Issue: 39
April, 2016

Hydrometeorological Service of Guyana

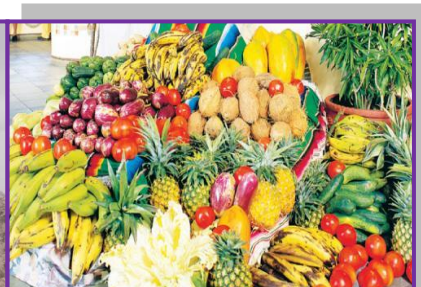
Farmer's Monthly Weather Bulletin

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.

HIGHLIGHTS

- Guyana was classified as Dry (D) for the month of March, 2016.
- The highest one day rainfall total was recorded at Lesbeholden Region 6, with 107mm of rainfall on March 30, 2016.
- Regional Classification showed that Region 6 recorded the highest mean rainfall total of 80mm with 4 rain days.
- Lethem, Region 9 recorded the highest daily temperature of 36.5 ^{0}C on March 22, 2016.
- Timehri, Region 4 recorded the lowest daily temperature of 19.2^{0}C on March 4, 2016.
- Near normal rainfall conditions predicted for April through June.
- Above normal temperatures predicted for April through June.
- El Niño neutral conditions expected in the coming month.



Rainfall Overview for March, 2016

Guyana experienced below normal rainfall during March, with a monthly average of 70.3mm with 6 rain days. In the graph below it can be observed that three of the selected stations recorded rainfall totals above their long-term averages, namely Port Kaituma, Whim and Onderneeming. Regionally, the highest rainfall total was recorded in Region 6 with an average of 80mm with 4 rain days.

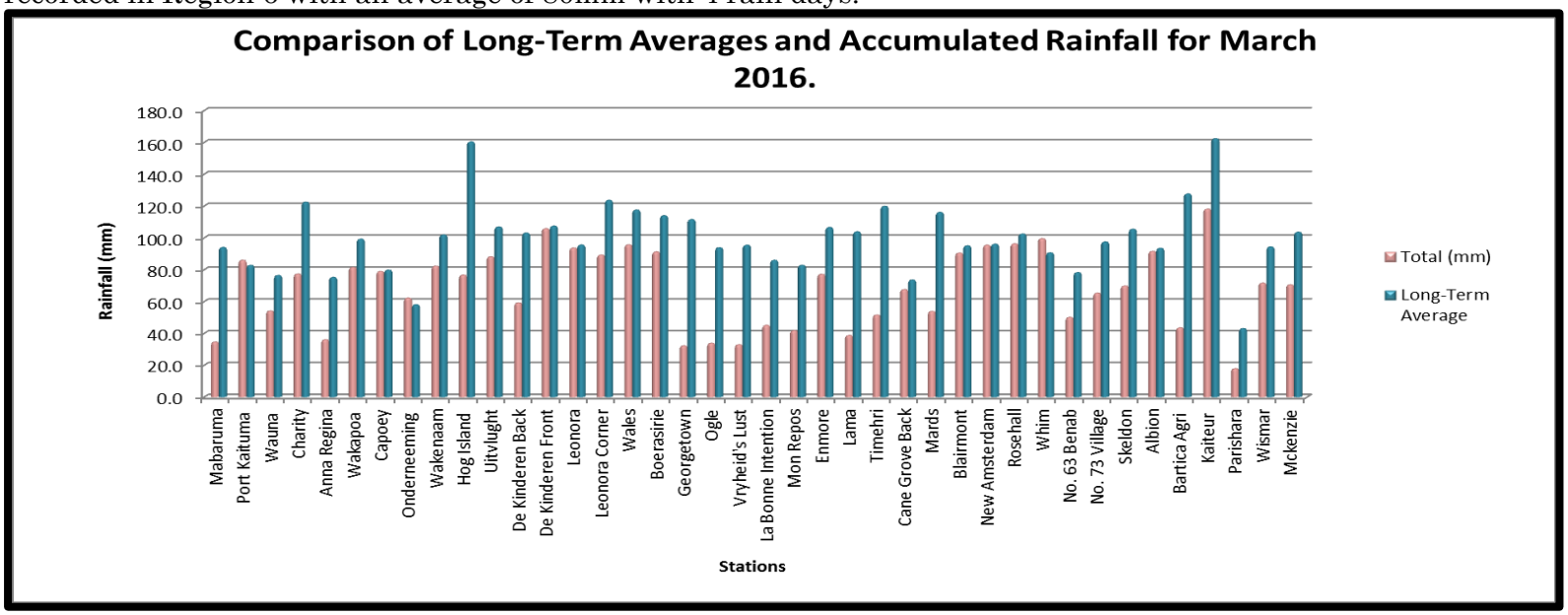


Figure1: Comparison of the Accumulated Rainfall and the Long-term Averages of selected stations for March, 2016.

