Issue: 57
October, 2017

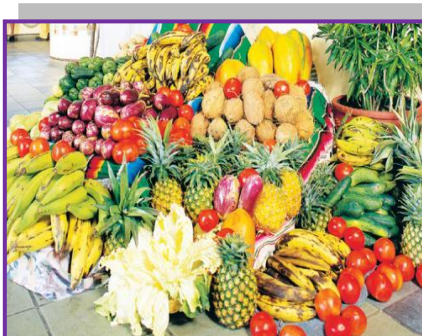
This bulletin is prepared by the Hydrometeorological Service of Guyana. We welcome feedback, suggestions and comments on this bulletin. Correspondences should be directed to: The Chief Hydrometeorological Officer (Ag), and the Agronomist.

Hydrometeorological Service of Guyana

Farmer's Monthly Weather Bulletin

HIGHLIGHTS

- Guyana was classified as Moderately Dry (MD) for the month of September 2017 with an average of 120.8mm of rainfall with 9 rain days.
- The highest one-day rainfall total was recorded at Uitvlugt, Region 3 with a value of 157.5mm of rainfall on September 17, 2017.
- Regional classification for the month showed that Region 7 recorded the highest mean rainfall of 180.8mm with 13 rain days.
- Lethem, Region 9 recorded the highest daily temperature of 35.6 ^{0}C on September 10, 2017.
- Kamarang, Region 7 recorded the lowest daily temperature of 19.5^{0}C on September 9, 2017.
- Normal to above-normal rainfall conditions predicted for October through December 2017.
- Above-normal temperature conditions predicted for October through December, 2017.
- ENSO-neutral conditions are present.



Rainfall Summary for September 2017

Guyana was classified as Moderately Dry (MD) for the month of September, with an average of 120.8.mm rainfall with 9 rain days. The highest monthly rainfall total was recorded at Wales, Region 3 with a total of 221.7mm of rainfall with 12 rain days. The lowest monthly rainfall total was recorded at Onderneeming, Region 2 with a value of 36.2mm of rainfall with 3 rain days. Most stations recorded rainfall amounts above their long-term averages (Figure 1).

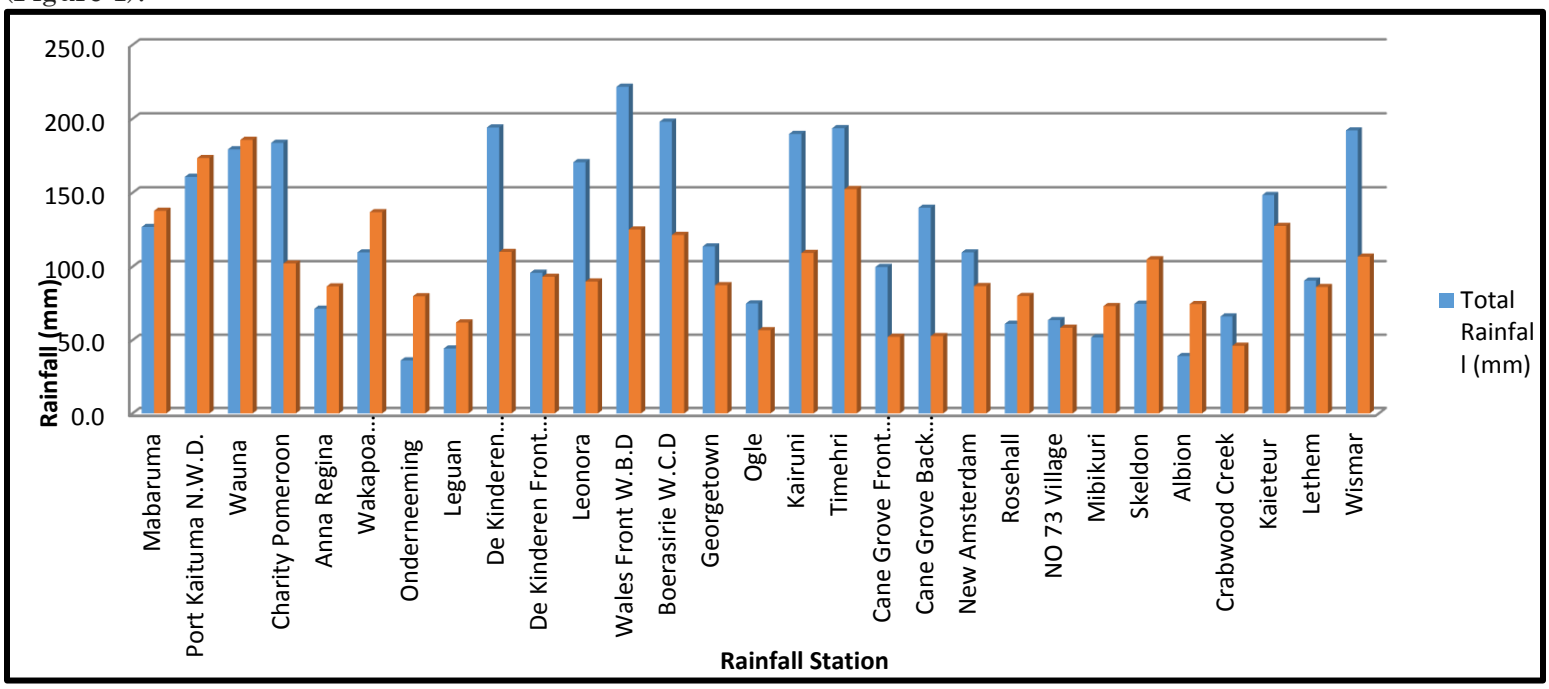


Figure1: Comparison of the accumulated rainfall and the long-term averages of selected stations for September 2017.

