

Issue: 46  
November, 2016

# Hydrometeorological Service of Guyana

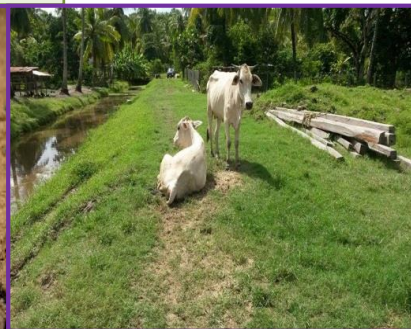
## Farmer's Monthly Weather Bulletin

*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 October, 2016.
- The highest one day rainfall total was recorded in Capoey Compound, Region 2 which recorded 110.2 mm of rainfall on September 15<sup>th</sup>, 2016.
- Regional Classification for the month showed that Region 1 recorded the highest mean rainfall total of 188.5 mm with 15 rain days.
- Lethem, Region 9 recorded the highest daily temperature of 36.8 °C on the 16<sup>th</sup> October, 2016.
- Kamarang, Region 7 recorded the lowest daily temperature of 19.2°C on October 3, 2016.
- Above Normal rainfall conditions predicted for November, 2016 through January, 2017.
- Above-normal to near-normal temperature conditions predicted for November, 2016 through January, 2017.
- La Niña is favored to increase in the coming months.



## Rainfall Overview for November, 2016

Guyana was classified as Dry (D) for the month of October, with a monthly average rainfall of 60.4 mm across the country with 5 rain days. The highest monthly rainfall total was recorded at Port kaituma (N.W.D), Region 1 which recorded 188.5 mm of rainfall and 15 rain days, while the lowest monthly rainfall total was recorded at NO 73 village, Region 6 with a total of 4.8 mm of rainfall with 2 rain days. The highest one day rainfall was recorded Capoey Compound, Region 2 with 110.2 mm on October 15<sup>th</sup>, 2016. Most of the stations recorded below normal rainfall conditions, stations in Region 1, 2, 3, 4, 5, 6, 7, 8 and 10 recorded rainfall totals above their long-averages.