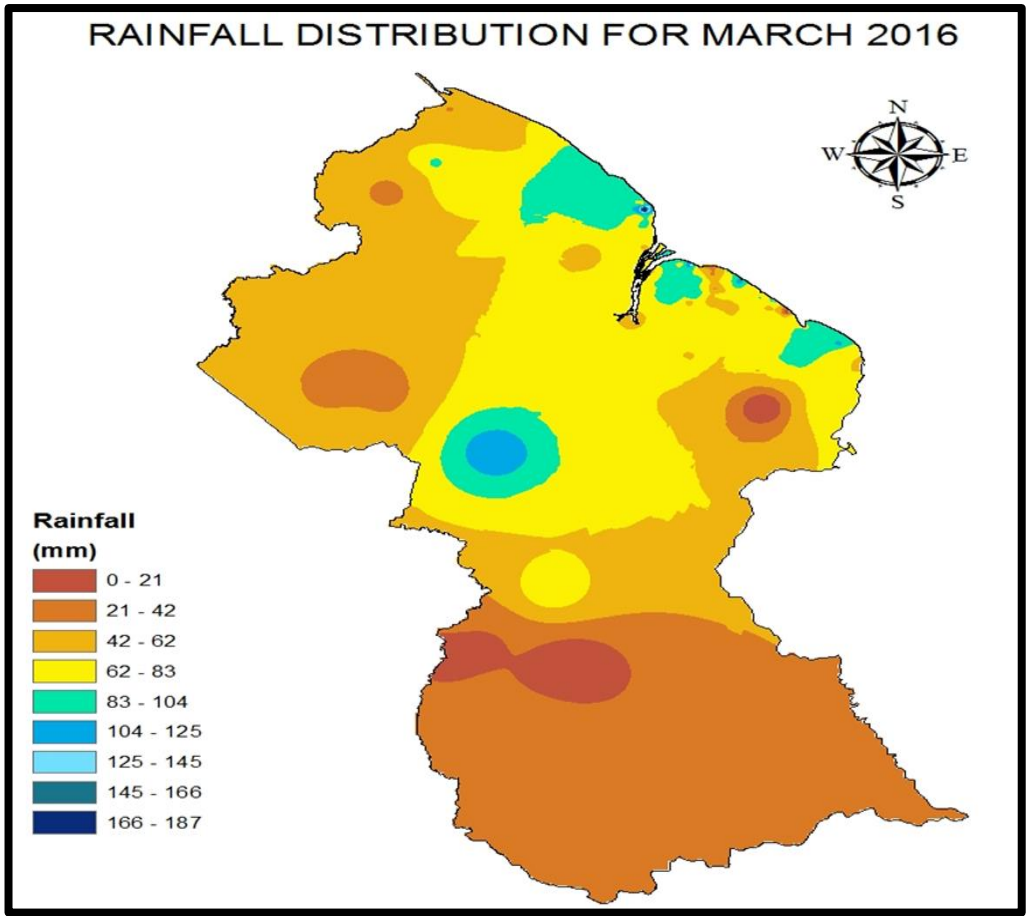


Figure 2: Rainfall Distribution for March 2016.

Table 1: Classification of Regional Rainfall Data for the Month of March, 2016

Regions	Average Rainfall (mm)	Average Rain days	Classification	Remarks
1	51. 9mm	7 days	(VD) Very Dry	Kumaka recorded 44.1 mm of rainfall with 7 rain days.
2	76mm	8 days	(D) Dry	Capoey Lake recorded 98.9mm of rainfall with 7 rain days.
3	89.1mm	8 days	(D) Dry	Wakenaam recorded 82.3mm of rainfall with 5 rain days.
4	67mm	6 days	(D) Dry	Georgetown recorded 32.3mm of rainfall with 6 rain days.
5	68.3mm	6 days	(D) Dry	Blairmont recorded 90.6mm of rainfall with 7 rain days.
6	80mm	4 days	(Dry) D	Whim recorded 99.6mm of rainfall with 6 rain days.
7	38.3mm	7 days	(VD) Very Dry	Bartica Agri recorded 43.6mm of rainfall with 6 rain days.
8	Kaieteur recorded 118.2mm rainfall with 11 days. Moderately Dry(MD)			
9	31.6 mm	2 days	(VD) Very Dry	Parishara recorded 17.9mm of rainfall with 2 rain days.
10	66.3mm	5 days	(D) Dry	Wismar recorded 71.7mm of rainfall with 7 rain days.

Sunshine Hours Summary for March, 2016

Georgetown Region 4 recorded the highest mean sunshine hours with a total of 7.9 hours, as well as the highest one day total of 10.9 sunshine hours on March 11, 2016. Timehri recorded the lowest sunshine hour of 5.6 hours which was less than its climatological average by 1.1 hours.

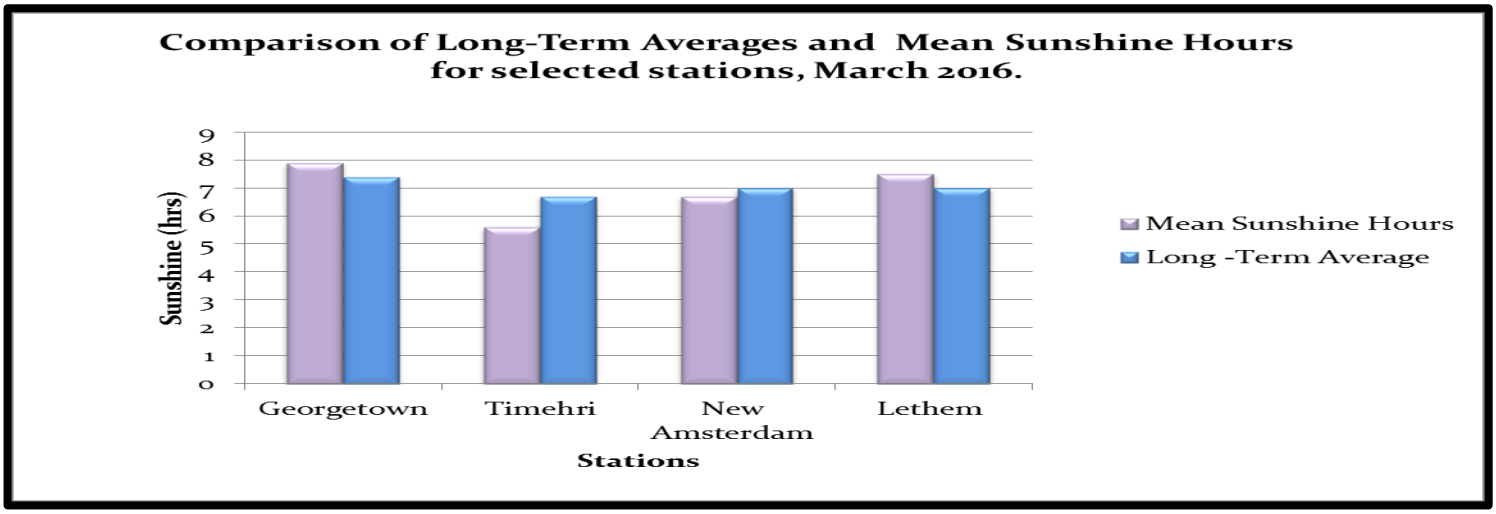


Figure 3: Comparison of the Mean Sunshine hours and the Long-term Averages of selected stations for March, 2016.

