Issue: 50
March, 2017

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 Moderately Wet (MW) for the month of February, 2017 with an average of 259.1 mm of rainfall with 15 rain days.
- The highest one day rainfall was recorded in Good Hope, Region 4 with a value of 175.2 mm of rainfall on February 22, 2017.
- Regional Classification for the month showed that Region 4 recorded the highest mean rainfall of 197.6 mm with 13 rain days.
- Lethem, Region 9 recorded the highest daily temperature of 34.5 ^{0}C on February 19, 2017.
- Timehri, Region 4 recorded the lowest daily temperature of 19.0^{0}C on February 12, 2017.
- Below-normal to Near-normal rainfall conditions predicted for March through May, 2017.
- Above-normal to Near-normal temperature conditions predicted for March through May, 2017.
- ENSO-neutral conditions are present.




Rainfall Overview for February, 2017

Guyana was classified as Moderately Wet (MW) for the month of February, with a monthly average rainfall of 155.4 mm across the country with 13 rain days. The highest monthly rainfall total was recorded at Marias Lodge, Region 2 with a total of 253.1 mm of rainfall and 13 rain days, while lowest monthly rainfall total was recorded at Deer Creek, Region 9 with a total of 20.3 mm of rainfall with 3 rain days. The highest one day rainfall total was recorded at Good Hope, Region 4 with a value 175.2 mm of rainfall on February 22, 2017. Most of the stations recorded above normal rainfall conditions, stations in Region 1, and 2 recorded rainfall totals below their long-Term Averages (Figure 1).

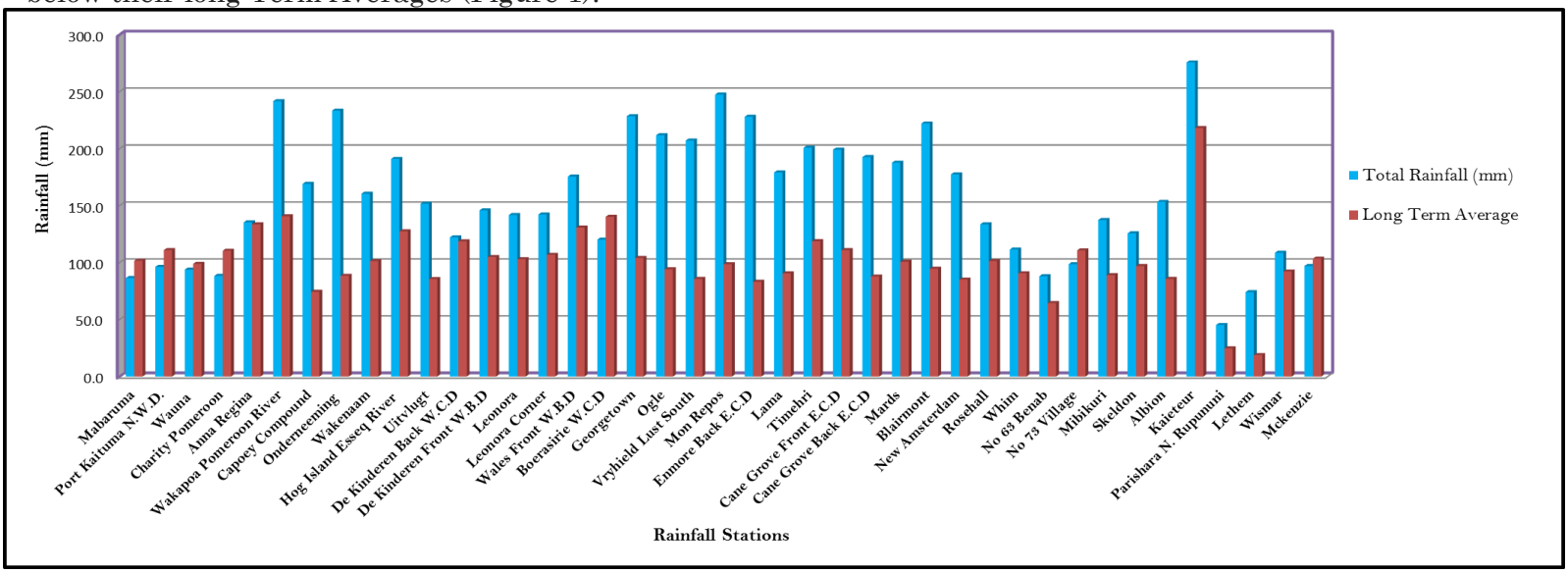

Figure1: Comparison of the accumulated rainfall and the long-term averages for selected stations for February, 2017

