm recorded on the 4th due to unstable conditions affecting the island. Averaged air temperature was 27.6°C which is 0.4° below the mean. The maximum temperature recorded was 31.8°C recorded on the 29th while the minimum was 22.6°C on the 6th.

At the Canefield Airport, 123.4mm of rainfall was recorded with a total of 16 rainfall days. The rainfall total was 134% of the monthly mean. Maximum daily rainfall was 39.0mm recorded on the 7th as unstable conditions associated with a trough system affected the island. Averaged temperature was 27.9°C which is 0.8° below the 30 year mean. Maximum temperature was 32.4°C recorded on the 30th while the minimum temperature was 22.7°C recorded on the 1st.

Thunderstorms were recorded for some days at both stations, so too was haze during the second and third weeks of the month.

Grenada

The dry season of 2012 was filled with higher than normal occurrences of rainfall throughout the island as opposed to periods of dry spells. Above average rainfall characterized each month of the dry season.

Farmers enjoyed reduced farming costs in the area of irrigation and use of farm machinery. The longer sowing season afforded them the opportunity to plant tree crops throughout the season. Another positive impact of the ‘wetter dry season’ was the significantly reduced presence of the pink mealy bug but unfortunately farmers were faced with the over infestation of mongoose and the resulting damages to root crops like sweet potatoes, yams and cassava.

The minimal dry spells of 2012 also brought with it some challenges. Some crops that thrived on lesser water during the growing season were adversely affected. Crops like the cabbages, tomatoes and carrots suffered from rotting. There was also a reduction in the production of citrus, mangoes and water melons. The Spice Island however, continues to enjoy a bumper crop of breadfruit and therefore more meals of our National dish- ‘Oil Down’ can be prepared. A healthy crop of avocados are also expected during the upcoming months.

The graph hereunder, provides dry season rainfall data as recorded by the Maurice Bishop International Airport over the past 27 years. This year’s dry season total of 520.6mm marks the highest ever recorded. The second highest of 489.6mm was recorded in 2004.

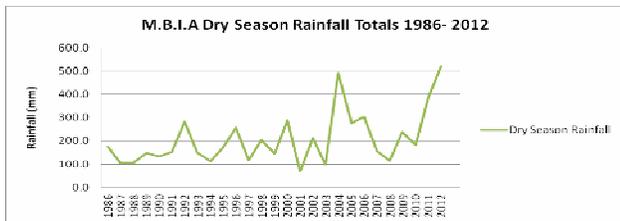


Figure 3 Dry season rainfall totals at Maurice Bishop International Airport

A total of 171.2mm was recorded at the Maurice Bishop International Airport in May. This total represents 121.6mm or 245% above the average of 49.6mm. The recorded sum is also the second highest for May over the 27 year period. The highest total of 178.8mm was recorded in 2004.

The highest maximum and lowest minimum temperatures recorded during the month were 30.9°C and 22.0°C registered on the 16th and 18th respectively.

The water supply which was interrupted in St. Patrick's on the northern side of the island, due to damages caused by the torrential rains in April, has been significantly restored. Ninety-five percent (95%) flow can be had from both the 'Zulu' and 'Cha-Cha' dams which facilitate the Peggy's Whim treatment plant. Manual labour continues on site as attempts are made to eradicate the high levels of siltation which still prove to be a challenge.

Guyana

May climatologically marks the beginning of Guyana's primary rainfall season for both Northern and Southern Guyana. Average climatological rainfall expected in May range between 250.0mm to 275.0mm and an average of 18 to 20 rain-days. The weather for this month was strongly influenced by the migration of the ITCZ as well intrusions from Low to Mid-Level troughs with moisture surges seen at the 700mb level.

The Month of May 2012 for Guyana can be classified as Very Wet. The average rainfall across Guyana was 363.5mm with an average of 20 rain-days. The highest monthly rainfall total recorded across Guyana was 634.7mm which was recorded in Bartica Forestry in Region 7. Wismar in Region 10 recorded the highest one day total of 160.0mm on

the 3rd May, 2012. Guyana has 41 rainfall stations in which Climatological averages are available, and for May, 39 of these rainfall stations reported values above their climatological average. Regional classification of rainfall showed that Region 7 (Cuyuni Mazaruni), for the month of May, recorded the highest average rainfall value of 553.9mm for Guyana.