Temperatures Overview for March, 2016

For the month of March, the highest mean maximum temperature of 34.8^{0}C was recorded at Lethem Region 9, while the lowest mean maximum temperature was recorded at Kaieteur with a total of 28.4^{0}C. New Amsterdam, Region 5 recorded the highest mean minimum temperature of 24.5^{0}C, whereas the lowest average minimum temperature was recorded at Lethem with a value of 23.7^{0}C.

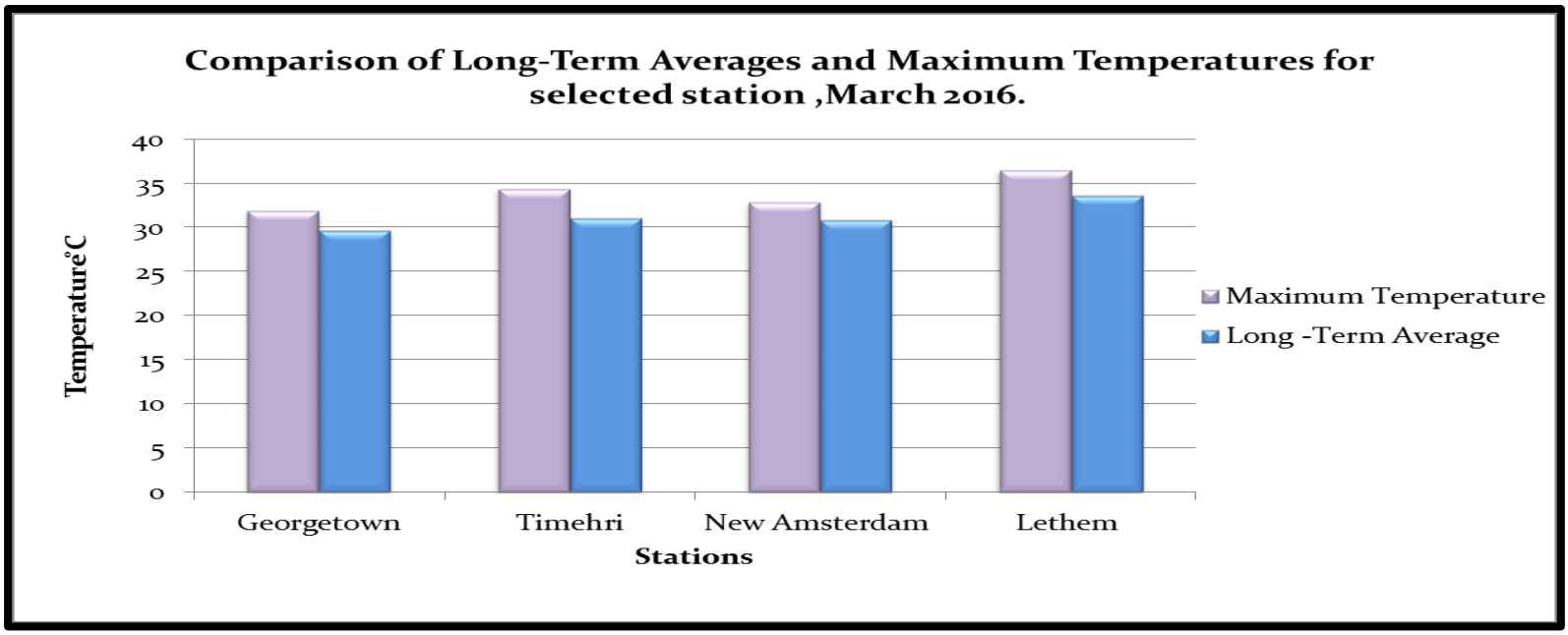


Figure 4: Comparison of the Long-Term Averages and Maximum temperatures of selected stations for March, 2016.