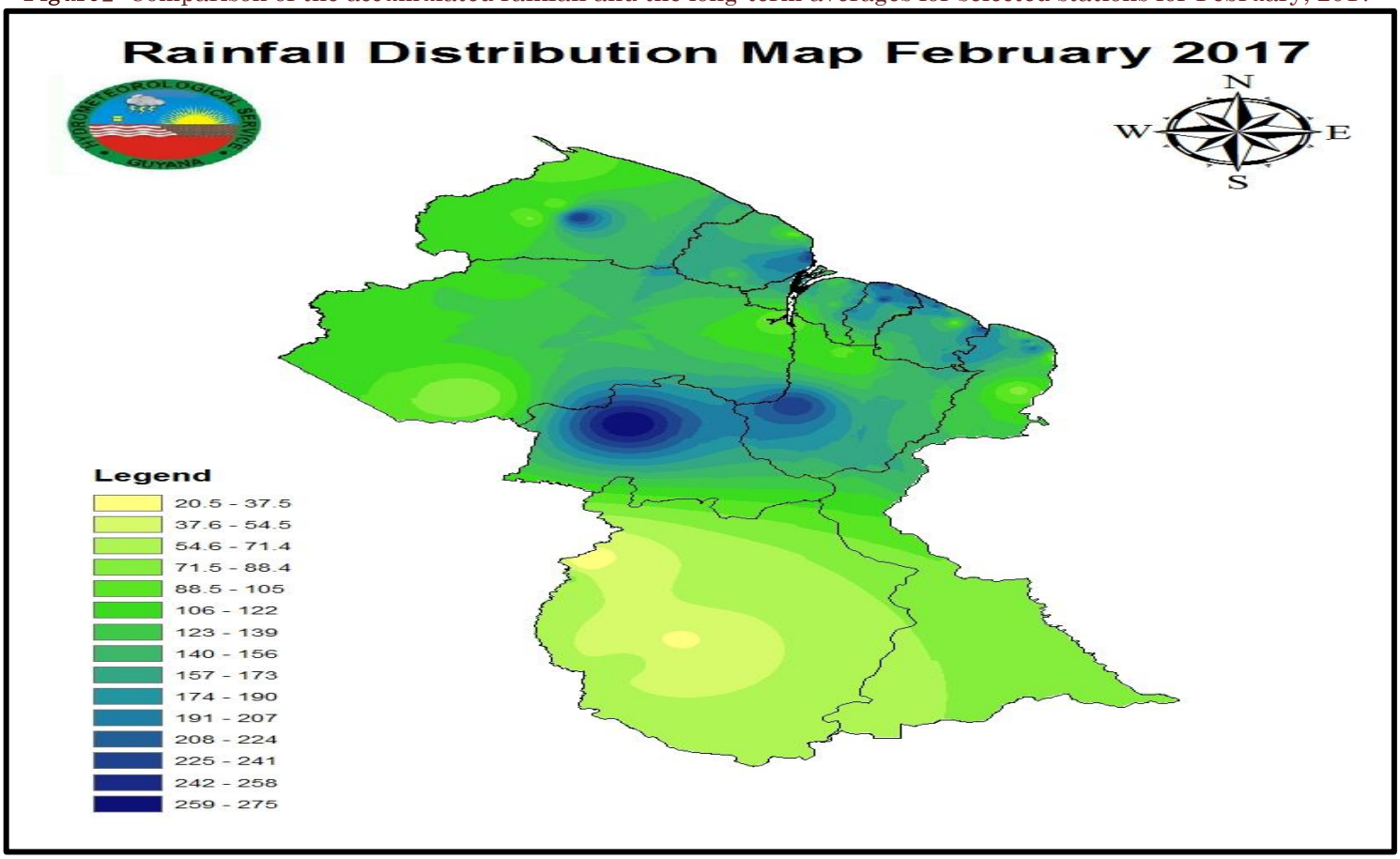

Figure 2: Rainfall Distribution for February, 2017

Table 1: Classification of Regional Average Rainfall Data for February, 2017

Regions	Regional Average (mm)	Average Rain days	Classification	Remarks
1	98.1	13 days	Moderately Dry (MD)	Matthew's Ridge recorded 115.4 mm of rainfall with 13 rain days.
2	170.1	13 days	Moderately Wet (MW)	Maria's Lodge recorded 253.1 mm of rainfall with 13 rain days.
3	154.1	15 days	Moderately Wet (MW)	Hauge Back recorded 195.0 mm of rainfall with 10 rain days.
4	197.6	13 days	Moderately Wet (MW)	Mon repos recorded 247.5 mm of rainfall with 14 rain days.
5	171.6	11 days	Moderately Wet (MW)	Blairmont recorded 221.1 mm of rainfall with 12 rain days.
6	134.2	10 days	Moderately Dry (MD)	North Yakusari recorded 228.7 mm of rainfall with 12 rain days.
7	95.2	16 days	Moderately Dry (MD)	Imbaimadai recorded 113.1 mm of rainfall with 15 rain days.
8	275.7	23 days	Very Wet (VW)	Kaieteur recorded 275.7 mm rainfall with 23 rain days.
9	54.2	6 days	Dry (D)	Annai Rupunni recorded 91.7 mm rainfall with 5 rain days.
10	139.0	16 days	Moderately Dry (MD)	58 miles Mabura Road recorded 236.7 mm of rainfall with 19 rain days.

Sunshine Hours Summary for February, 2017

Lethem, Region 9 recorded the highest monthly mean sunshine hours of 6.7 hours. The highest one day sunshine of 10.9 hours was recorded at three synoptic stations, Lethem, Region 9 on February 12, along with Georgetown, Region 4 and Mabaruma, Region 1, on February 13, 2017. Timehri, Region 4 recorded the lowest mean sunshine hours of 5.0 hours. Most of the stations recorded mean sunshine hours below their long- term averages (figure 3).

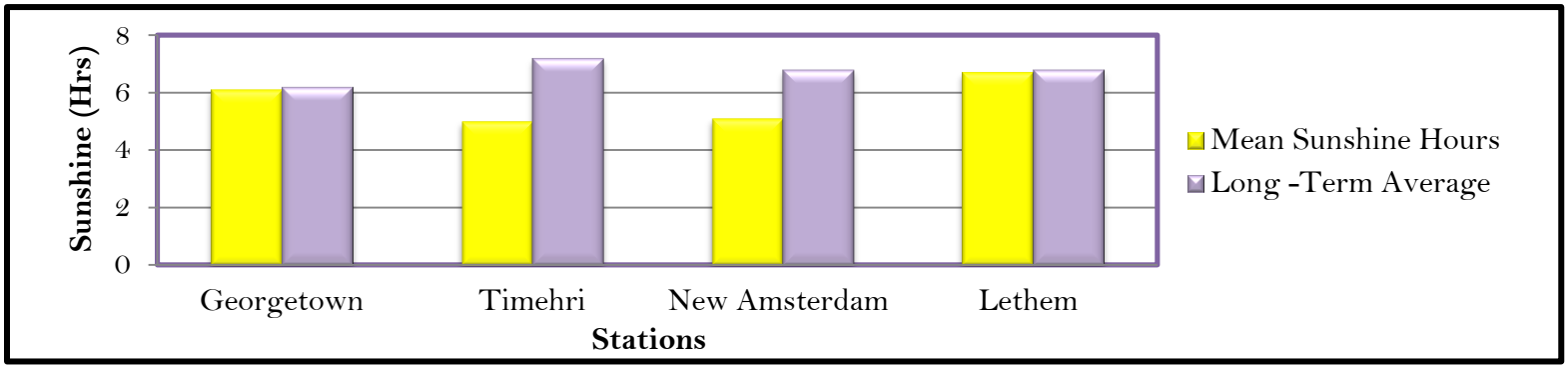

Figure 3: Comparison of the mean sunshine hours and the long-term averages for selected stations for February, 2017

Temperature Overview for February, 2017

For the month of February, the highest one day temperature was recorded at Lethem, Region 9 with a value of 34.5^{0}C on February 19, 2017. Lethem also recorded the highest mean maximum temperature of 32.6^{0}C. While Georgetown, Region 4 recorded the highest one day minimum temperature of 25.6^{0}C on February 13, 2017 along with the highest mean minimum temperature of 24.0^{0}C .Timehri, Region 4 recorded the lowest daily temperature of 19.0^{0}C on February 12, 2017 (Figure 4 & 5).