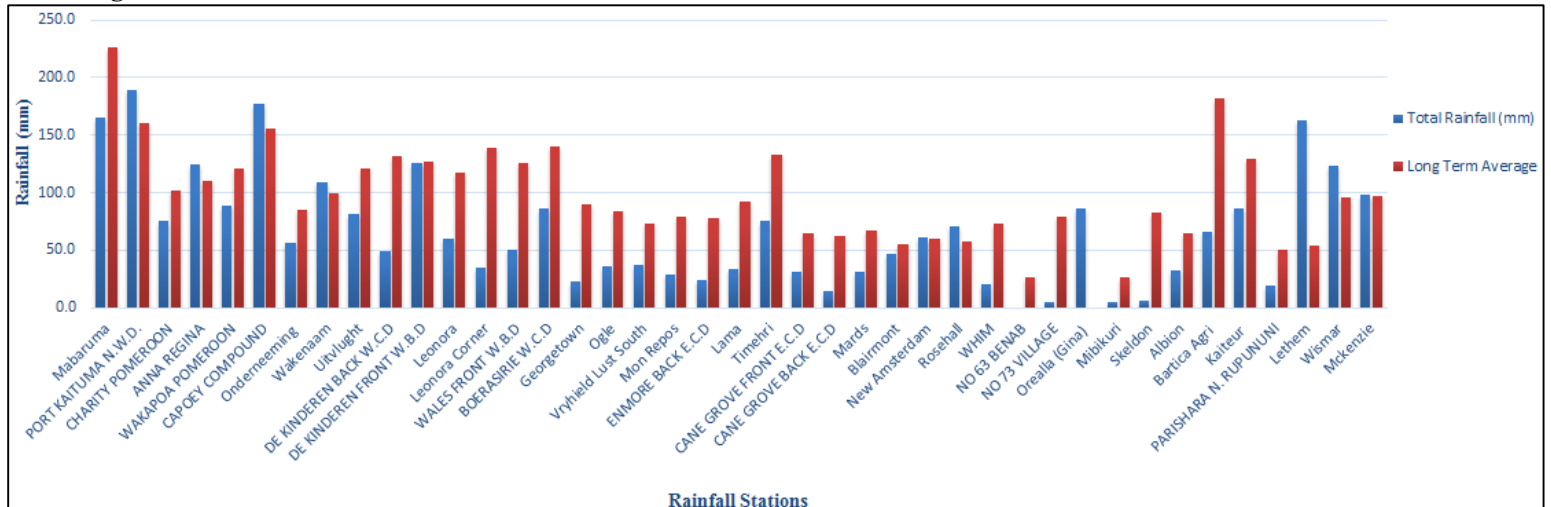


Figure1: Comparison of the accumulated rainfall and the long-term averages for selected stations for October, 2016.

