



ANNOUNCEMENTS

Concern about drought in the southern Caribbean have diminished somewhat during December, but should continue to be closely monitored during January. Attention now turns to the western Caribbean where drier than normal conditions persisted for the past three months. Temperatures are likely to continue to be above normal by up to 0.5 °C for at least until March 2013. The CAMI project is about to re-commence its e-forum as the project and face-to-face forums approach their end.

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR DECEMBER 2012

In the eastern Caribbean and Guyana, there was a clear distinction between the normal to above normal south and normal to below normal north. Trinidad and Barbados were abnormally wet; Tobago, Grenada, and St. Lucia moderately wet; Guyana from extremely wet in the north to normal in the east; St. Vincent and Dominica normal; and Antigua moderately dry. Jamaica ranged from moderately dry in the west to normal in the east. Conditions in Belize ranged from moderately dry in the south to normal in the north.

and Antigua were normal; Tobago and St. Lucia abnormally wet; Grenada, Barbados and Dominica moderately dry; and Guyana from moderately wet in the north to normal in the south. Jamaica was normal. Conditions in southern Belize were moderate and the northern areas abnormally dry. See Figure 2.

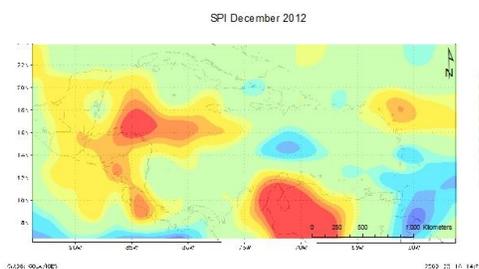


Figure 1. SPI for the Caribbean for December 2012. More information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>.

Most annual cropping takes place over a period of about three months or just over. For the three month period, conditions in the eastern Caribbean and Guyana were diverse. Trinidad, St. Vincent,

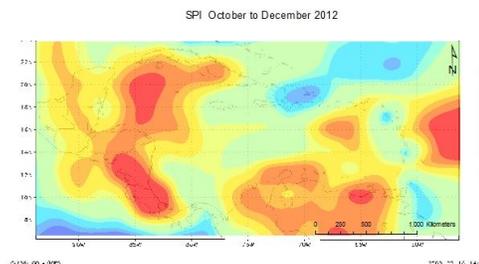


Figure 2. SPI for the Caribbean for October to December 2012 more information on the SPI can be viewed at <http://63.175.159.26/~cdpmn/spimonitor.html>

Concern about agricultural drought in the southern Caribbean, particularly in the vicinity of Grenada; was relieved to some extent during a moderate to very wet December. However, the conditions should continue to be monitored over the coming months. Attention has now turned to the western Caribbean (including Belize) where conditions over the past three months have been drier than normal. With a normal to below normal dry season being predicted, this may be a cause for some concern.

Temperatures for the month were normal to above normal in the region.

NATIONAL OVERVIEWS

Antigua

December was another relatively dry month for Antigua. The 52.6mm that fell was well below normal and the 15th lowest on record for the month (1928 – 2012). This was also the driest December since 2005 and amounting to only 52% of the normal total of 101mm. At the airport, there was no heavy rainfall day (>= 10 mm) for only the eighth time on record; the last time this happened for December was 2003. Meanwhile, the 10 wet days (>= 1 mm) were below normal (1981 – 2012), and it is the third lowest rainfall accumulation for wet days in December. The mean temperature of 26.1°C was the warmest since 2009; however, it was near normal. Further, the mean daily maximum and minimum temperatures were near normal and above normal respectively.

The outlooks call for near normal rainfall and temperature for January and near normal rainfall and above normal temperature for the period January to March. This was a good month for field preparation and harvesting by farmers. It seems like a lot of farmers are still utilizing the near record rainfall of October; however, since then, it has been quite dry and a meteorological drought is almost certain for the period November 2012 to January 2013.

Barbados

A pattern of intermittent shower activity was experienced across the island during December. The rainfall total at Grantley Adams Airport was 128.8mm, which was 44% above the long-term average. There were 14 rain days (rainfall >=1mm), two more than the long-term average and a 6-day dry-spell between the 13th and 18th. Two significant rain-events occurred on December 4th and 24th, resulting in 22.8 and 33.3mm of rainfall respectively. The Airport ended with a slightly below average (1270.2mm) rainfall total for 2012 of 1213.7 mm.