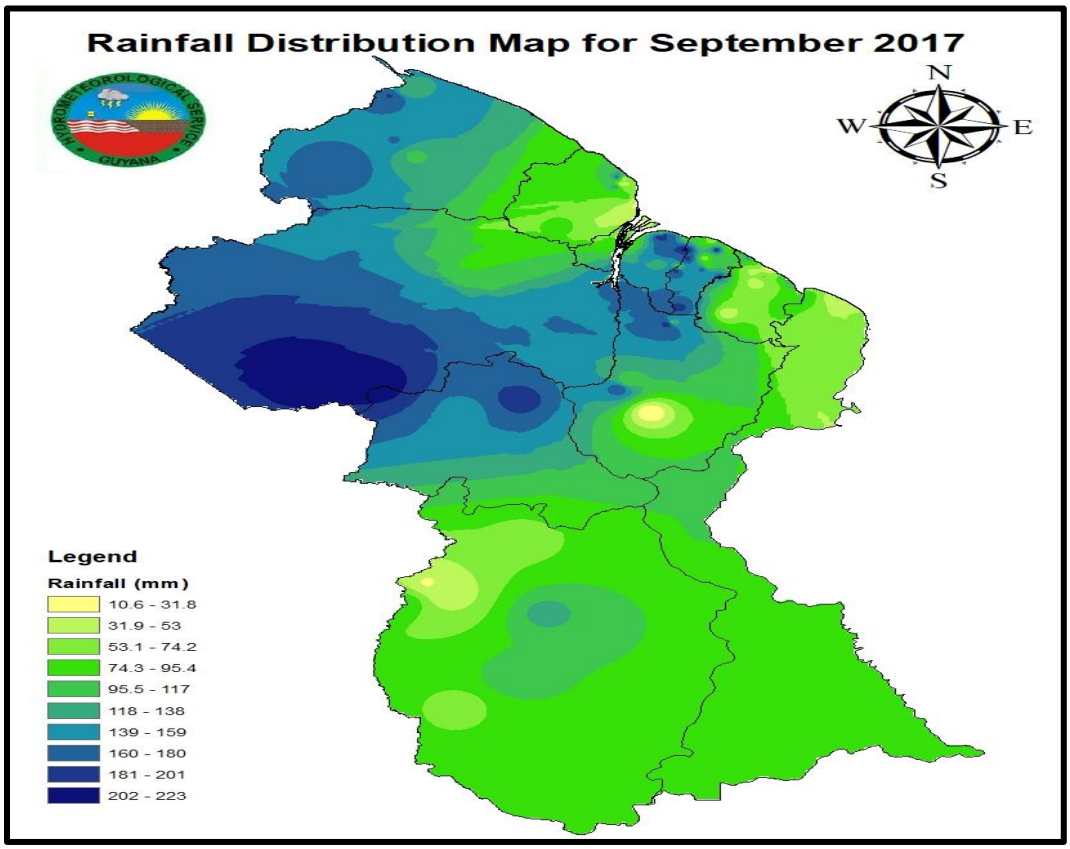


Figure 2: Rainfall Distribution Map for September 2017

Table 1: Classification of Regional Average Rainfall Data for September 2017

Regions	Regional Average (mm)	Average Rain days	Classification	Remarks
1	140	4 days	Moderately Dry (MD)	Wauna White Water recorded 184.1mm of rainfall with 15 rain days.
2	83.2	6 days	Dry (D)	St Denny's Mission recorded 197mm of rainfall with 10 rain days.
3	105.1	7 days	Dry (D)	Wales Front (W.B.D) recorded 221.7mm of rainfall with 12 rain days.
4	121.8	8 days	Moderately Dry (MD)	Sam Atta Point Grove E.B.D recorded 189.8mm of rainfall with 11 rain days.
5	67	5 days	Dry (D)	Waterloo Berbice recorded 110.5mm of rainfall with 4 rain days.
6	55.6	4 days	Very Dry (VD)	New Amsterdam recorded 109.7mm of rainfall with 8 rain days.
7	180.8	13 days	Moderately Wet (MW)	Kamarang recorded 222.7mm of rainfall with 17 rain days.
8	170.9	15 days	Moderately Wet (MW)	Mahdia recorded 193.3mm of rainfall with 14 rain days.
9	74	9 days	Dry (D)	Kumu Rupununi recorded 125.8mm rainfall with 15 rain days.
10	165.8	14 days	Moderately Wet (MW)	Watooka recorded 230.8mm of rainfall with 13 rain days.

Sunshine Hours Summary for September 2017

Lethem, Region 9 recorded the highest monthly mean sunshine of 7.9 hours. The highest one-day sunshine of 10.9 hours was recorded at Georgetown, Region 4 on September 21, 2017. Timehri, Region 4 recorded the lowest mean sunshine of 10.5 hours. All stations except for Timehri recorded mean sunshine hours below their long-term averages (Figure 3).

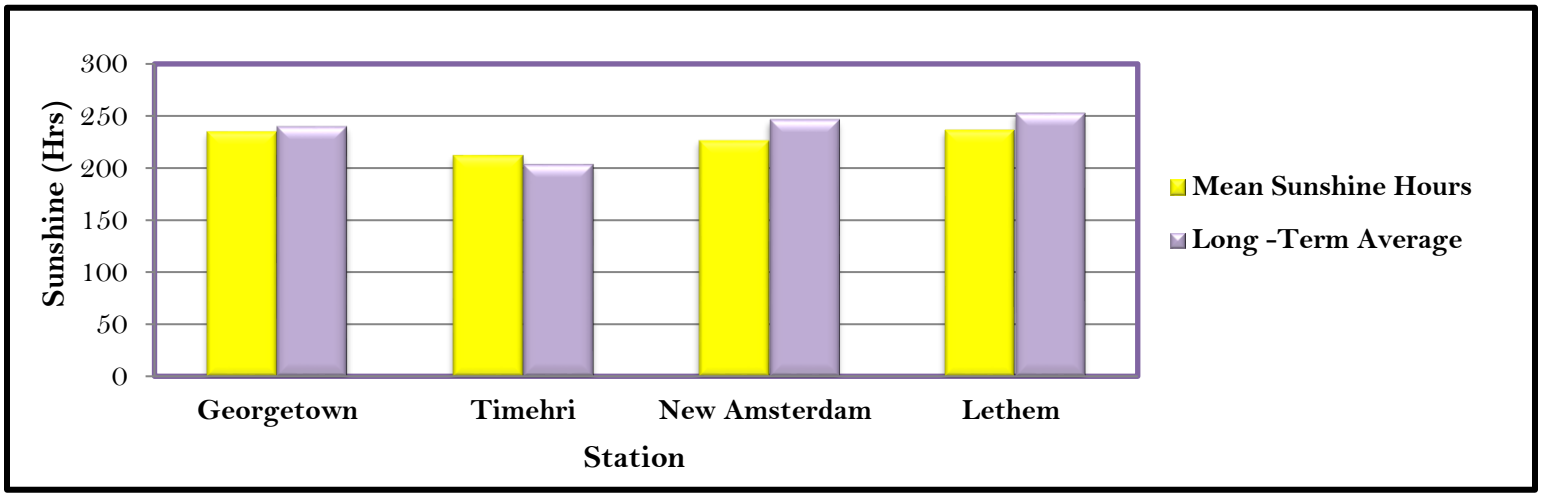


Figure 3: Comparison of the mean sunshine hours and the long-term averages for selected stations for September 2017.