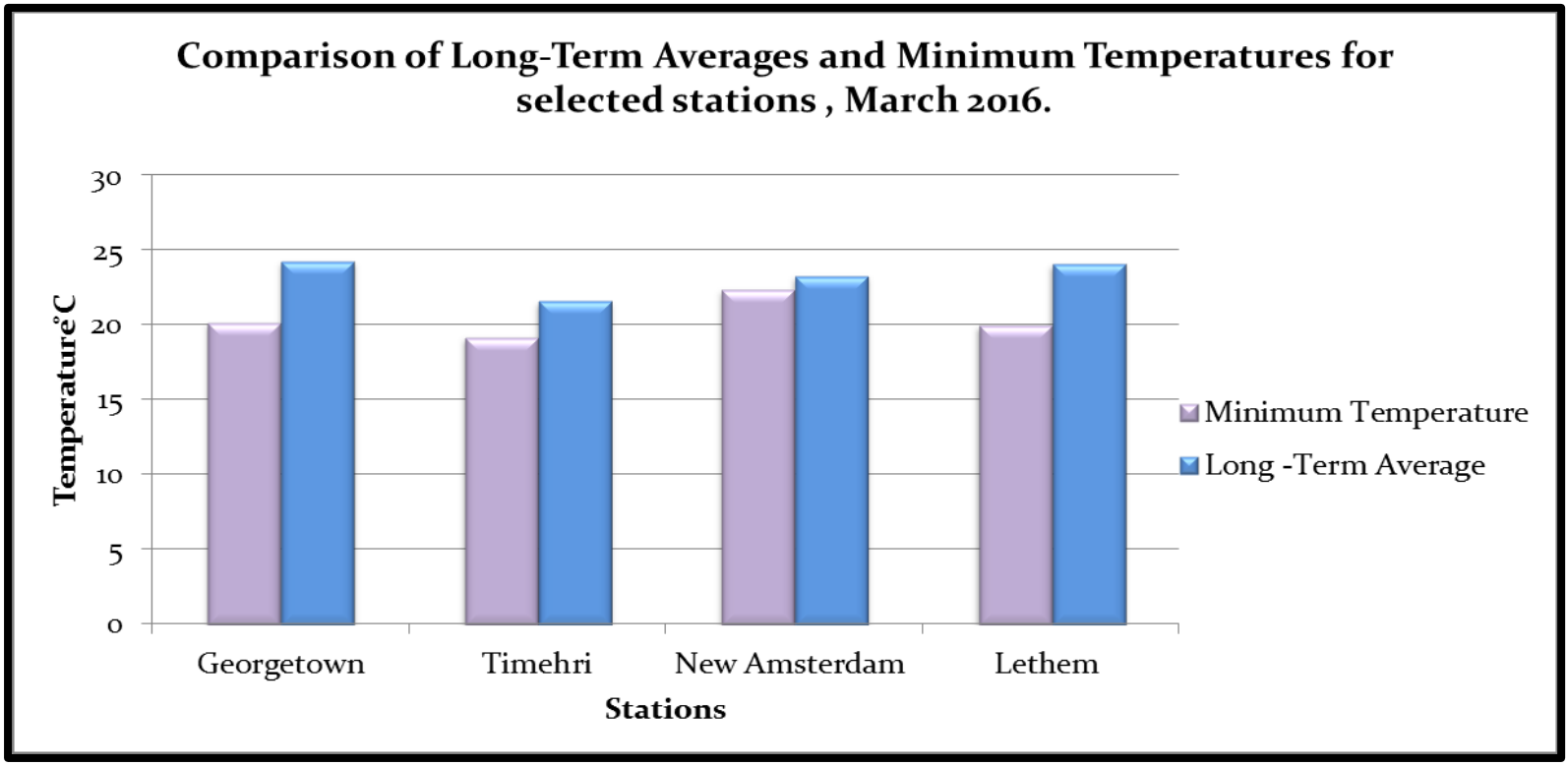


Figure 5: Comparison of the Long-Term Averages and Minimum temperatures of selected stations for March, 2016.

Comparison of Monthly Rainfall Totals and Accumulated Reference Evapotranspiration (ET_O) of selected stations, March 2016

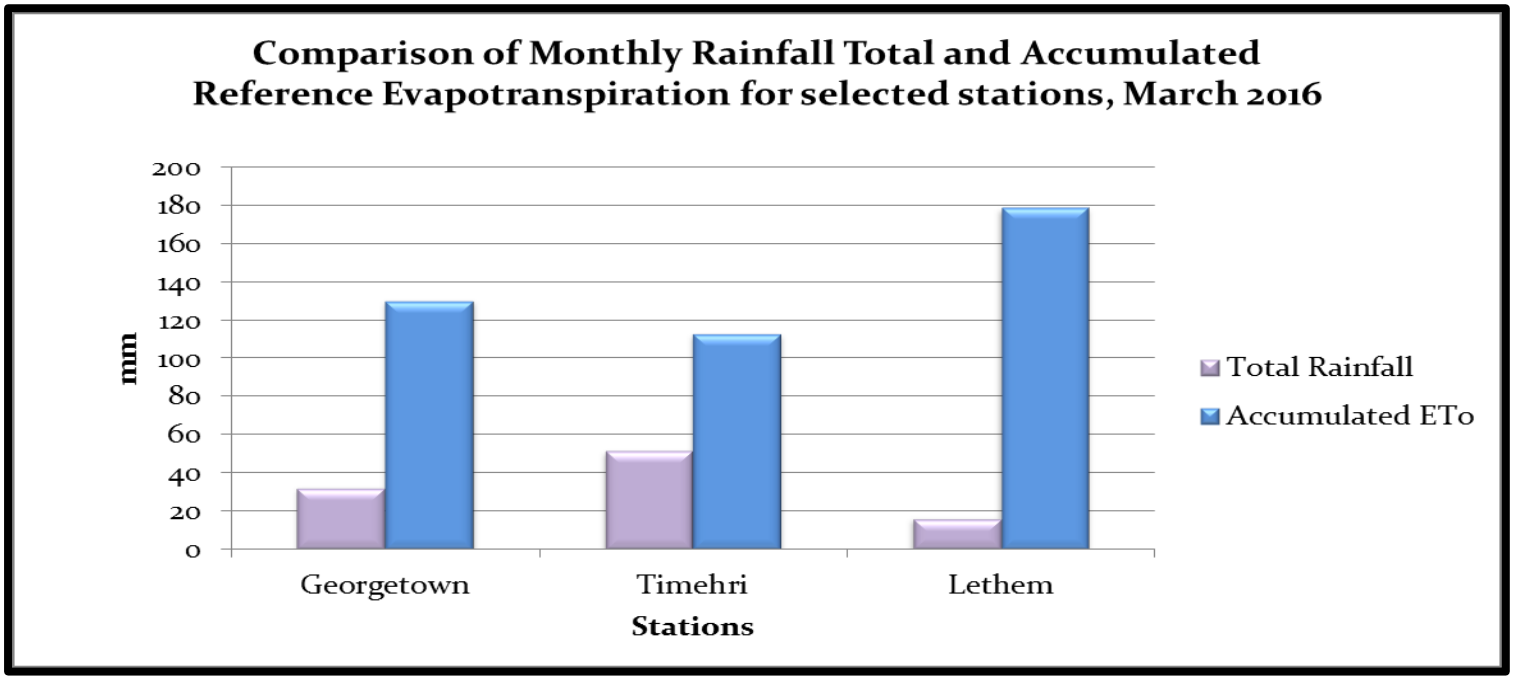


Figure 6: Comparison of the Reference Evapotranspiration of selected stations for March, 2016.

Lethem and Timehri recorded the highest and lowest Reference Evapotranspiration totals of 179.1mm, and 113.mm respectively. All stations recorded ETo totals above their rainfall totals.