May was marginally warmer than its climatological average although rainfall values were above average and cloudy conditions were observed. The highest average maximum temperature for May was recorded at Mabaruma in Region 1 with a value of 32.1°C. Lethem recorded the highest one day maximum temperature of 34.8° C on the 28th May, 2012.

Jamaica

May generally signifies the beginning of our secondary wet season in Jamaica. Throughout the month the island was affected mainly by Low Level Troughs as well as occasional High Pressure Ridges and a few Tropical Waves.

Both Norman Manley and Sangster International Airport recorded below average rainfall when compared to the climate mean from 1971 to 2000. Sangster recorded 45% of the climate mean, while Norman Manley recorded only 22%.

There was no major rainfall event occurring over the island for the month of May. Sangster in the northwest recorded 48.1mm of rainfall, while Norman Manley in the southeast recorded 15.0mm. There were six (6) rainfall days for Sangster, while Norman Manley recorded three (3) rainfall days.

The maximum temperatures recorded for Sangster Airport was 34.5°C (24th May) while 33.6°C (12th May) was reported for Norman Manley Airport. During the month, we lost the service of our Doppler radar system, however, satellite imageries and automated rainfall data loggers confirmed cloud development and rainfall activities affected mainly western parishes, especially towards the latter part of the month.

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

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	33.6 °C (33.7°C)	34.5 °C (33.5°C)
Lowest Minimum Temperature	23.8 °C (23.1°C)	22.4 °C (21.8°C)
Rainfall Total	15.0mm	48.1 mm
Rainfall days (≥1mm)	3 days (8.5)	6 days (14.2)

Values in red indicate the 1992-2011 averages

St Lucia

May this year at Hewanorra was very wet. By the end of the first week of the month, the rainfall had exceeded the long term mean. The total monthly rainfall (191.1 mm) represents 245% of the long term mean of 77.9 mm. There were 17 rainfall days. A similar situation existed at George Charles which had a total rainfall of 315 mm that represents more than twice the mean of 138 mm.

The average dry bulb temperature and the average maximum temperature were both lower than the long term means, while the average minimum temperature was equal to the long term mean for Hewanorra.

June is statistically wetter than May and has on average 18 rainfall days, a mean of 77.9 mm at Hewanorra and 176.9 mm at George Charles. The seasonal precipitation outlook for the May, June and July period indicate the likelihood for rainfall to be near normal or to range from about 298 mm to 413 mm in Vieux-Fort and 398 mm to 556 mm in Castries.

Table 3 May monthly averages at Hewanorra

AVERAGE MONTHLY DATA FOR HEWANORRA					
Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (oC)	RH (%)	Rainfall (mm)
6	90	13	27.4	82	191.1
Temp (oC)	Min Temp (oC)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (oC)	
30.1	25.2	6.9	6.7	29.1	

St Vincent and the Grenadines

Total rainfall for May 2012 at E.T. Joshua Airport-Arnos Vale, was 257.3millimeters or 10.11 inches. This was more than two times the May thirty year average of 114.4mm. The longest dry spell/period of consecutive days with rainfall less than 1mm was from 11th to 15th (five days). There were 18 days with rainfall >1.0mm.

A trough system interacting with the ITCZ resulted in flooding and landslides on the northeastern side of mainland St. Vincent on the 10th. Then a tropical wave with moderate to isolated strong convection interacted with an upper level trough on the 23rd and 24th, resulting in small scale flooding and landslips in vulnerable areas. On the 30th, a weak tropical wave passed St. Vincent and the Grenadines with more showers.

Maximum temperature was 0.6 degrees C lower than the thirty year average, and the minimum temperature was 0.2°C lower than the thirty year average.

Visibility was occasionally reduced due to Saharan dust haze.

Extremes for May, 2012 (date of occurrences): Barometric Pressure – highest 1017.0mb (11th), lowest 1011.3mb (9th); Air Temperature – highest 30.7°C (18th), lowest 22.8°C (21st); Relative Humidity – highest 93% (21st), lowest 56% (16th).