Temperature Summary for September 2017

For the month of September, the highest one-day maximum temperature was recorded at Lethem, Region 9 with a value of 35.6^{0}C on September 10, 2017. This station also recorded the highest mean maximum temperature of 34.0^{0}C for the month. Georgetown, Region 4 recorded the highest mean minimum temperature of 24.8^{0}C. Kamarang, Region 7 recorded the lowest daily temperature of 19.5^{0}C on September, 9, 2017 (Figures 4 & 5).

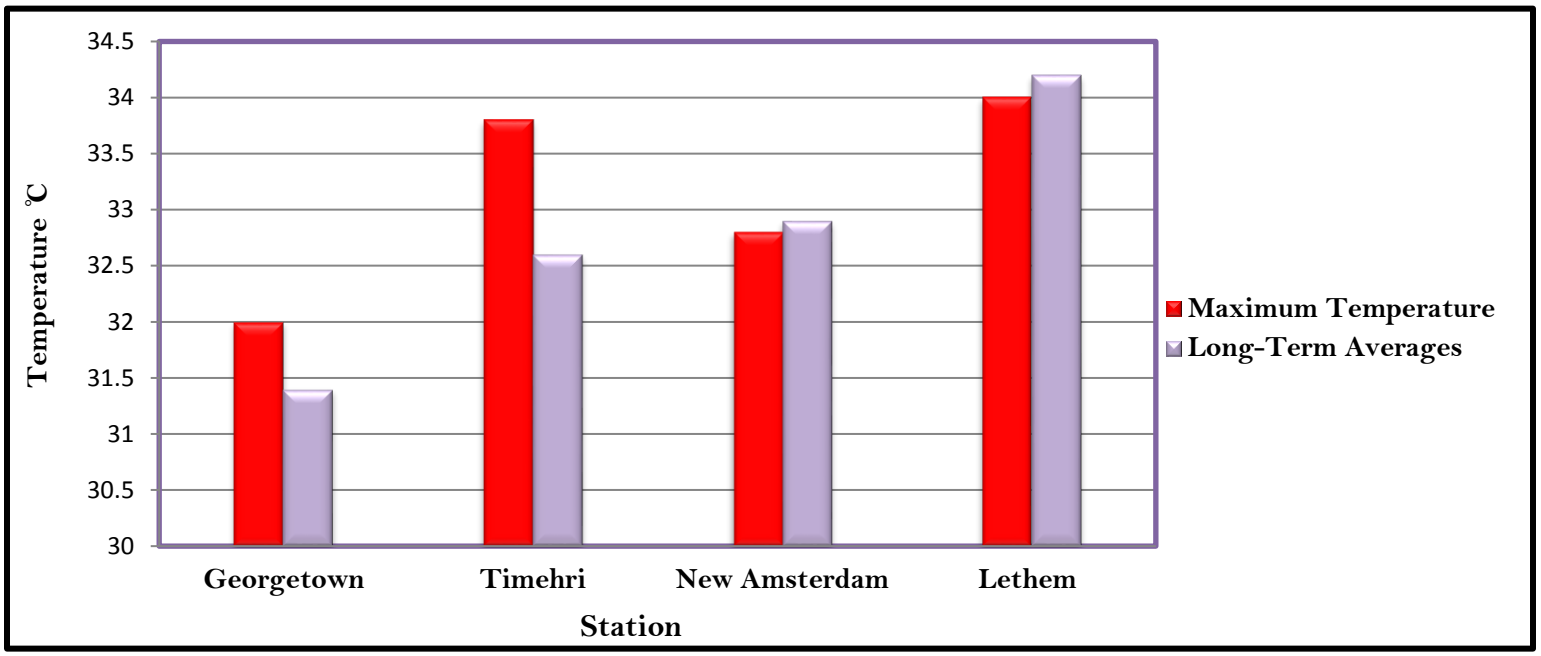


Figure 4: Comparison of the long-term averages and mean maximum temperatures for selected stations for September 2017.