Note: The calculated potential evapotranspiration method of Penman - Monteith, which assumes an unlimited water supply, depends on temperature, relative humidity, wind, and generally provides a better representation of crop-water losses and requirements.

The Standardized Precipitation Index

Table 2: The Standardized Precipitation Index for selected stations

Station Name	SPI Value(3 Month)
Georgetown	-1.56
Uitvlugt	2.85
Wales	-0.81
La Bonne Intention	-1.29
Enmore	-0.64
Timehri	3.67
Blairmont	-0.80
Rose hall	-0.55
Albion	-0.65

Table 3: The Standardized Precipitation Index Classification Categories

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

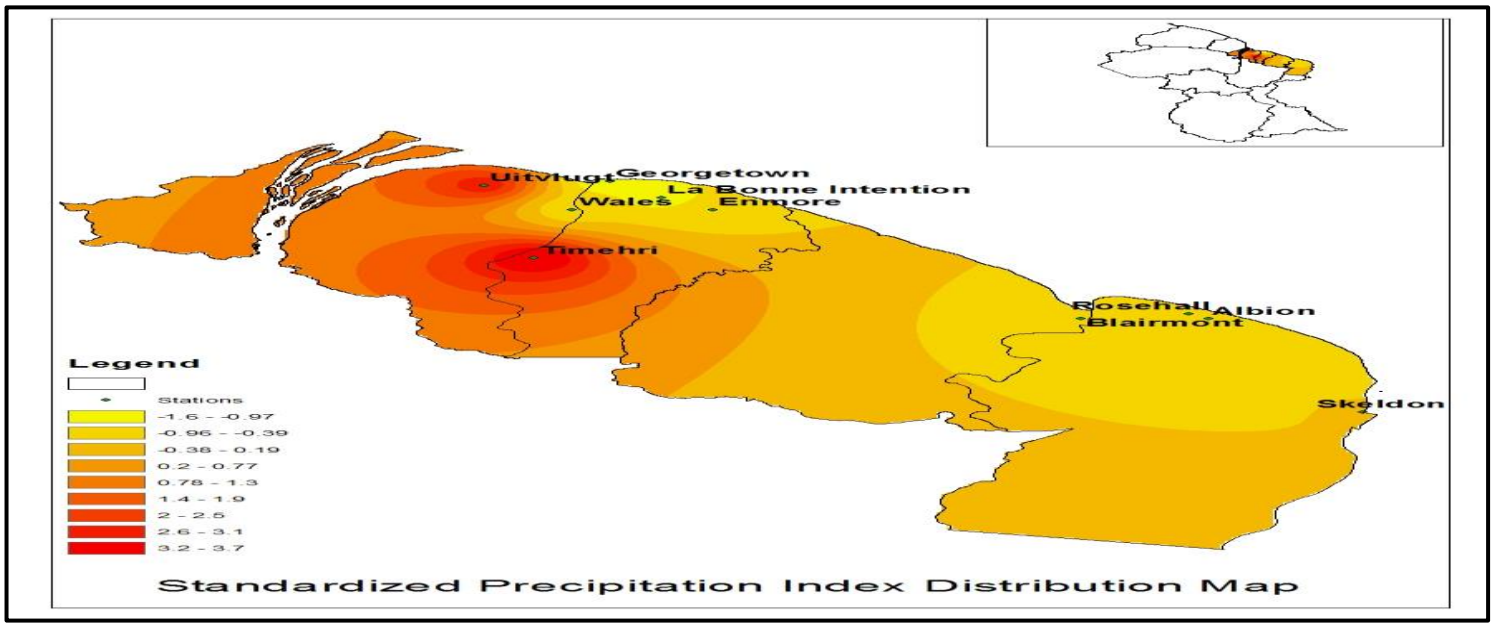


Figure 7: Standardized Precipitation Index Distribution Map for selected stations

The Standardized Precipitation Index (SPI), developed by T.B. McKee, N.J. Doesken, and J. Kleist in 1993, is based only on precipitation. One unique feature is that the SPI can be used to monitor conditions on a variety of time scales namely 1- month, 3-month, 6-monrth, 9-month and 12-month periods. This temporal flexibility allows the SPI to be useful in both short-term agricultural and long-term hydrological applications. Above the SPI was computed on a three months basis, for selected stations.

Seasonal Forecast for April - June, 2016

The recent statistical and forecast models are indicating a high probability of near normal conditions for the forecast period. Generally dry conditions and above normal temperatures over most parts of the country are expected to be present during this month of April.