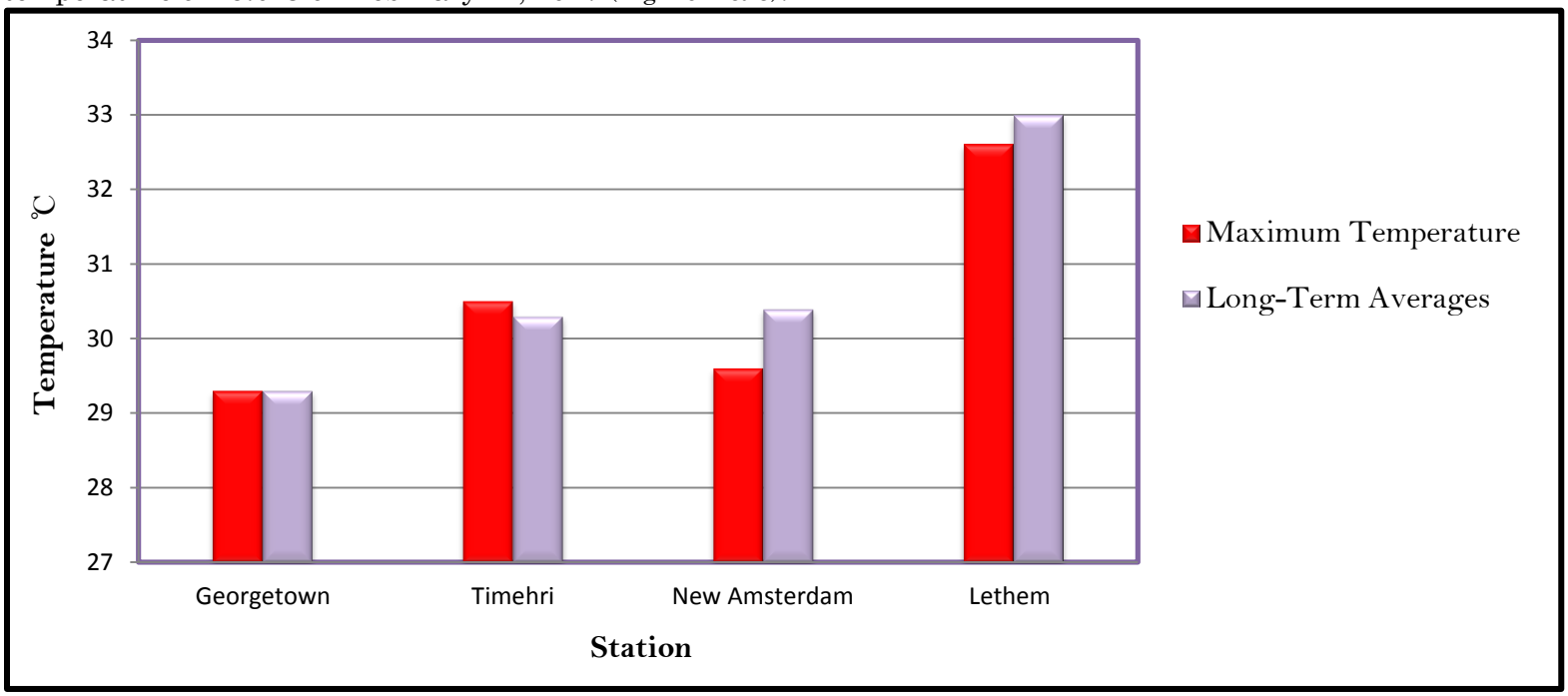

Figure 4: Comparison of the long-term averages and mean maximum temperatures for selected stations for February, 2017.

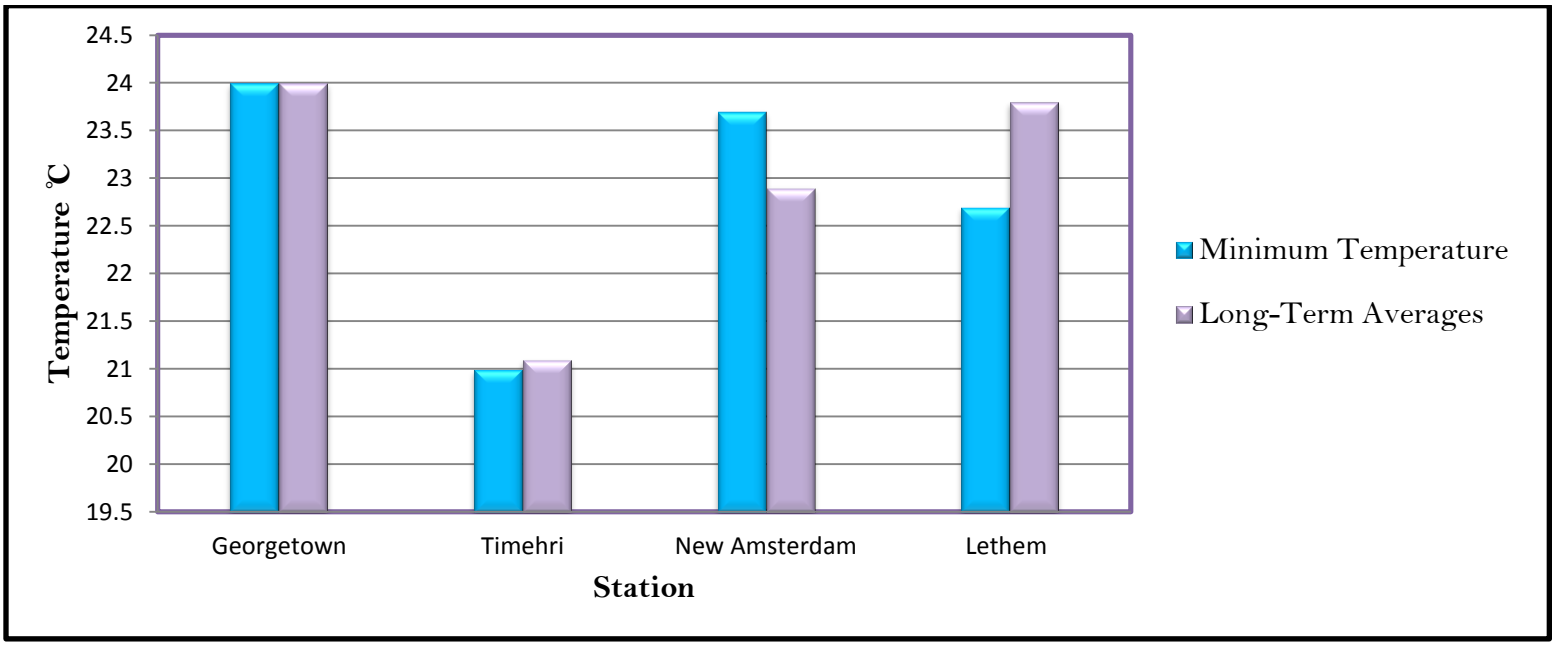

Figure 5: Comparison of the long-term averages and mean minimum temperatures for selected stations for February, 2017.