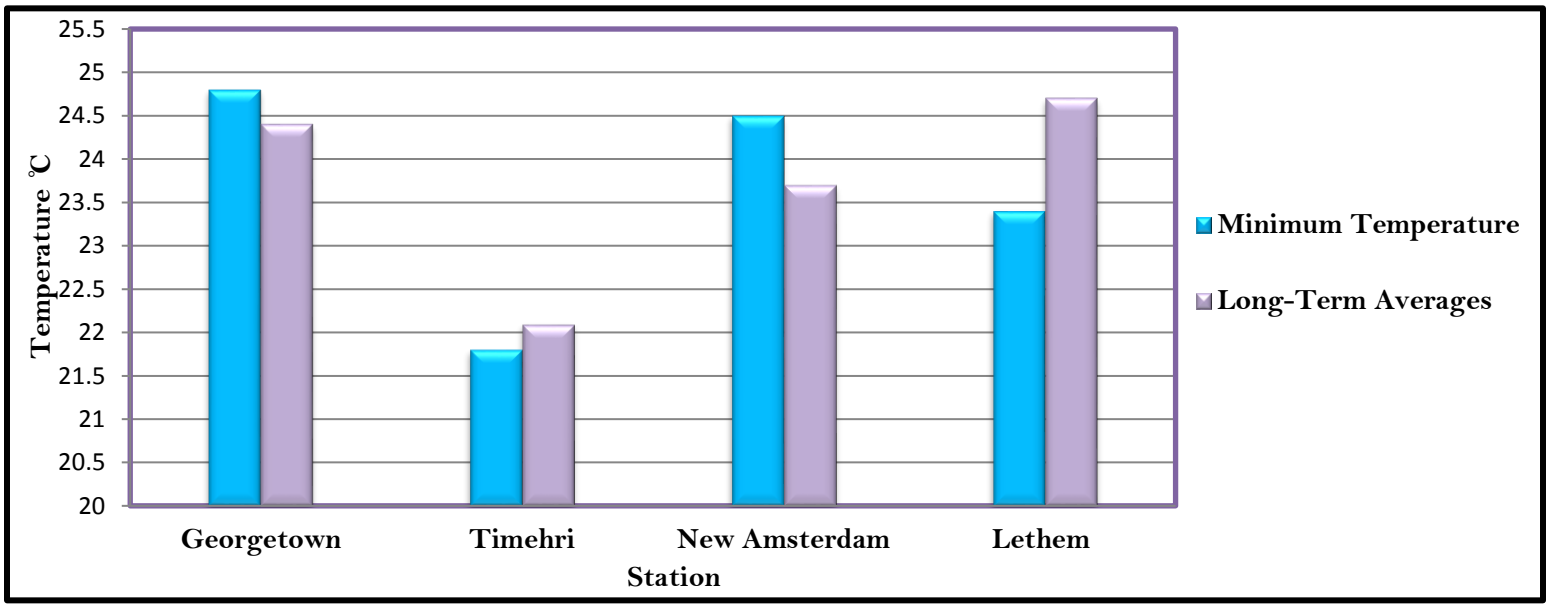


Figure 5: Comparison of the long-term averages and mean minimum temperatures for selected stations for September 2017.

Evapotranspiration (ET_O) Totals of selected stations for September 2017

Lethem, Region 9 recorded the highest average daily evapotranspiration of 10.15 mm along with the highest one-day evapotranspiration of 17.30 mm on September 7, 2017. Georgetown, Region 4 recorded the lowest daily average evapotranspiration of 6.15 mm, while Timehri, Region 4 recorded the lowest one-day evapotranspiration with a value of 2.05 mm on September 4, 2017. A comparison can be seen in Figure 6.

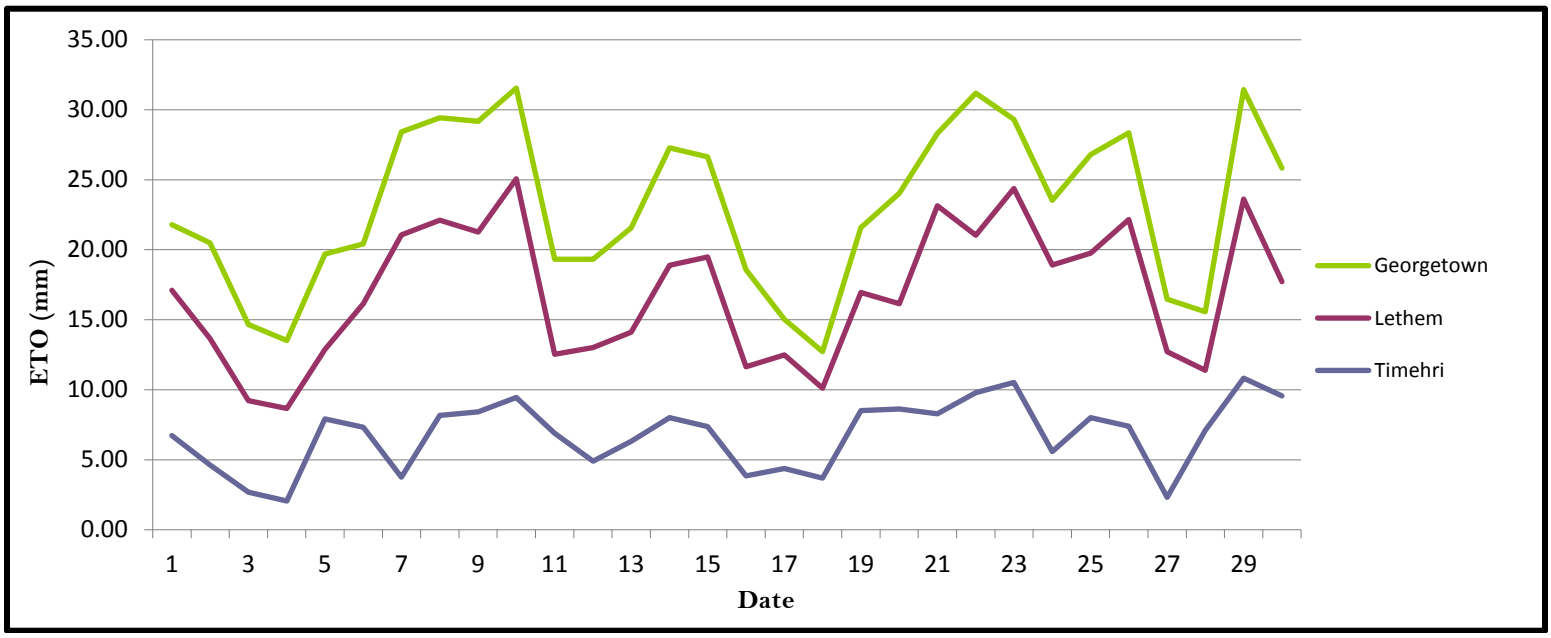


Figure 6: Comparison of the Reference Evapotranspiration of selected stations for September 2017.

Note: The calculated average of the evapotranspiration is a method of Penman-Monteith, which assumes an unlimited water supply, depends on temperature, relative humidity, the wind, and generally provides a better representation of crop-water losses and requirements. Evapotranspiration is the rate at which readily available soil water is vaporized from specified vegetated surfaces. Evapotranspiration is commonly used to describe two processes of water loss from land surface to atmosphere, evaporation and transpiration.

Drought Summary for July to September 2017

For the 3-month Standardized Precipitation Index (SPI) (Figure 7), near-normal accumulated rainfall was observed in most of the stations analyzed. However, deficit accumulated rainfall was observed over Rose Hall during the period, contrarily to that recorded at Skeldon. For the month of October near normal rainfall consistent with Guyana's primary dry season is expected.