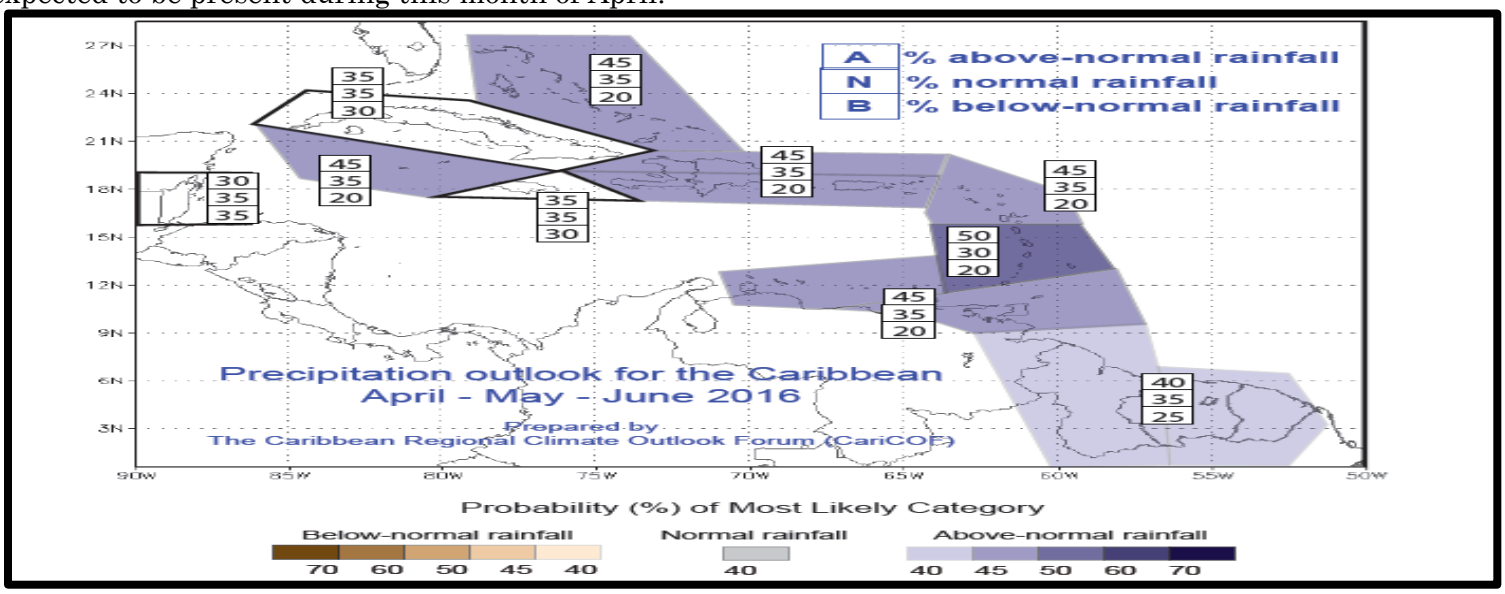


Figure 8: Diagram showing the Percentages of above Normal (A), Normal (N) and Below Normal (B) rainfall conditions for Guyana and the Caribbean.

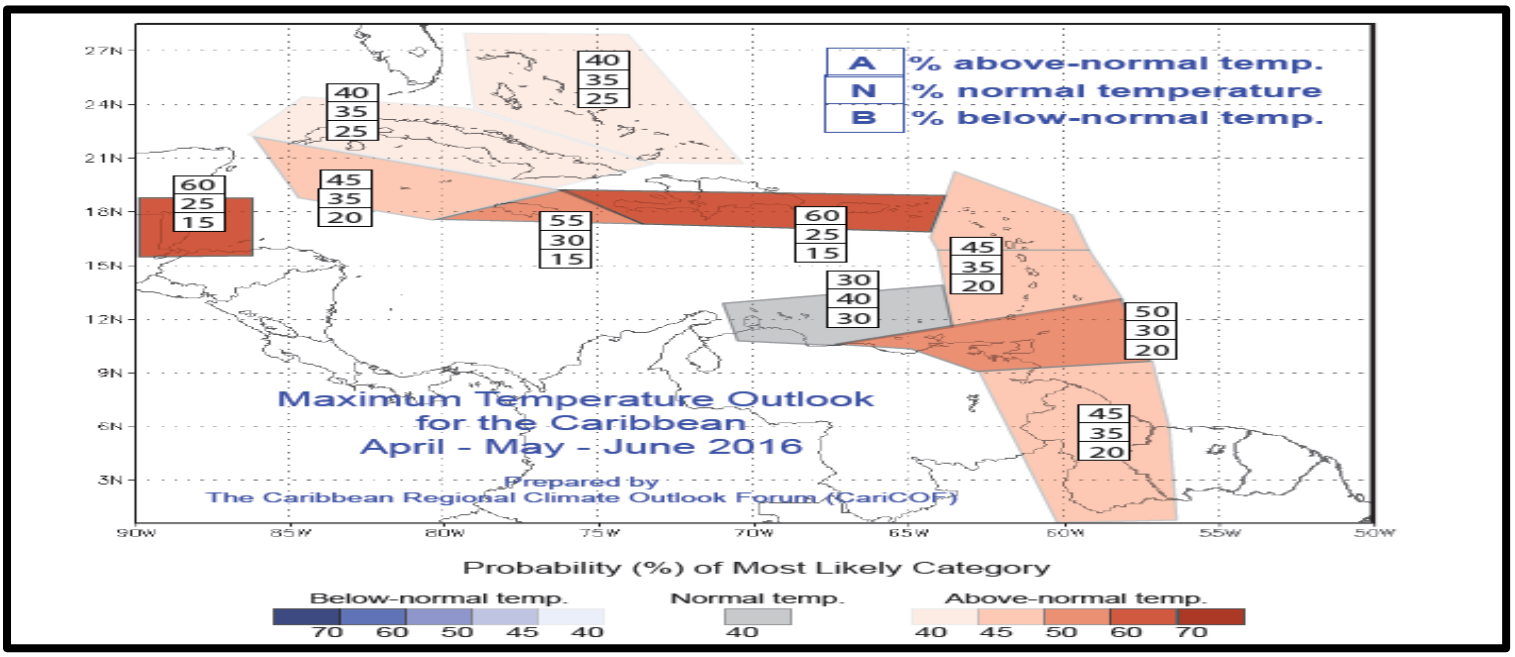


Figure 9: Diagram showing the Percentages of above Normal (A), Normal (N) and Below Normal (B) temperature conditions for Guyana and the Caribbean.