Comparison of Evapotranspiration (ET_O) Totals for selected stations, February 2017

Lethem, Region 9 recorded the highest average daily evapotranspiration of 11.43 mm along with the highest one day evapotranspiration of 14.49 mm on February 15, 2017. Lethem, Region 9 also recorded evapotranspiration rates above Georgetown and Timehri, Region 4 throughout the month of February. Timehri, Region 4 recorded the lowest daily average evapotranspiration of 5.09 mm and the lowest one day evapotranspiration with a value of 1.09 mm on February 22, 2017. A comparison can be seen in figure 6.

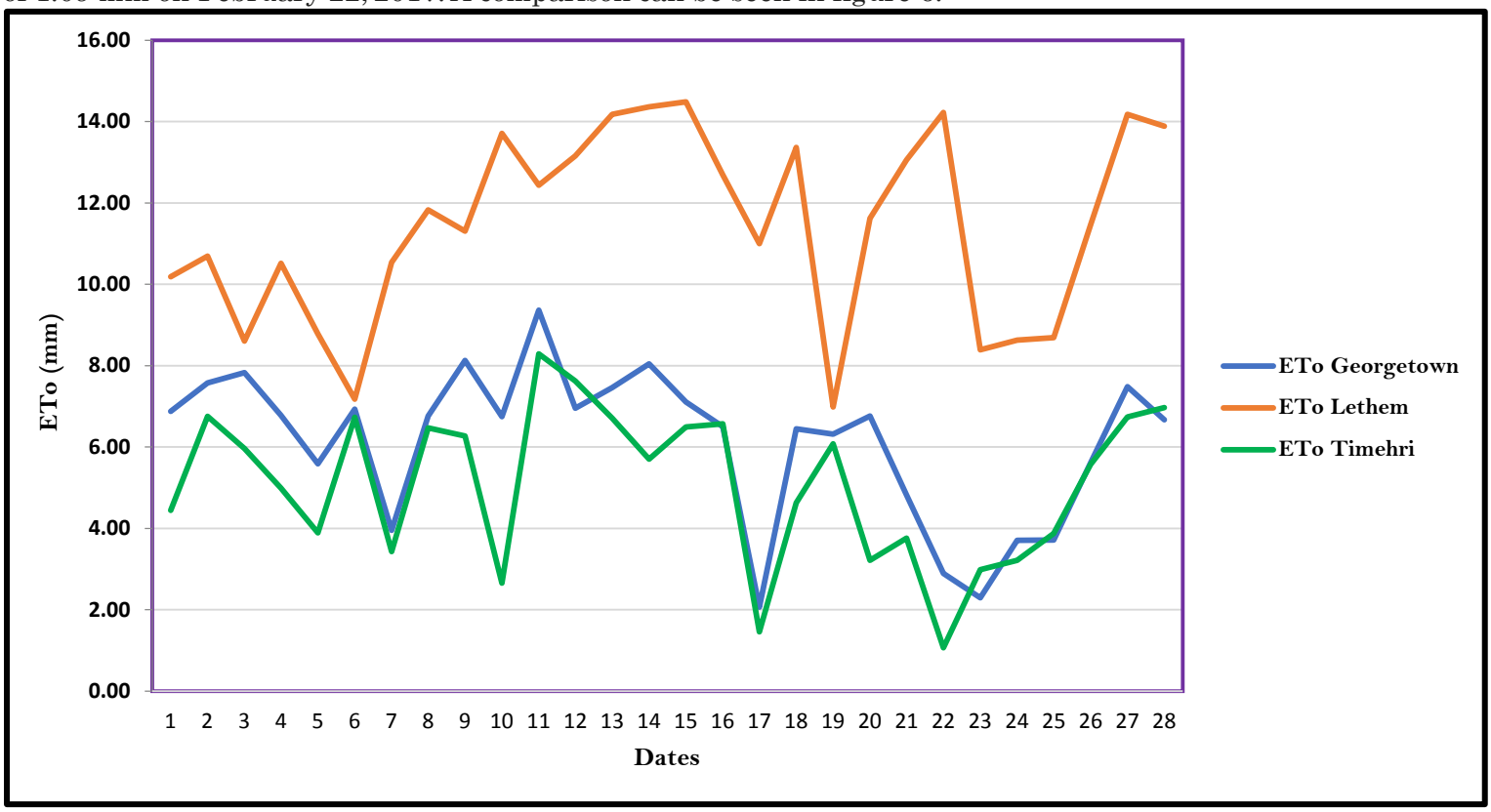

Figure 6: Comparison of the Reference Evapotranspiration of selected stations for February, 2017.

Note: The calculated reference 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	3 Months SPI Value (December, January, February)
Georgetown	3.5
Uitvlugt	3.1
Wales	3.6
Enmore	3.8
Timehri	3.5
Rose Hall	3.9
Albion	4.0
Skeldon	1.5
Blairmont	3.8