Trinidad and Tobago

In Trinidad and Tobago, the Dry Season ended in May with rainfall continuing to be above normal. Rainfall recorded at the Observing station in Piarco International Airport, Trinidad was 211.8mm. This amount was 394% above the long-term average (1971 to 2000). Rainfall at the A.N.R. International Airport, Crown Point, Tobago was 178.8 mm, 280% above the long-term average. There was a dry spell during the first week.

On 23rd May 2012, Rainy Season in Trinidad started with the passage of a Tropical Wave. Rainfall amounts recorded at Piarco, Trinidad were 23.4mm on 24th May 2012. There were no reports of damages to the Agricultural community.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

Across most of the Caribbean, rainfall is predicted to be most likely below normal for June-July-August. In particular, the so-called ‘mid-summer drought’ experienced by some Caribbean countries, particularly those of the Greater Antilles, is likely to be somewhat more pronounced than on average. Nonetheless, a slight tendency is noted towards above normal in the extreme northern portions, while Belize may well be set to receive well above normal precipitation. Focusing on Trinidad and Tobago, Guyana and Suriname, better odds are for normal or below normal rainfall.

There is still considerable uncertainty as to the development of rainfall activity in the region over the next six months until November, although forecasting confidence is improving as the Caribbean enters its wet season. With ENSO neutral conditions in the Pacific, near-normal sea surface temperatures (SST) being forecasted in the Caribbean and wider tropical Atlantic, as well as a relatively strong Bermuda High, it is likely that rainfall in the Caribbean will be normal to below normal throughout the forecast period. This certainly does not contradict the regional data that suggests that the region appears to be entering a normal to below normal regime during June to August. As many global climate models seem to converge towards weak to moderate El Niño conditions by the latter part of the wet season, however, the suggestion is that the rainfall will be below normal late in the wet season (around October/November).

For the period June to August, European models suggest that 2 m air temperatures are likely to be above normal by as much as 0.5°C for much of the Caribbean. This forecasted pattern is likely to continue at least until November.

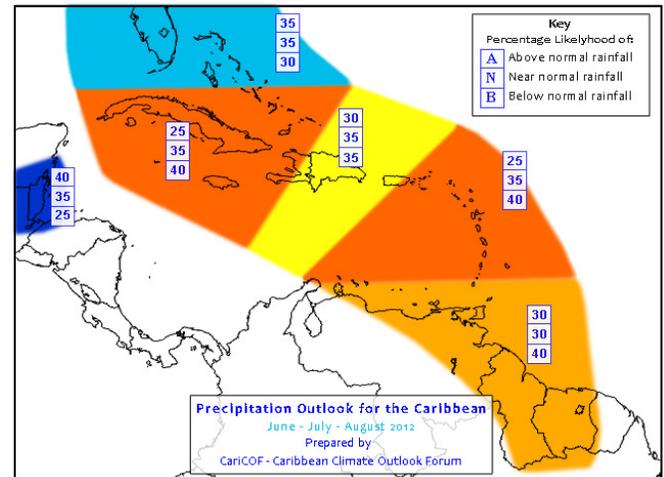


Figure 3 The June to August 2012 Rainfall Forecast

Current SST observations and predictions further suggest that surface waters in the region will be cooler than in past two years, and nearer to normal. The smaller Atlantic Warm Pool (i.e. the zone of highest tropical Atlantic water temperatures located over the Caribbean) is likely to suppress some convective activity contributing to the likely below normal rainfall outlook.

ENSO Conditions:

After a winter-time La Niña, equatorial sea surface temperatures (SST) have rebounded to slightly above average in the central Pacific. Furthermore, beyond the trending neutral ENSO conditions, global models are indicating a likely emergence of El Niño by the latter part of Caribbean wet season. This is broadly consistent with the previous (i.e. MJJ) prediction, albeit with growing confidence. At the time of writing, though, atmospheric conditions were not much controlled by ENSO, but, a potentially developing El Niño by the latter part of the wet season is likely to depress storm activity and rainfall over the Caribbean.

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***