Table 2: The Standardized Precipitation Index for selected stations

Station Name	3 Month SPI Values (July - September)
Georgetown	-0.44
Uitvlugt	-0.26
Wales	0.61
Enmore	0.40
Timehri	0.60
Rose Hall	-1.19
Albion	-0.32
Skeldon	1.60
Blairmont	0.05

Table 3: The Standardized Precipitation Index for Classification Categories

SPI Values	Drought Class
0 to -0.4	Near Normal
-0.5 to -0.7	Abnormally Dry
-0.8 to -1.2	Moderately Dry
-1.3 to -1.5	Severely Dry
-1.6 to -1.9	Extremely Dry
-2.0 or less	Exceptionally Dry
0 to 0.4	Near Normal
0.5 to 0.7	Abnormally Wet
0.8 to 1.2	Moderately Wet
1.3 to 1.5	Severely Wet
1.6 to 1.9	Extremely Wet
2.0 or more	Exceptionally Wet

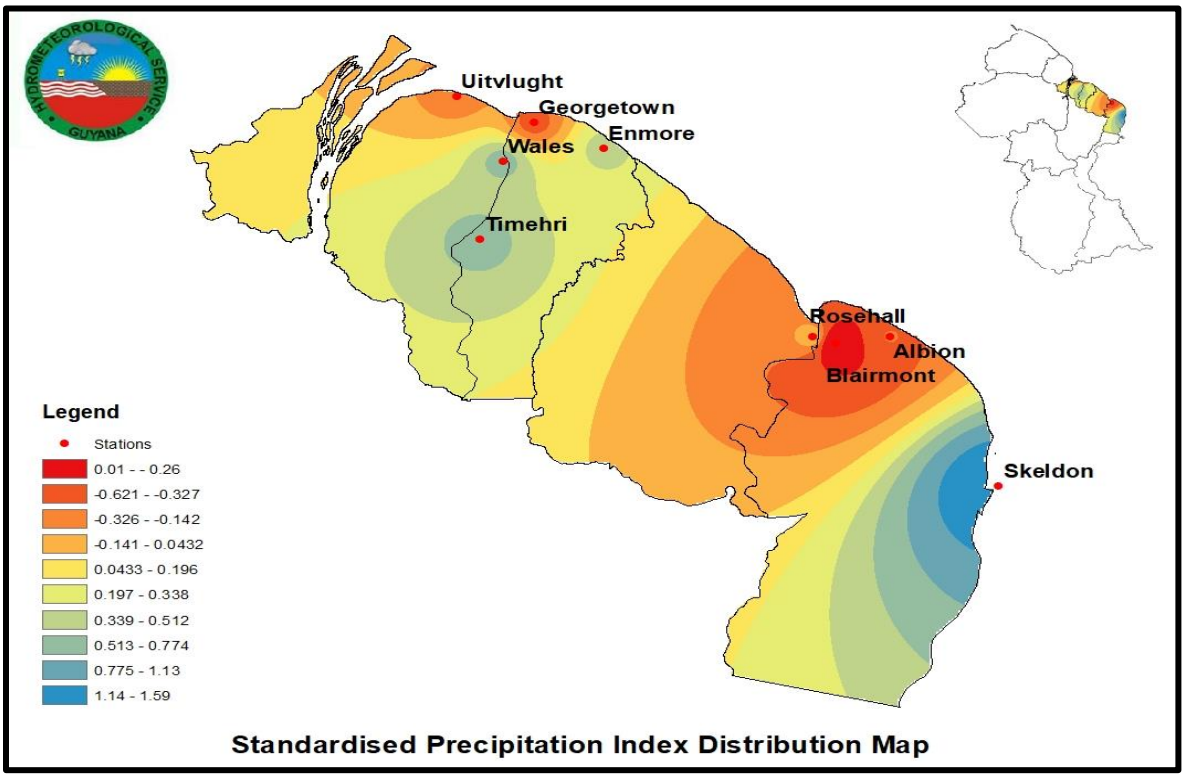


Figure 7: The Standardized Precipitation Index for selected stations for July to September 2017.

Seasonal Outlook for Guyana and the Caribbean for October-December 2017

Climatologically Coastal Guyana is currently in its Primary Dry season of 2017.The latest forecast indicates that Guyana will continue to experience a generally normal dry season. However, the possibility of heavy downpours still remains. For the forecast period above-normal temperatures are expected for most of the country.