Table 3: The Standardized Precipitation Index Classification

SPI Values	Categories
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

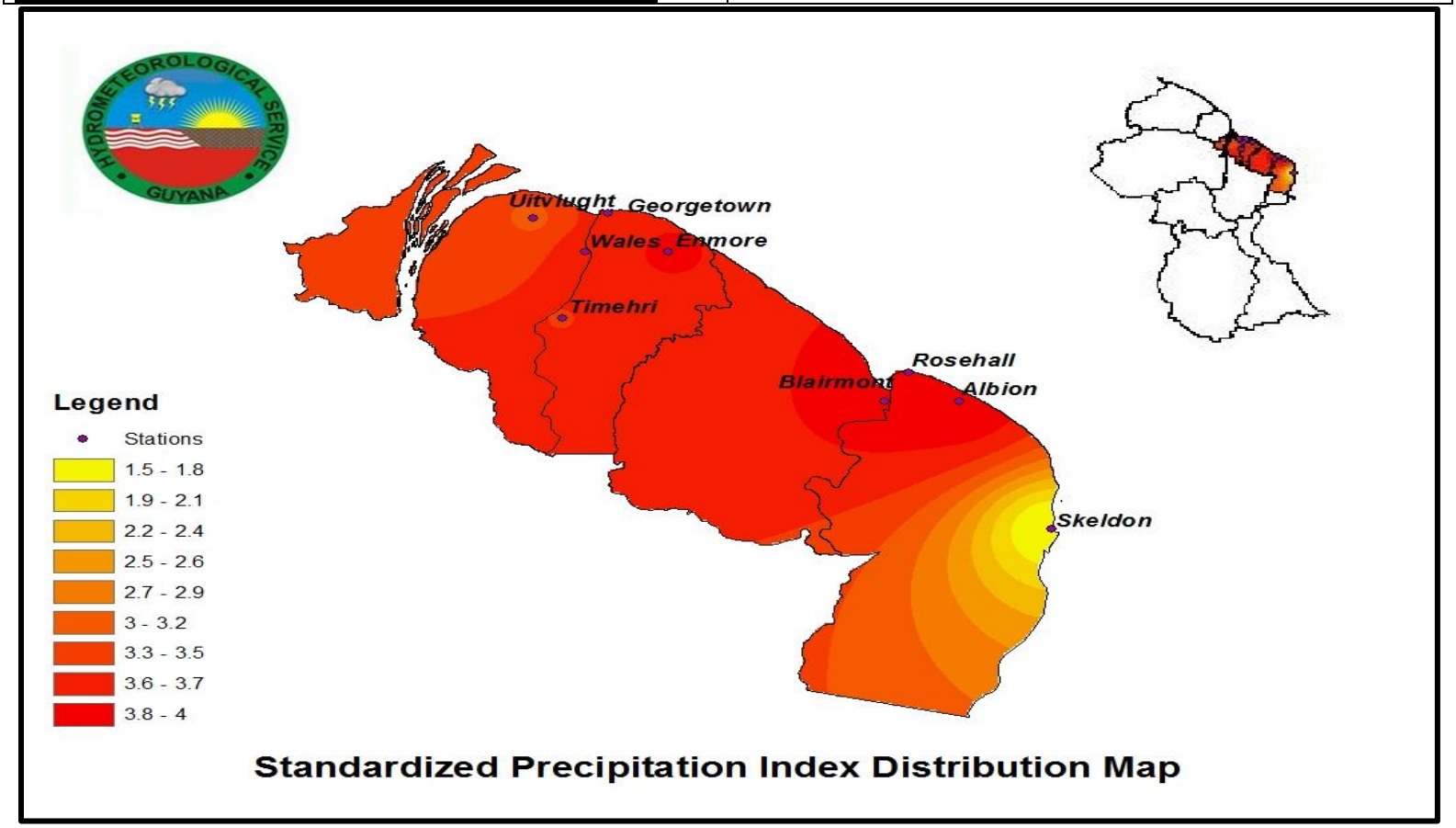

Figure 7: The Standardized Precipitation Index for selected stations for December, 2016 through February, 2017.

Note: The Standardized Precipitation Index (SPI) 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-month, 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. Tables 2 and 3 above show the 3-month generated SPI values and categories for stations along the Coastal Plain of Guyana. An interpolated map of these SPI values can be seen in Fig.7 .The SPI is based entirely on monthly precipitation accumulations and its values can be compared across different climatic and geographic regions. A drought event is defined when the SPI is continuously negative and reaches a value of -1.0 or less, and continues until the SPI becomes positive.

Seasonal Outlook for Guyana and the Caribbean for March -May, 2017

Climatologically coastal Guyana has transition out of its Secondary Wet season (the short wet season) of 2016-2017 into its Secondary Dry season of 2017 (the short dry season). Latest forecast based on statistical models indicates that little can be said at this time other than that we have a 70% confidence it will be wetter or similar to usual for this period.

With this, Coastal Guyana will experience generally dry conditions over most parts of the country up until ending of April, 2017. There are still indications that some heavy downpours will be observed, with a real potential for flash floods and flooding. Heat wise, initially it will still feel hot, with mostly near-normal temperatures to above normal, but those temperatures may cool down to more comfortable values.