Wind-speeds varied between 20 and 45 km/hr and were generally out of the east-northeast resulting in relatively cool night-time temperatures. However, daily maximum temperatures were warmer than normal. There were only three days on which the

maximum temperature equalled the long-term average maximum temperature of 29.5°C while they were 24 occurrences on which the extreme maximum temperature was equal to or greater than 30.0°C; the highest maximum of 31.3°C occurred on the 8th and 9th while the lowest minimum of 20.7°C was recorded on December 16th. These findings are presented below.

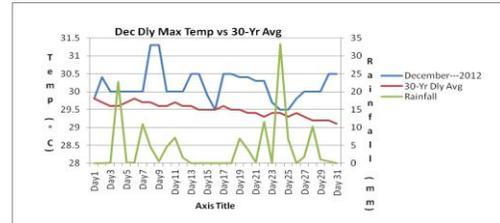


Figure 3. Temperature and rainfall at Grantley Adams for December, 2012.

Belize

Frontal troughs and high pressure systems affected Belize during December.

Rains due to the presence of a high pressure were experienced in the north of the country on 2nd and extended to central areas by 3rd and into the 4th. After this, sunny weather prevailed for the remainder of the week and until 10th.

A few showers were experienced over northwest Belize during the afternoon of 12th associated with a cold front. Showers were again experienced in this area on 14th. After this, sunny weather prevailed until 21st.

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

Station	Liber-tad	Zoo	PGIA	Belmopan	Central Farm	Savannah
Elevation (m)	12	30	5	90	90	13
Rainfall (mm)	15.3	107.3	137.5	76.1	44.5	75.5
Mean.	63.4	98.9	160.1	164.8	137.8	167.4
Max	5.3	34.5	35.0	22.5	14.8	19.2
Rain days	5	8	10	10	7	11
Temp (°C)						
Mean Min.	17.9*	19.5	21.7	19.0*	18.9	20.8
Mean	18.4	18.7	20.5	19.0	18.9	20.8
Lowest Min.	14.3	13.0	17.4	16.5	14.0	17.8
Mean Max.	30.0*	29.9	28.8	30.1*	30.1	29.9
Mean	28.7	27.5	28.1	28.2	28.2	28.6
Highest Max.	33.5	32.3	30.5	32.8	32.8	32.2

Associated with another cold front, temperatures at the International Airport dropped to 17.4°C on 23rd. The weather leading to the Christmas holidays was pleasant and rather dry. Early morning fog reduced visibility at the International Airport on 27th morning. The tail end of a cold front on that day resulted in cloudy skies with showers that decreased on 28th as the frontal boundary retrogressed to the northeast Yucatan Peninsula. On 30th yet another front resulted in the south and along the coast, but later in the day, showers were experienced in northern, central and coastal areas, which by the next morning were concentrated over southern Belize.

Dominica

During the month, 52.2mm of rainfall was recorded at Canefield, which is about 51% of the monthly mean. The maximum daily total was 15.7mm recorded on the 8th. There were 19 dry days with the maximum dry spell length being 7 days. The averaged air temperature was 27.4°C which is 0.5° greater than the monthly mean. The maximum temperature was 32.3°C recorded on the 7th and 21st while the minimum temperature was 20.8°C recorded on the 14th. The maximum wind gust was 57km/h which was recorded on the 10th.

182.2mm of rainfall was recorded at Melville Hall which is approximately 83% of the monthly mean. The maximum daily total was 26.7mm recorded on the 15th. There were 13 dry days and a maximum dry spell length of 5 days. The averaged air temperature was 26.5°C which is 0.2° below the monthly mean. The maximum temperature was 30.1°C recorded on the 4th while the minimum temperature was 21.2°C recorded on the 19th. The maximum wind gust was 56km/h which was recorded on the 13th.

A ridge of high pressure generated moderate breezes throughout the month, which resulted in the closure of the Canefield Airport on certain days. These winds were even stronger on the northern and eastern coasts. This would have increased the rate of evapotranspiration resulting in water stress in plants and favourable for the dispersal of *black sigatoka* spores. There were reports of root crops being burnt by sea spray while tree crops and vegetables were battered by high winds and stripped of their leaves.

Guyana

Guyana had an average of 232.2 mm of rainfall with an average of 16 rainfall days. Climatological average for December is 198.7mm with 16 rainfall days. St. Denny Mission in Region 2 (Pomeroon Supernaam) recorded the highest monthly rainfall with 684.8mm. The highest one day rainfall total was recorded at Bush Lot in Region 5 with a total of 120.5mm on the 3rd. A total of twenty six rainfall stations across Guyana recorded rainfall values above their averages, while seventeen stations recorded below average rainfall.