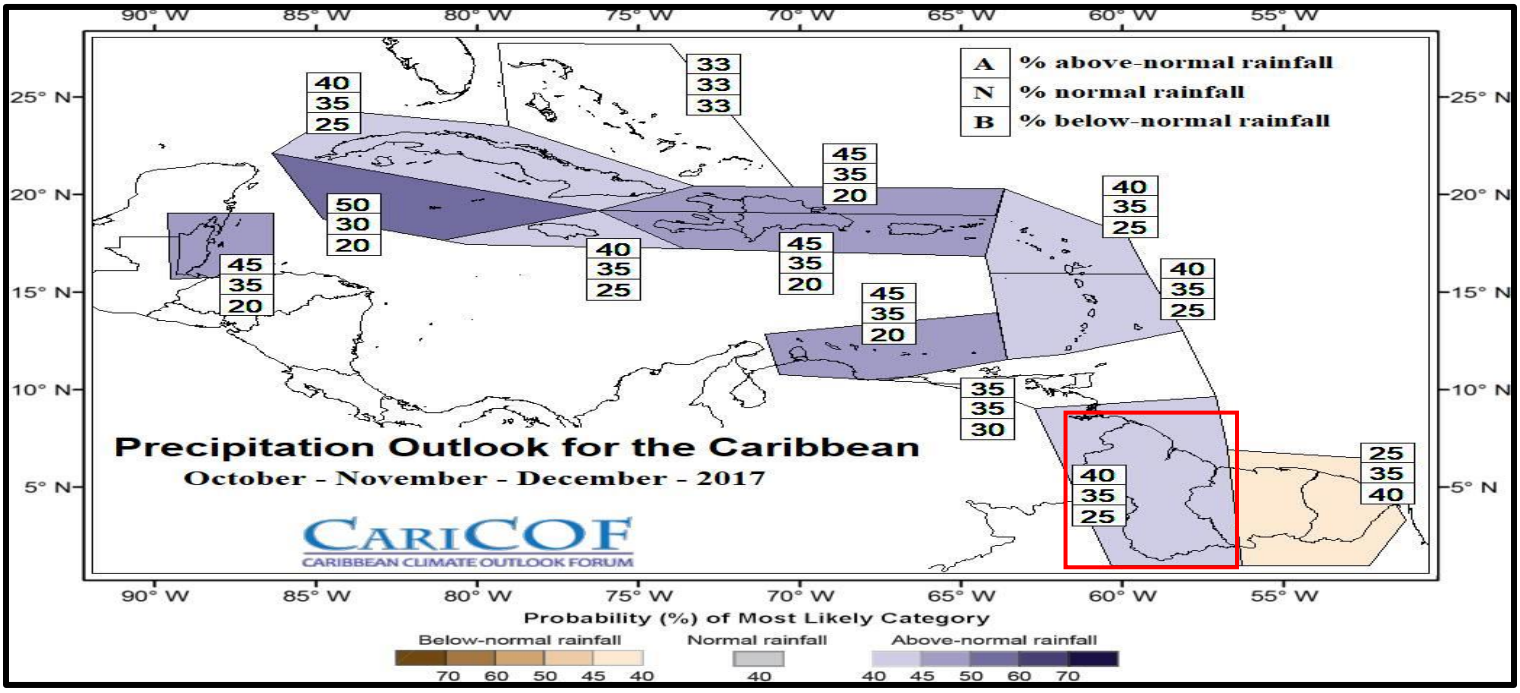


Figure 8: Precipitation forecast map for October-December 2017 showing the probabilities of above Normal (A), Normal (N) and Below Normal (B) rainfall for Guyana within the context of the Caribbean.

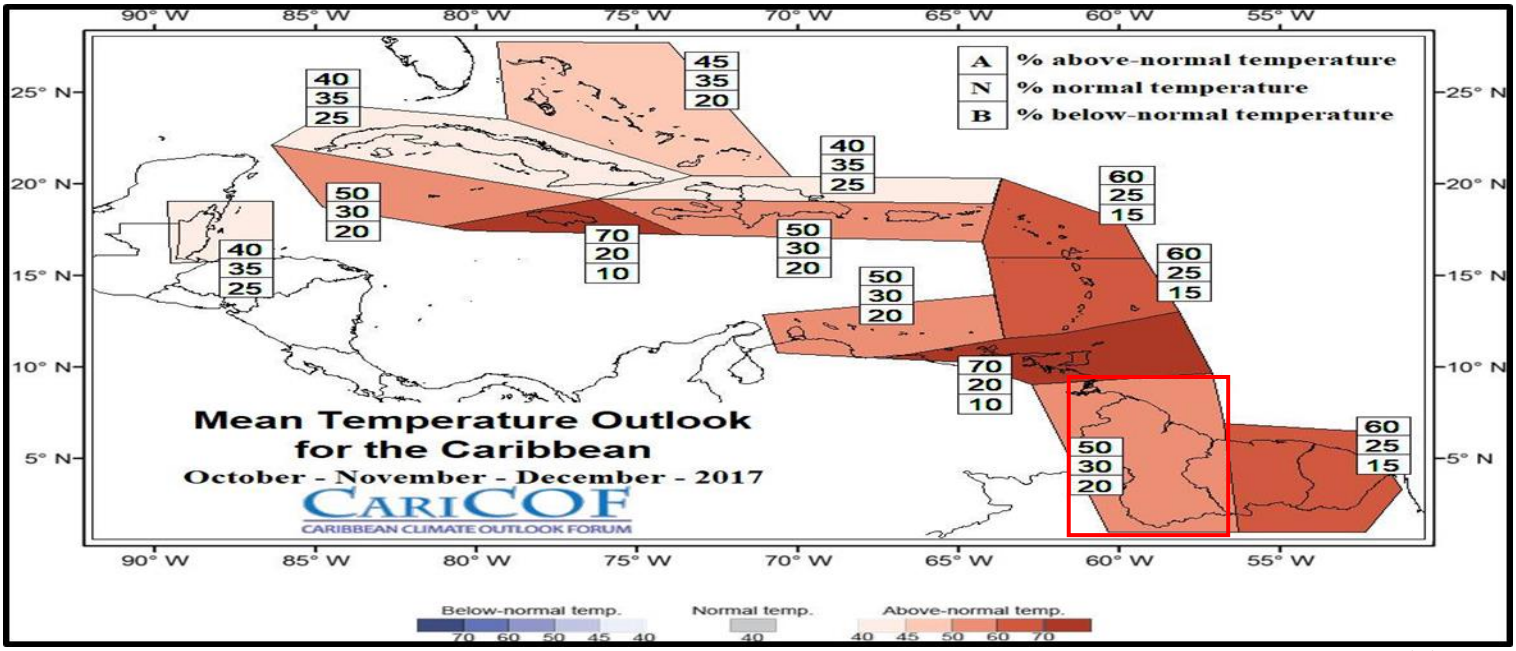


Figure 9: Mean temperature forecast map for October-December 2017 showing the probabilities of Above-Normal (A), Near-Normal (N) and Below-Normal (B) temperature for Guyana within the context of the Caribbean.

Table 4: Historical Average rainfall for selected rainfall stations

Region	Station	Oct	Nov	Dec	Region	Station	Oct	Nov	Dec
1	MABARUMA *	****	210.2	246.9	5	BLAIRMONT	54.8	97.8	228.8
	WAUNA	207.0	212.0	245.3		MARDS	24.8	116.1	203.8
	PORT KAITUMA	160.7	190.4	270.8	6	ALBION	67.4	29.2	197
2	ANNA REGINA*	110.7	182.3	283.4		SKELDON	83.8	114.7	151.7
	CHARITY	101.3	212.6	285.5		CRABWOOD CREEK*	53.3	92.3	98.1
	Mc NABB	123.9	185.0	247.3		ROSE HALL	57.4	84.2	266.6
	WAKAPOW	120.7	212.8	342.5		NIGG 58	75.7	84.9	177.1
	ONDERNEEMING	85.0	141.5	225.9		ALBION 33	51.2	60.4	162
3	BOERSARIE	139.9	205.2	345.8		#73 VILLAGE	78.9	101.7	174.5
	DeKENDEREN B	132.3	197.9	325.2		# 54 VILLAGE*	40.2	79.4	139.9
	DeKENDEREN F	127.1	158	302.2		ANKERVILLE	65.6	77.4	185.2
	LEONORA F	117.9	156.3	265.2		MIBIKURI	26.5	95.4	183
	LEONORA B	125	163	282.5		MARA LAND DEV. SCHEME*	59.3	95.1	165.9
	WALES	125.3	171.7	238.5		NEW AMSTERDAM	59.6	94.7	223
	UITVLUGT B	113.6	143.9	257.7	7	APAIKWA	118.1	190.9	299.6
	La BAGATELLE LEGUAN*	88.3	113.2	205.6		MAZARUNI	147.7	171.7	197.1
4	GEORGETOWNN	89.4	175.9	270.9		BARTICA DEM. STATION*	182.2	139.8	151.7
	TIMEHRI	132.6	181.6	258.3		JAWALLA	107.8	175.7	157.8
	CANE GROVE B	62.6	90.8	199.1	8	KAIETEUR FALLS *	109.0	****	452.3
	CANE GROVE F	65.3	120	214.7	9	LETHEM	54.6	33.8	44.5
	L.B.I FRONT	73.8	140.5	246.3		KARASABAI	21.6	9	5.1
	OGLE FRONT	64.6	136.7	222.6		DADANAWA	45.5	57.5	37.6
	ENMORE FRONT	78	127.8	268.2	10	GREAT FALLS	110.3	152.5	221.2
	KAIRUNI*	84.4	130.7	121.6		WISMAR*	97.5	107.3	148.5