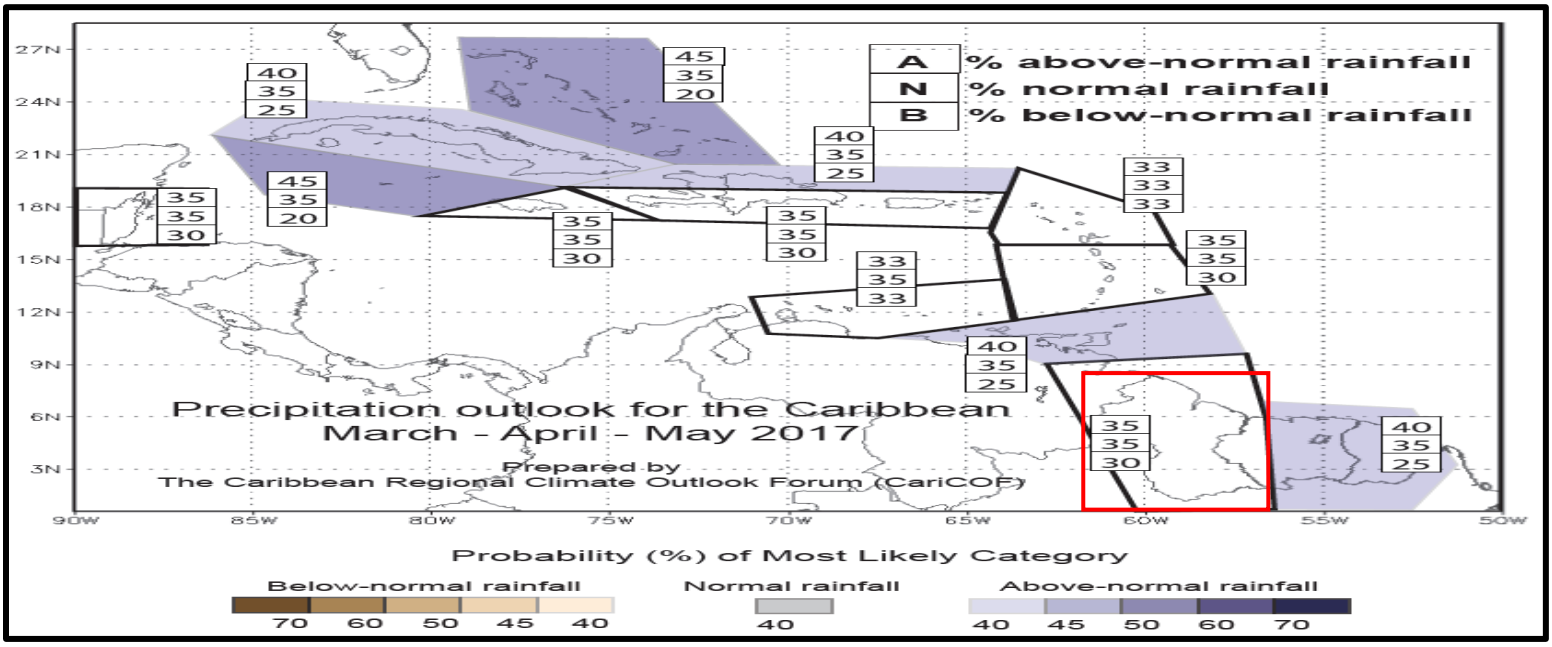

Figure 8: Precipitation forecast map for March - May, 2017 showing the probalities of above Normal (A), Normal (N) and Below Normal (B) rainfall for Guyana within the context of the Caribbean.

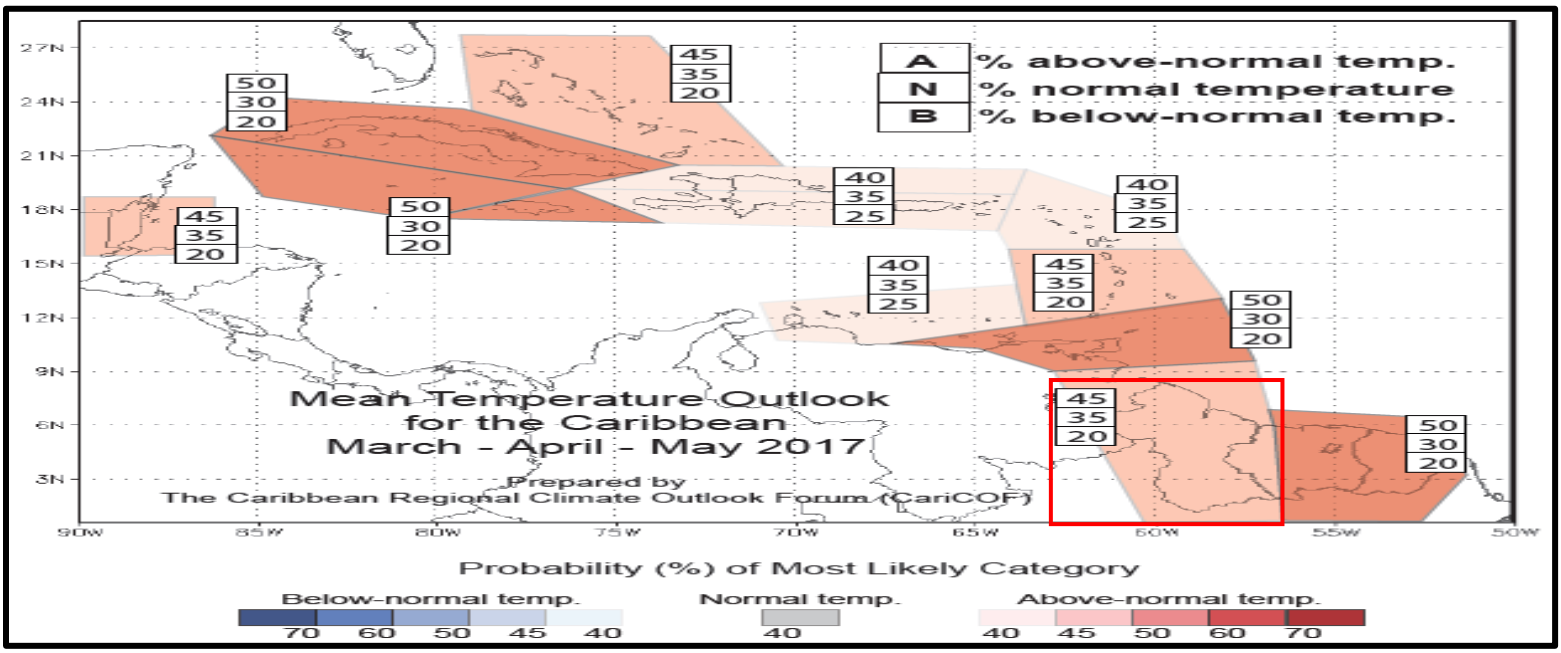

Figure 9: Maximum temperature forecast map for March - May, 2017 showing the probabilities of Above-Normal (A), Near-Normal (N) and Below-Normal (B) temperature for Guyana within the context of the Caribbean.