The Rainy weather experienced in most parts of the Coastal regions during the month of December had brought some relief to rice farmers who prepared their fields and were awaiting water to sow the first crop for 2013. The emergence of the rains meant that there were lower pumping costs for farmers.

December was warmer than normal, with average maximum temperature for the month being 31.0°C when compared to the Climatological maximum of 29.8°C. Lethem (Region9) recorded the highest average monthly maximum temperature of 33.5°C; and also reported the highest one day maximum temperature of 35.5°C on the 4th. This suggested that hot conditions prevailed over Southern portions of Guyana.

Jamaica

During the month of December the island observed a significant reduction in the levels of rainfall activity across most areas. Both Sangster International airport (Sangster) in the northwest and Norman Manley International airport (Norman Manley) in the southeast recorded below average rainfall. The most significant weather features which affected the island during the month were Low Level Troughs, most of which developed over the north-western Atlantic and affected mainly north-eastern parishes.

During the month, Sangster in the northwest recorded 17.8 mm of rainfall, while Norman Manley in the southeast recorded 6.9 mm. There were four rainfall days reported for Sangster, while Norman Manley had two rainfall days during the month. Sangster recorded approximately 22% of

the 1971-2000 mean while Norman Manley recorded 15% of the 1971-2000 mean.

The lowest minimum temperature recorded for Sangster Airport was 20.5°C (23rd) while 21.6°C (19th) was reported for Norman Manley Airport.

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

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	34.1 °C (33.1°C)	31.9 °C (31.8°C)
Lowest Minimum Temperature	21.6 °C (21.5°C)	20.5 °C (20.3°C)
Rainfall Total	6.9 mm	79.8 mm
Rainfall days (≥1mm)	2 days (4.2)	4 days (13.4)

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

St Lucia

Rainfall for December was above normal in the south but well below normal in the north of the island. Hewanorra’s rainfall was above the long term mean of 107.1 mm. There were 10 rainy days, of which 2 produced 20 mm or more. The highest daily rainfall was 78.4 mm on the 12th. Hewanorra also experienced a 7 day dry spell (from 28th November to 4th December) and a 6 day dry spell (from 14th to 19th).

The total rainfall recorded at George Charles was well below the mean of 142.9 mm. There were 18 rainy days with 2 of those days producing 20 mm or more. The highest daily rainfall was 25.1 mm on the 10th. In addition there was a 4 day dry spell (from the 1st to 4th). A general trend of below average rainfall (in the north of the island) which started in June continued through December. According to the drought monitor using the SPI, George Charles entered into a drought event in September and the event has continued through December. The monitor also revealed that significant below normal of up to 6 months was experienced by November 2012 in this part of the island.

A decline in rainfall is expected as the island moves into the dry season. Monthly rainfall figures for January range from 5.1 mm to 204.8 mm at Vieux-Fort and from 18.5 mm to 270.5 mm at George Charles.

The seasonal precipitation outlook for the January to March period indicate the likelihood for rainfall to be in the normal category or to range from 168 mm to 222 in Vieux-Fort and from 213 mm to 271 mm in Castries. Farmers who cultivate in the drier parts of the island and in the northern part which is currently experiencing a drought event should engage in water conservation practices and prepare for the drier months ahead.

Table 3 December monthly averages at Hewanorra Airport

AVERAGE MONTHLY DATA FOR HEWANORRA					
Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
4	80	12	26.8	78	173.2
Temp (oC)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
29.8	23.8	8.3	6.2	27.6	

Table 4 December monthly averages at George Charles Airport

AVERAGE MONTHLY DATA FOR HEWANORRA					
Cloud Cover (oktas)	Wind Dir (o from N)	Wind Speed (kt)	Air Temp. (°C)	RH (%)	Rainfall (mm)
5	80	06	27.1	77	124.1
Temp (oC)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)	
29.5	23.6				

St Vincent and the Grenadines

Total rainfall for December 2012, at E.T. Joshua Airport-Arnos Vale was 165.1mm; about 8 mm less than the December 30 year average. (Using 1981-2010 as the 30 year average) There were six days with rainfall totals just over 12.7mm (1/2 inch). There was a six-day dry spell from the 14th to the 19th.

There were 16 rain-days, the highest being on the 12th with 17.5mm. The distribution showed the first dekad (ten day period) had ~26%, the second dekad had 29%, and the third dekad had 45%. Of the total month’s rain.