NOTE: The historical averages for various stations were calculated by the use of rainfall data from the year 1981- 2010 (climatological normals) except where less than 30 years of observations are available (stations denoted with *).

Table 5: Average rain days for the months October-December for selected stations

Station Name	October	November	December
Georgetown Botanical Gardens	8 days	12 days	18 days
Timehri Meteorological Station	5 days	14 days	11 days
Ogle	6 days	11 days	17 days
Lethem	5 days	3 days	4 days
Anna Regina	9 days	10 days	14 days
New Amsterdam	6 days	9 days	16 days

Table 6: SPRING TIDE TABLE FOR OCTOBER, 2017

SPRING TIDE ≥ 2.74(m)		
Dates	Time	Height(m)
2017/10/03	02:13	2.83
	14:35	2.82
2017/10/04	02:54	2.97
	15:09	2.99
2017/10/05	03:35	3.07
	15:44	3.13
2017/10/06	04:17	3.13
	16:20	3.21
2017/10/07	05:00	3.12
	16:57	3.22
2017/10/08	05:43	3.05
	17:36	3.17
2017/10/09	06:30	2.92
	18:18	3.06
201710/10	07:21	2.74
	19:06	2.89
2017/10/15	13:24	2.75
2017/10/16	01:09	2.76
	14:09	2.91
2017/10/17	02:00	2.86
	14:49	3.02
2017/10/18	02:44	2.93
	15:25	3.07
2017/10/19	03:24	2.95
	16:00	3.08
2017/10/20	04:02	2.95
	16:31	3.04
2017/10/21	04:37	2.90
	17:01	2.97
2017/10/22	05:12	2.83
	17:30	2.88
2017/10/23	17:59	2.76

Spring Tides Tables are provided by the Maritime Administration Department

 19th New moon  27th First quarter  05th Full moon  12th Last Quarter

Lunar calendar for October 2017

Agricultural Review for September 2017

For the month of September, there were no reports of significant effects caused by the weather on Agricultural production, but the service will inform the public if any such events should occur.

Farmer's Note for October 2017

Near normal rainfall and above normal temperature are expected in the month of October. Thus , farmers are encouraged to take heed of the advisories from their regional agriculturists or extension officers and to be vigilant and follow the Hydrometeorological Service's daily and three-day forecasts via the radio on 56.0 AM and on our website at www.hydromet.gov.gy.

Farmers are also advised to:

- Change the timing of farm operations- adjust sowing and harvesting period to avoid negative effects of dry spells.
- Work along with groups such as your local agriculture extension officers, the NDIA, the NDC and the Water User's Association to designate a suitable area for the construction of farm ponds for water storage. This is important for dry periods.
- Plant crop varieties that can be grown in dry conditions and that are not easily affected by pests and diseases.
- Cultivate shrubs and trees around the fields as part of a crop farming system- this practice assists with the restoration of soil fertility, and at the same time creates a micro-climate to reduce high temperatures in dry periods.
- Develop an efficient, protective and curative spraying program for crops. This is to help prevent the spread of fungus and their spores during the wet periods.
- Avoid applications of chemicals and fertilizer during wet days. This helps to prevent contamination of the water table and leaching of nutrients.
- Construct water troughs- where possible to provide water for livestock during dry periods.
- Set aside a separate area or land to grow fodder- for animals in dry periods.
- Monitor livestock for pests and diseases- this is an early intervention practice since climate change can increase the incidence of uncertain types of pest and diseases that affect livestock.
- Work closely with fisheries officers- and report any issues, the decline in fish stock or irregular behaviour in the fish population.

Crop of the Month: Cassava | October, 2017

Common Name: Cassava

Scientific Name: Manihot esculenta

Temperature: 25-30°C

Soil pH: 5.5 – 6.5

Introduction

Cassava is grown throughout the tropics. Guyana is one of the tropical countries in which cassava is Cultivated.

Description

Cassava is a perennial shrub in the family Euphorbiaceae grown primarily for its storage roots which are eaten as a vegetable. The cassava plant is a woody plant with erect stems and spirally arranged simple lobed leaves with petioles (leaf stems) up to 30 cm in length. Cassava is primarily an energy source since it is an excellent supplier of calories. The roots also contain quantities of vitamin C, thiamine, riboflavin and niacin.

Climate

Cassava is best grown in a climate that offers warm weather; it is a drought tolerant crop. Seedlings transplant well and can be planted directly to the soil (whichever is preferable). It is essential that gardeners/farmers select cassava best suited for the length of their climate's growing season.

Insect Pests and Diseases

- Cassava mealy bug
- Whitefly
- Aphids
- Cassava bacterial blight
- Acoushi ants

Planting

Sets are planted 50 cm to 90 cm on the ridge at a 45˚ angle leaving 2-3 nodes above ground. Cassava is normally planted before the beginning of the rainy season. Cassava can be grown on most soils; however, the best soils are sandy clay loams that are well drained without a fluctuating water table. Proper soil management practices, adequate soil drainage and limestone applications at 2-4 t/ha incorporated into the soil every 3 to 4 months. The cassava crop is highly sensitive to shade leading to low yields and must be grown under full sunlight. However, cassava can be successfully used as a shade plant in young cocoa plantations.