Table 4: Historical Average rainfall for selected rainfall stations

Regions	Station Names	March	April	May	Regions	Station Names	March	April	May
1	MABARUMA *	94.1	144.9	327	5	BLAIRMONT	95	160.7	257.5
	WAUNA	76.5	108.4	223.1		MARDS	116.1	142.5	241.7
	PORT KAITUMA	82.8	108.3	251.0	6	ALBION	93.5	144.8	225.9
2	ANNA REGINA*	75.3	159.6	333.2		SKELDON	105.5	147.8	250.4
	CHARITY	122.5	134.9	295.6		CRABWOOD CREEK*	50.5	82.5	182
	Mc NABB	109.3	130.8	278.2		ROSE HALL	102.5	169.1	275.2
	WAKAPOW	99.3	150.3	321.5		NIGG 58	91.2	156.1	238.4
	ONDERNEEMING	58.1	141.6	264.4		ALBION 33	77.4	142.1	214
3	BOERSARIE	114	194	382.6		#73 VILLAGE	97.5	154.4	255.3
	DeKENDEREN B	103.1	188.8	346		# 54 VILLAGE*	81.5	147.9	206.3
	DeKENDEREN F	107.5	185.9	345.2		ANKERVILLE	82.3	171.6	247.7
	LEONORA F	95.6	179.4	309		MIBIKURI	91.4	147.6	238.3
	LEONORA B	137.1	192.8	360.5		MARA LAND DEV. SCHEME*	90.1	147.1	221.6
	WALES	117.6	164.9	343		NEW AMSTERDAM	96.1	159.7	259.8
	UITVLUGT B	119.4	181.8	335.4	7	APAIKWA	208.6	266.3	342.9
	La BAGATELLE LEGUAN*	71.8	131.4	234.2		MAZARUNI	112.7	147.6	294.4
4	BOTANIC GARDENS	111.64	153.4	277.4		BARTICA DEM. STATION*	127.7	150.9	270.3
	TIMEHRI	119.8	188.9	318.4		JAWALLA	113.9	176.1	295.5
	CANE GROVE B	73.6	116.5	206.9	8	KAIETEUR FALLS *	162.4	****	610.1
	CANE GROVE F	110.2	153.2	234.7	9	LETHEM	18.9	89	305.7
	L.B.I FRONT	86	140.8	247.6		KARASABAI	5.5	35.4	131.4
	OGLE FRONT	93.9	134.2	224.9		DADANAWA	42.2	126.4	298.4
	ENMORE FRONT	106.6	172.1	278.9	10	GREAT FALLS	154.6	222	364.4
	KAIRUNI*	72.1	116.4	194.7		WISMAR*	94.4	131.6	267.9

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 March-May, 2017 for selected stations

Station Name	March	April	May
Georgetown Botanical Gardens	10 days	11 days	20 days
Timehri Meteorological Station	11 days	13 days	21 days
Ogle	9 days	11 days	19 days
Lethem	3 days	8 days	18 days
Anna Regina	7 days	6 days	15 days
New Amsterdam	10 days	12 days	18 days

NOTE: Rain day = A 24 hr period with at least 1 mm of rainfall

Table 6: HIGH TIDE* TABLE FOR March, 2017

Dates	HIGH TIDE ≥ 2.74(m)	
	Time	Height(m)
2017/03/01	5:32	3.14
	18:22	3.07
	06:20	3.07
2017/03/02	19:09	2.93
2017/03/03	07:01	2.94
2017/03/04	07:50	2.77
	02:05	2.75
2017/03/09	13:52	2.81
	02:51	2.90
2017/03/10	14:40	2.93
	03:31	3.01
2017/03/11	15:23	3.01
	04:42	3.07
2017/03/13	16:39	3.05
	05:14	3.02
2017/03/14	17:15	3.01
	05:43	2.94
2017/03/15	17:48	2.92
	06:11	2.82
2017/03/16	18:22	2.80
2017/03/25	14:22	2.87
	02:48	2.91
2017/03/26	15:14	3.03
	03:25	3.08
2017/03/27	15:27	3.14
	04:03	3.20
2017/03/28	16:40	3.20
	04:40	3.26
2017/03/29	17:24	3.19
	05:18	3.24
2017/03/30	18:09	3.10
	05:59	3.15
2017/03/31	18:57	2.95

*The term high tide refers to when tides are above or equal to 2.74 (m) above sea level

Spring Tides Tables are provided by the Maritime Administration Department

 27th New moon  05th First quarter  12th Full moon  20th Last Quarter

Lunar calendar for March, 2017

Agricultural Review for February, 2017

Climatologically coastal Guyana has transition out of its Secondary Wet season (the short wet season) of 2016-2017 into its Secondary Dry season of 2017 (the short dry season).
There were no reports of significant effects caused by the weather on Agricultural production.

Farmer's Note for March, 2017

Climatologically coastal Guyana has transition out of its Secondary Wet season (the short wet season) of 2016-2017 into its Secondary Dry season of 2017 (the short dry season). Latest forecast based on statistical models indicates that little can be said at this time other than that we have a 70% confidence it will be wetter or similar to usual for this period.With this, Coastal Guyana will experience generally dry conditions over most parts of the country up until ending of April, 2017. In addition, above-normal to near-normal temperatures are forecast for most parts of the country. Hence farmers are encouraged to take heed of the advisories of their regional agriculturists or extension officers, and to be vigilant and follow the Hydromet'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:

- Use drip irrigation systems to irrigate crops while conserving water.
- Cultivate seedlings by transplanting indoor or under a shaded area- seedlings can be cultivated separately to facilitate easy transplant after a flood or event after the flood water recedes.
- Change timing of farm operations- adjust sowing and harvesting period to avoid negative effects of very dry or wet periods.
- Water Storage- 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.
- Cultivate new, resistant varieties crops- plant new crop varieties that can grow well in the dry conditions and that are not easily affected by pests and diseases.
- Cultivate shrubs and trees around fields and as part of a crop farming system- this practice assists which restoring soil fertility and at the same time creates a micro-climate to reduce high temperatures in dry periods.
- 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, decline in fish stock or irregular behavior in the fish population.

Crop Of The Month: Ochro | March, 2017

Common Name : Ochro/Okra

Scientific Name: Abelmoschus esculentus

Temperature: 3.9–32.3°C

Soil pH: 5.5-6.5

Introduction

Ochro is a member of the Malvaceae family, related to cotton, hibiscus and hollyhock. It is a tall (6 ft) annual tropical herb cultivated for its edible green seed pod (there is also a red pod variety, which turns green when cooked). It has heart shaped leaves (one species is cultivated for its edible leaves), and large, yellow, hibiscus-like flowers .It's a vegetable commonly grown vegetable in Guyana. The edible part of the ochro plant is a long slender immature pod. It is used as a cooked or steamed vegetable with a very good nutritive value. The seeds can be used to extract oil. Ochro fiber can be used in paper production.

Rainfall and Temperature Requirements

The plant should be grown in an area of high sunlight and grows best in hot temperatures. Ochro plants will grow on a wide variety of soils, which should be reasonably deep and fertile. In high rainfall areas, the soils should be well drained as plants will not withstand water logging or flooding for any considerable period.Water should be applied at a rate of 1.5 inches every 10 days is recommended in hotter areas. In cooler climates, plants require less water as it tends to cool the plants and restrict their growth, to avoid nematode, it is suggested to rotate with rice.