Table 4: Rainfall Normals and Averages of selected rainfall

Regions	Station Names	April	May	June	Regions	Station Names	April	May	June
1	MABARUMA *	144.9	327	342.7	5	BLAIRMONT	160.7	257.5	280.9
	WAUNA	108.4	223.1	315.9		MARDS	142.5	241.7	265
	PORT KAITUMA	108.3	251.0	305.3	6	ALBION	144.8	225.9	249.2
2	ANNA REGINA*	159.6	333.2	310.5		SKELDON	147.8	250.4	256
	CHARITY	134.9	295.6	305.8		CRABWOOD CREEK*	82.5	182	157.7
	Mc NABB	130.8	278.2	306.6		ROSE HALL	169.1	275.2	287.6
	WAKAPOW	150.3	321.5	334.8		NIGG 58	156.1	238.4	260.3
	ONDERNEEMING	141.6	264.4	263.2		ALBION 33	142.1	214	222.3
3	BOERSARIE	194	382.6	415.4		#73 VILLAGE	154.4	255.3	254.5
	DeKENDEREN B	188.8	346	385.1		# 54 VILLAGE*	147.9	206.3	184.9
	DeKENDEREN F	185.9	345.2	376.5		ANKERVILLE	171.6	247.7	253.4
	LEONORA F	179.4	309	348.3		MIBIKURI	147.6	238.3	248.3
	LEONORA B	192.8	360.5	392.9		MARA LAND DEV. SCHEME*	147.1	221.6	284.8
	WALES	164.9	343	338.5		NEW AMSTERDAM	159.7	259.8	276.4
	UITVLUGT B	181.8	335.4	260.8	7	APAIKWA	266.3	342.9	351.7
	La BAGATELLE LEGUAN*	131.4	234.2	240.2		MAZARUNI	147.6	294.4	309.5
4	BOTANIC GARDENS	153.4	277.4	310.5		BARTICA DEM. STATION*	150.9	270.3	293.1
	TIMEHRI	188.9	318.4	350.4		JAWALLA	176.1	295.5	303.9
	CANE GROVE B	116.5	206.9	223.9	8	KAIETEUR FALLS *	***	610.1	584.9
	CANE GROVE F	153.2	234.7	269.4	9	LETHEM	89	305.7	288.5
	L.B.I FRONT	140.8	247.6	259.8		KARASABAI	35.4	131.4	150.6
	OGLE FRONT	134.2	224.9	227.6		DADANAWA	126.4	298.4	307.4
	ENMORE FRONT	172.1	278.9	270.9	10	GREAT FALLS	222	364.4	369.7
	KAIRUNI*	116.4	194.7	228.5		WISMAR*	131.6	267.9	291.1

NOTE = The normals for various stations were calculated by the use of rainfall data from the year 1981- 2010 (30 years).
* = Rainfall Averages (less than 30 years of data).

Table 5: Average rain days for the months April – June for selected

Station Name	April	May	June
Georgetown Botanical Gardens	11 days	20 days	22 days
Timehri Meteorological Station	13 days	21 days	22 days
Ogle	11 days	19 days	20 days
Lethem	8 days	18 days	20 days
Anna Regina	6 days	15 days	16 days
New Amsterdam	12 days	18 days	20 days

NOTE: Rain day = More than 1 mm of rainfall within a 24 hrs period.

Table 6: SPRING TIDE TABLE FOR APRIL, 2016

	HIGH WATER ≥ 2.74(m)	
Date	**Time**	**Height(m)**
2016/04/04	1:30	2.75
	13:56	2.89
2016/04/05	02:15	2.98
	14:45	3.07
2016/04/06	02:58	3.17
	15:53	3.21
2016/04/07	03:40	3.30
	16:21	3.27
2016/04/08	04:21	3.36
	17:09	3.26
2016/04/09	05:03	3.32
	17:56	3.17
2016/04/10	05:45	3.21
	18:45	3.01
2016/04/11	06:29	3.03
	19:38	2.81
2016/04/12	07:18	2.80
2016/04/18	02:06	2.78
2016/04/19	02:42	2.86
2016/04/20	03:14	2.91
	15:15	2.78
2016/04/21	03:43	2.93
	15:49	2.82
2016/04/22	04:12	2.92
	16:22	2.84
2016/03/23	04:39	2.89
	16:59	2.83
2016/04/24	05:07	2.84
	17:30	2.79
2016/04/25	05:36	2.76

Spring Tides Tables are provided by the Maritime Administration Department

 New moon 7th 07:23  First quarter 13th 11:59  Full moon 22nd 01:23  Last Quarter 29th 23:28

LUNAR CALENDAR FOR APRIL, 2016

Agricultural Review for March, 2016

Generally, Dry conditions were experienced for the month of March 2016 in most regions of Guyana. The issue of insufficient water for irrigation purposes continues to be a problem due to below normal rainfall recorded in most areas. Farming communities throughout Guyana are being affected by the prolonged dry spell. On a recent visit to Region 9 it has been revealed that the region has seen a decrease in agricultural production as most water sources (wells, creeks, rivers etc.,) within the region currently ranges between dry and extremely low. Crop farms are reported to be suffering from water stress. The livestock sector of the region has been exposed to a massive deterioration of pasture and range conditions, and the cattle industry has lost a great amount of cattle to dehydration and starvation. Further, farmers within the Essequibo area are in distress as crops are continually being affected by saline intrusion and as a direct result there has been a drop in crop production and failure.

Fig 10: The effects of the prolonged dry spell on cattle in Karasabai, Region 9.

Fig 11: Flash fire witnessed about 25 miles into trial on the way to Region 9.

Fig 12: Carcass of cow observed in the South Savannahs Region 9.

Fig 13: Extremely low Water level of the Rupununi River, Region 9

Fig 14: A Dry Lake in the Manari area, Region 9.

Fig 15: A dry earthen reservoir located in the Pirara area Region 9.

Farmer's Note for April, 2016

During the month of April generally dry conditions are expected over most parts of the country. Thus, farmers are advised to take the following precautions;

- Provide shade for plants that cannot withstand high temperatures and excess sunlight.
- Shade should be provided for animals, so as to minimize heat stress.
- Mulch crops, so that the soil moisture can be retained to maintain healthy crop growth.
- Transplanting should be done early in the morning and late in the afternoon.
- Farmers should take steps to conserve and prevent any wastage of irrigation water.
- Plant warm season vegetables that can withstand the dry periods such as; Pepper, Pigeon peas, Ochro, Cassava, Corn, and Pineapples etc.
- When debeaking and administering any form of drugs to your animals, it should be done early in the morning to prevent heat stress which aids in decreasing the mortality rate.
- Effective pasture management should be executed during this period.
- Farmers must ensure that water used for irrigation purposes is not saline (salty).