Health Benefits of Cassava

- Assists in keeping a normal metabolism
- Helps to regulate heart rate and - blood pressure
- Prevents constipation and weight loss

Recommended Varieties

- Butter stick
- Uncle Mack
- M. Mex 59 and 52
- Bad woman

Fun Facts About Cassava

- Cassava carries some of the valuable B-complex group vitamin.
- Cassava is a raw material for sculpture.
- Protects against a number of chronic diseases.
- Is the main ingredient for pepper pot cassareep.

Harvesting/Storage

Cassava matures between 8 to 12 months after planting. Cutting back plants 2 weeks before harvesting should cause tubers to mature and increase yields by 10%. Do not weed before harvesting.

Excess soil should be removed from the harvested tubers and tubers carefully packed in crates or bags for transport. Bagged cassava tubers prior to sale can be covered with moist jute bags. This reduces vascular (blue) streaking.

Fertilizer Recommendation

A soil test should always be done to determine fertilizer types and rates.

When soil tests are not done, a general recommendation for fertilizing cassava can be:NPK (12:24:12) applied at the rate of 336 kg/ha at 6 weeks after planting followed by 16:8:24 at 16 weeks after planting or mixtures of single fertilizers such as Calcium Nitrate, Muriatic of Potash and Triple Super Phosphate at 114-209 kg/ha N, 25 - 37 kg/ha P and 240 - 335 kg/ha K also applied at 6 and 16 weeks after planting

Average quantities work out to be one handful (85gm-113gm) of fertilizer per plant at each application.

Place fertilizers 15cm to 45cm from the base of the stem in drill holes. Drill holes should be 10cm to 15cm in depth. Placement of fertilizers in drill holes reduces fertilizer loss through runoff water.

Fertilizing plants 16 weeks after planting enhances tuber bulking.

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(24 hours National Weather Watch Centre numbers)
Or
Visit our Website:
www.hydromet.gov.gy

El Niño and La Niña Update

ENSO Alert System Status: La Niña Watch

- ENSO-Neutral conditions are present.*
- Equatorial sea surface temperatures (SSTs) are near-to-below average across the central and eastern Pacific Ocean.
- There is an increasing chance (~55%-60%) of La Niña during the Northern Hemisphere fall and winter 2017-18.*

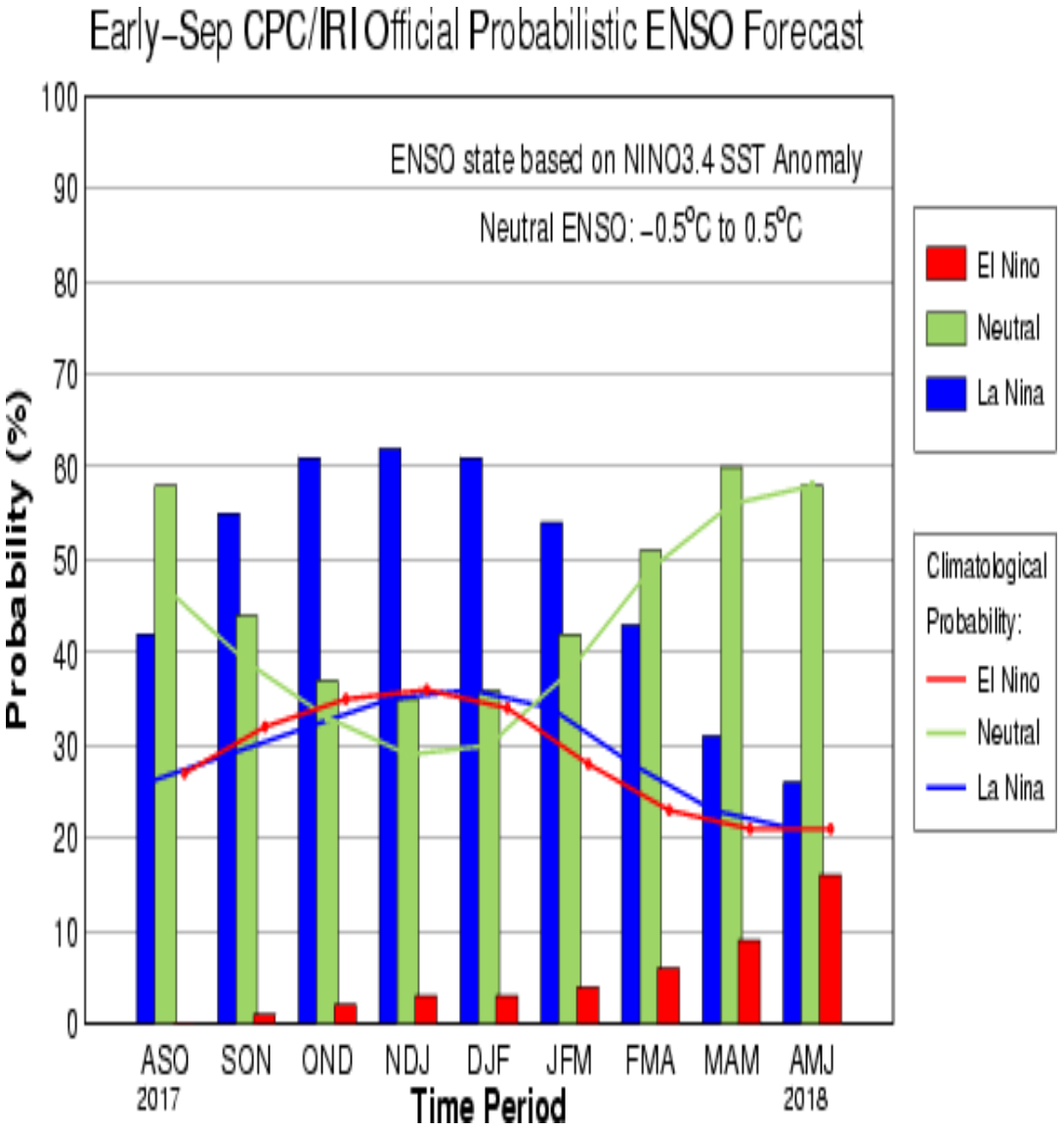

Figure 10: CPC/IRI Early-Month Consensus ENSO Forecast Probabilities