Insect Pests and diseases

- Gray Mold
- Soft Rot
- Bacterial Blight
- Pod Rot

Planting

Ochro is typically propagated from seed. Soaking seeds in water overnight prior to planting helps the plants to germinate. In the home garden, seeds should be sown at a depth of 2.5 cm (1 in) leaving 25–45 cm (10–18 in) between rows only after the soil has reached a temperature of 18°C (65°F). In commercial ochro production, seeds are planted in rows spaced 0.65–1.0 m (26–40 in) apart.

Health Benefits of Ochro

- Good fiber in the diet helps remove cholesterol from the body
- Aids in normalizing blood sugar levels
- Helps to keep the intestinal tract healthy decreasing the risk of some forms of cancer
- Aids in reducing atherosclerosis

Recommended Varities

- Clemson spineless
- Emerald Green Velvet
- Louisiana Green
- Santa Cruz

Fun Facts About Ochro

- Ochro probably originated somewhere around Ethiopia, and was cultivated by the ancient Egyptians by the 12th century B.C
- Ochro came to the Caribbean and the U.S. in the 1700s, probably brought by slaves from West Africa.
- The seed pods toasted and ground, used as a coffee substitute (and still is).

Harvesting/Storage

Each plant commonly produces numerous fruiting pods borne in axils along the lateral shoots Under normal growing conditions; the first pods are ready for harvest within 2 months after seeding. The plants continue to flower and set fruit over at least 3 months under favorable weather conditions, if the pods are regularly harvested. Ochro pods are ready for harvest four to six days after flowering. Typically, ochro should be harvested when the pods are 7.5 to 12.5 cm long (3 to 5 in). Due to the rapid rate of growth and development, ochro should be harvested every other day to ensure pods remain within the marketable size range. Regular picking increases yield and prevents the pods from becoming overmature. Pods with tips that bend between the fingers without breaking are undesirably tough.

Fertilizer Recommendation

A soil test should be done to determine the nutrient status of the soil. In the absence of a soil test, the following recommendations could be used as a guide; Urea - 180 kg/ha - 45% at 2 weeks after germination (4.4g/plant) - 55% at 50% fruit set (5.4g/plant) TSP - 90 kg/ha - all at two weeks after germination (4.9g/plant) MoP - 110 kg/ha - 50% at two weeks after germination (3g/plant) - 50% at fruit set (3g/plant

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El Niño and La Niña Update

ENSO Alert System Status: Final La Niña Advisory

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near-average across the central and east-central Pacific. They are above average in the eastern Pacific Ocean.
- ENSO-neutral conditions have returned and are favored to continue through at least the Northern Hemisphere spring 2017.

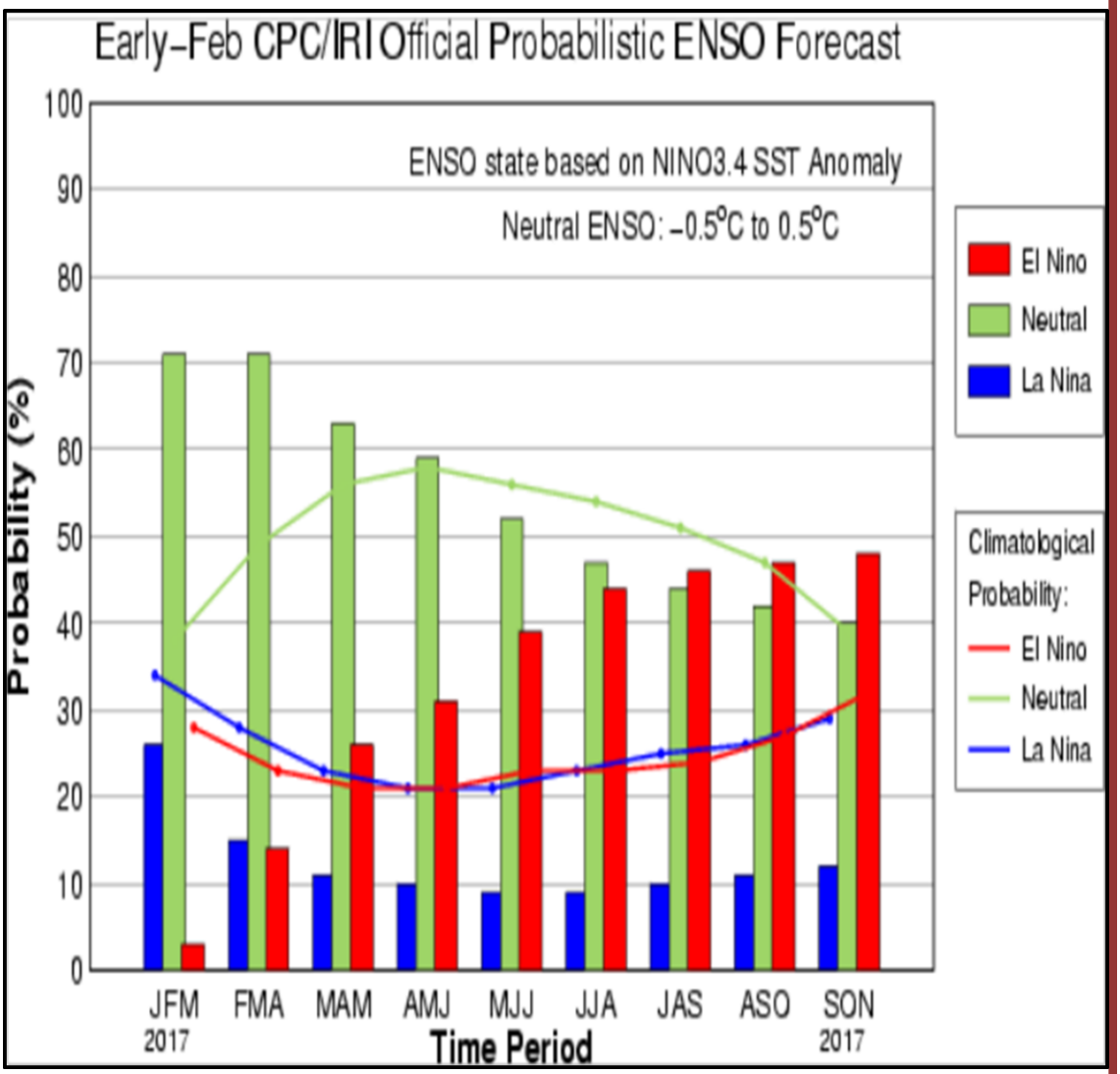

Figure 12: CPC/IRI Early-Month Consensus ENSO Forecast Probabilities