Crop of the Month: *Pigeon pea* | *April,2016*

Common Name:	*Pigeon pea*
Scientific Name:	*Cajanus cajan*
Temperature:	18 ^{0}C- 38 ^{0}C
Soil pH:	5.0-7.0

Introduction

Pigeon peas, or Cajanus cajan, are a perennial shrub in the family Fabaceae grown from edible pods and seeds. It is a highly branched shrub with a woody base, slender stems and trifoliate leaves. The plant leaflets are oblong and the leaves are alternately and spirally arranged on the stems. The plant usually produces yellow flowers. The seed pods are flat, straight or sickle shaped and measure 5-9 cm in length. Each pod can contain between 2 and 9 seeds. Pigeon pea can reach 1.6-13.1 feet in height and is usually grown for a year.

Rainfall and Temperature Requirements

Pigeon peas are widely cultivated in all tropical and sub-tropical regions of the world. This legume crop is rain fed in the semiarid tropics such as Indian, Eastern Africa and Central America. The crop is suited for multiple or rotational cropping system.

Traditionally, this crop can be used to produce fertilizers by nitrogen fixation during the dry months, but it was found that the crop is drought resistant, so it can be grown in areas with less than 650 mm of rainfall annually, when maize may fail in drought prone areas.

Planting

Pigeon peas are propagated directly from seeds, which should be sown in a prepared seed bed. Seeds should be planted to a depth of 1-4 inches leaving 12-20 inches between plants and 60 inches between rows. Higher seeding rates should be used if the plant is being grown for use as a green manure.

Health Benefits of Pigeon peas

- Pigeon peas are a great source of Chlorine, Calcium, Iron, Magnesium, Phosphorus, Potassium, Sodium, Zinc, Copper, Manganese, and Selenium. The daily value of pigeon pea is 100 grams of the food item.
- Pigeon Peas assist in curing cough, gas problems, poisoning effect, acidity, and stomach pain. It is just a well-balanced human food, and helps to quell the swelling of internal organs. Whenever combined with water it helps with eliminating the intoxicating effects.

Recommended Varieties

- Bahar
- Pusa
- Sweta
- B-517

Fun Facts About Pigeon Peas

- A fine paste made from pigeon peas is extremely beneficial in treating the bald patches. The paste ought to be utilized frequently to get rapid effects.
- The leaves and also the pigeon peas, whenever grinded into a paste and slightly warmed it can be applied on the breasts, creating a smooth flow of milk, when obstructions are noticed.

Harvesting/Storage

Pigeon peas are commonly harvested by hand. Machine harvesting by combine is possible if a variety is grown where pods ripen uniformly. The plant is cut at the ground when the majority of pods have reached maturity. The plants are air dried and then threshed to remove the seeds.

Fertilizer Recommendation

A group of bacteria called Rhizobium live well with many legumes. This is an advantage to produce its own nitrogen, from the soil air. The bacteria are stored in the roots of the plant as a tiny node and cause no harm to the crop. To apply, moisten the seed with a small amount of milk or water and stir in the inoculant until seeds are coated. Do not inoculate the seed until you are ready to sow it and do not leave the inoculated seed in the sun. The crop is sensitive to direct contact with fertilizers. It is best to place fertilizer in approximately 2-4 inches on the side of furrows. This allows shallow roots to access needed nutrients without direct contact.

THE HYDROMETERORLOGICAL SERVICE OF GUYANA

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El Niño Update

ENSO Alert System Status: El Niño Advisory

- **A strong El Niño is present and is weakening.***
- Positive equatorial sea surface temperature (SST) anomalies continue across most of the Pacific Ocean.
- A transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with close to a 50% chance for La Niña conditions to develop by the fall.

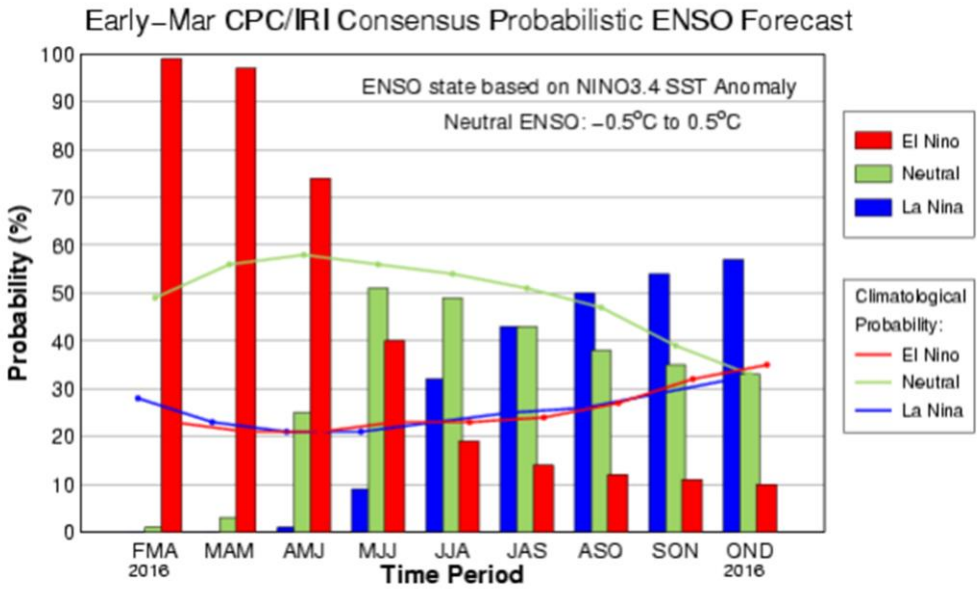

Figure 11: CPC/IRI Early-Month Consensus ENSO Forecast Probabilities

El Niño Facts

- El Niño is associated with a drier wet season.
- If El Niño manifests, less water will be stored during the wet season.
- By consequence, less water would be available for use in the dry season.

CONSERVE WATER!