The average maximum temperature was 30.4 °C, and the average minimum temperature was 24.5°C. The extreme maximum temperature recorded was 0.7°C higher than the 30 year average, while the extreme

minimum temperature was 1.7°C higher than the 30 year average. The mean relative humidity was 0.3% below the 30 year average (Using 1981-2010 as the 30 year average).

Extremes for October (date of occurrences): Barometric Pressure – highest 1018.2 mb (31st), lowest 1010.0 mb (6th); Air Temperature – highest 31.6°C (10th), lowest 23.0 °C (16th); Relative Humidity – highest 93% (7th, 22nd), lowest 57% (14th).

Trinidad and Tobago

Rainfall recorded at the Observing station in Piarco International Airport, Trinidad was 190.3 mm. This amount was 22% above the long-term average (1971 to 2000). Rainfall at the A.N.R. International Airport, Crown Point, Tobago was 242.3 mm, 52% above the long-term average.

There were reports of flooding and landslides in parts of Trinidad and Tobago on 18th, 21st and 25th December 2012. Flooding on 21st and 25th December were as a result of low level trough affecting the Southern Windwards.

There were no reports of damages to the Agricultural community.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECAST

Three month Outlook

Rainfall in the Caribbean during January to March will likely be generally consistent with a combination of neutral El Niño conditions combined with above normal tropical North Atlantic and Caribbean Sea sea surface temperatures (SSTs). This implies an increased likelihood of normal to above normal rainfall over the Lesser Antilles, with a marginally higher probability of above normal in the northern islands. Normal rainfall is expected for Jamaica and, but below normal to normal in the northwestern Caribbean.

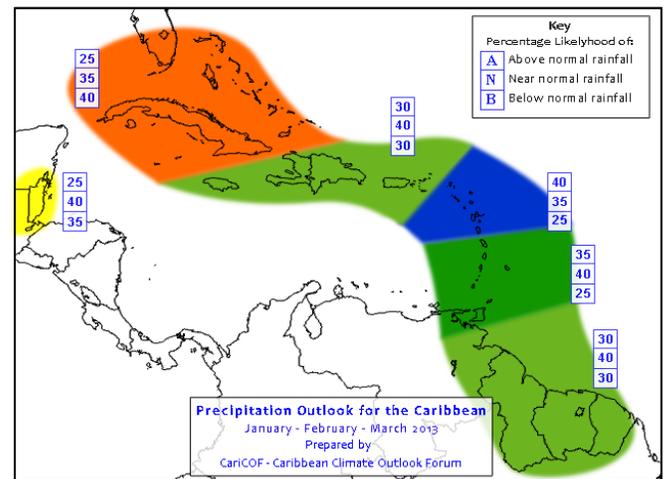


Figure 4 The January to March 2013 Rainfall Forecast

Currently, Caribbean SSTs and tropical North Atlantic SSTs are about 0.5°C above average. Such conditions are expected to last at least through to March. Consequently, it is expected that, unless rainfall greatly exceeds normal values, the forecast period will very likely see slightly above normal air temperatures across the Lesser Antilles and the Guianas. Conversely, slightly below average SSTs north of Cuba, if persistent, may cause air temperatures to hover slightly below to average.

Six month outlook

As in any six month forecast, there is considerable uncertainty as to the development of rainfall activity in the region. Although forecasting confidence is expected to improve as the Caribbean enters the dry season, climate conditions driving rainfall across the Caribbean on seasonal to half-year basis are not currently showing strong signal. With neutral ENSO conditions in the Pacific, below average SSTs over the tropical South Atlantic, but slightly above SSTs being forecasted in the North Atlantic, it is (at best) somewhat likely that rainfall in the south-eastern Caribbean will generally be normal, whereas north-eastern portions may experience normal to above normal rainfall. However, at odds with most climate model forecasts, a re-emergence of El Niño might modulated the forecasted trend. The latter would tend to increase rainfall in the northernmost portions, while reducing rainfall elsewhere during the dry season. In addition, North Atlantic SST forecasts tend to moderate SST anomalies by the latter part of the 6-month forecast period. Since seasonal climate predictions for the Caribbean mostly rely on SST

anomalies, there is relatively little confidence in the forecast beyond March. Notwithstanding, models to set the southernmost Antilles apart, with sustained chances of normal to below normal rainfall (source: IRI seasonal forecast December 2012).

Finally, in terms of air temperatures, a highly probable pattern of warmer than average eastern Caribbean emerges from climate models for the next few months. By contrast the northwestern part may be subject to air temperatures below normal in the first three months and with a possible trend to near average between April and June.

Prepared by

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