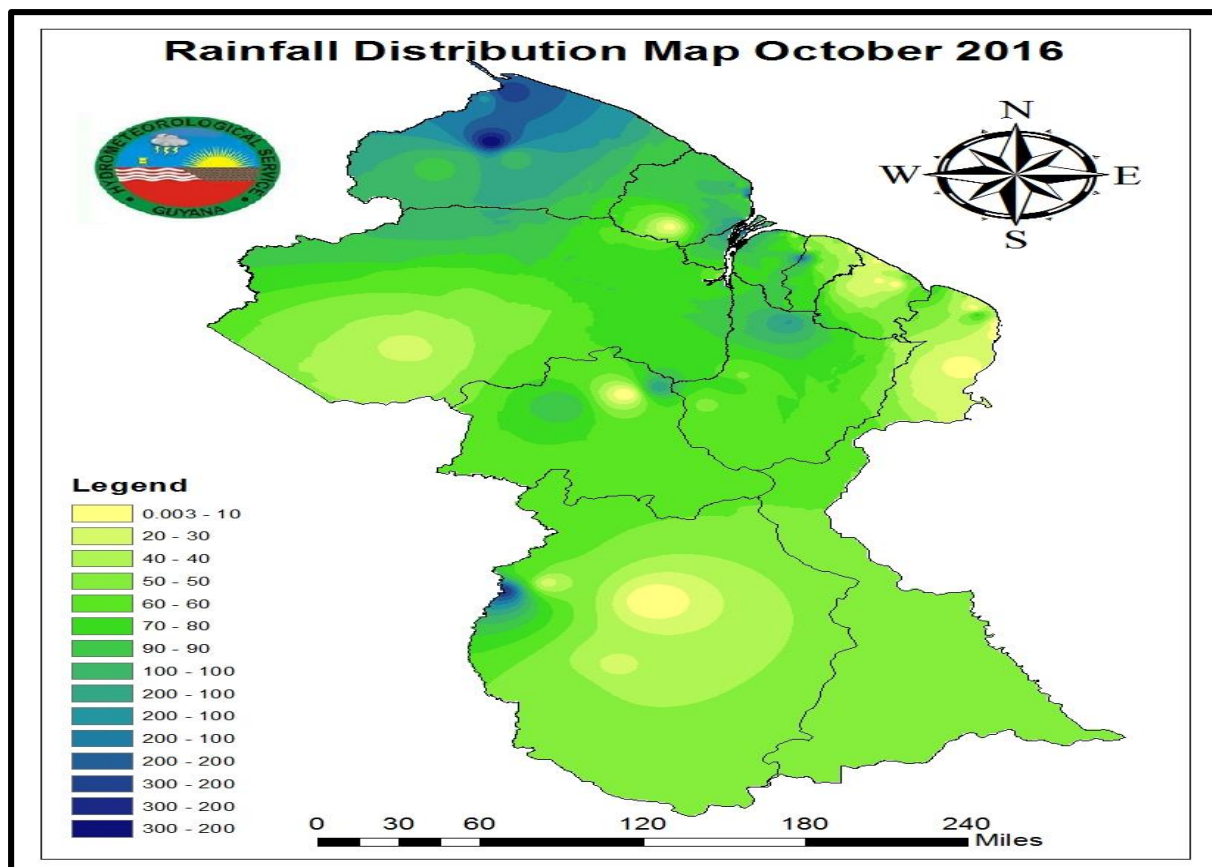


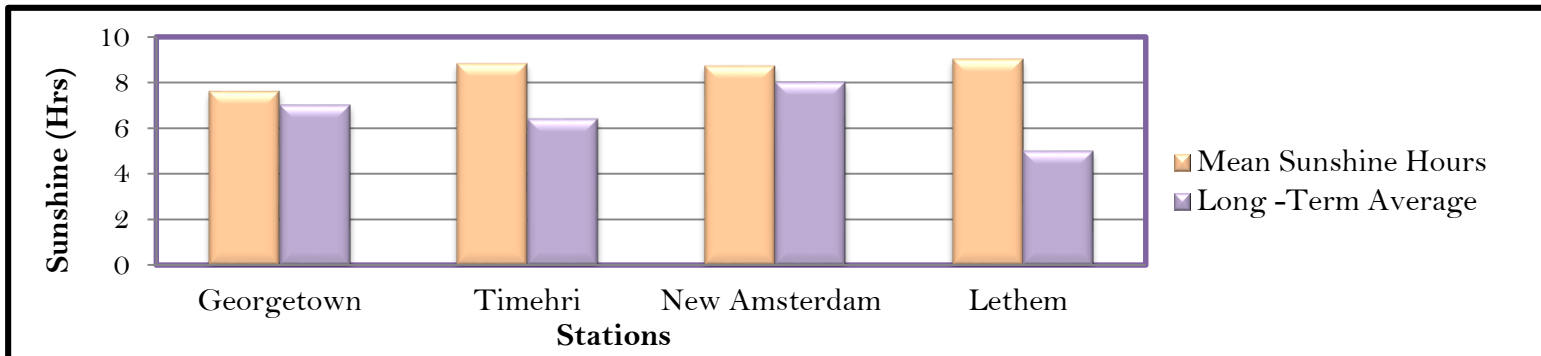
Figure 2: Rainfall Distribution for October, 2016.

**Table 1: Classification of Regional Average Rainfall Data for October, 2016**

Regions	Regional Average (mm)	Average Rain days	Classification	Remarks
1	143 mm	12 days	Moderately dry (MD)	Port Kaituma (N.W.D) recorded 188.5 mm of rainfall with 15 rain days.
2	89.6 mm	7 days	Dry (D)	Capoey lake recorded 176.8 mm of rainfall with 10 rain days.
3	82.6 mm	7 days	Dry (D)	Hog island Essequibo river recorded 148.3 mm of rainfall with 11 rain days.
4	48 mm	5 days	Very dry (VD)	Land of Canaan recorded 148.9 mm of rainfall with 7 rain days.
5	27.5	2 days	Very dry (VD)	DE Edwards recorded 66.5 mm of rainfall with 1 rain days.
6	33.3 mm	2 days	Very dry (VD)	Orealla (Gina) recorded 86.7 mm of rainfall with 5 rain days.
7	59.1	9 days	Very dry (VD)	Bartica forestry recorded 120 mm of rainfall with 14 rain days.
8	98.1	8 days	Dry (D)	Mahdia recorded 109.8 mm rainfall with 7 rain days.
9	61.4	3 days	Dry (D)	Lethem recorded 162.3 mm of rainfall with 6 rain days.
10	77.2	7 days	Dry (D)	Wismar recorded 123.1 mm of rainfall with 11 rain days.

### Sunshine Hours Summary for October, 2016

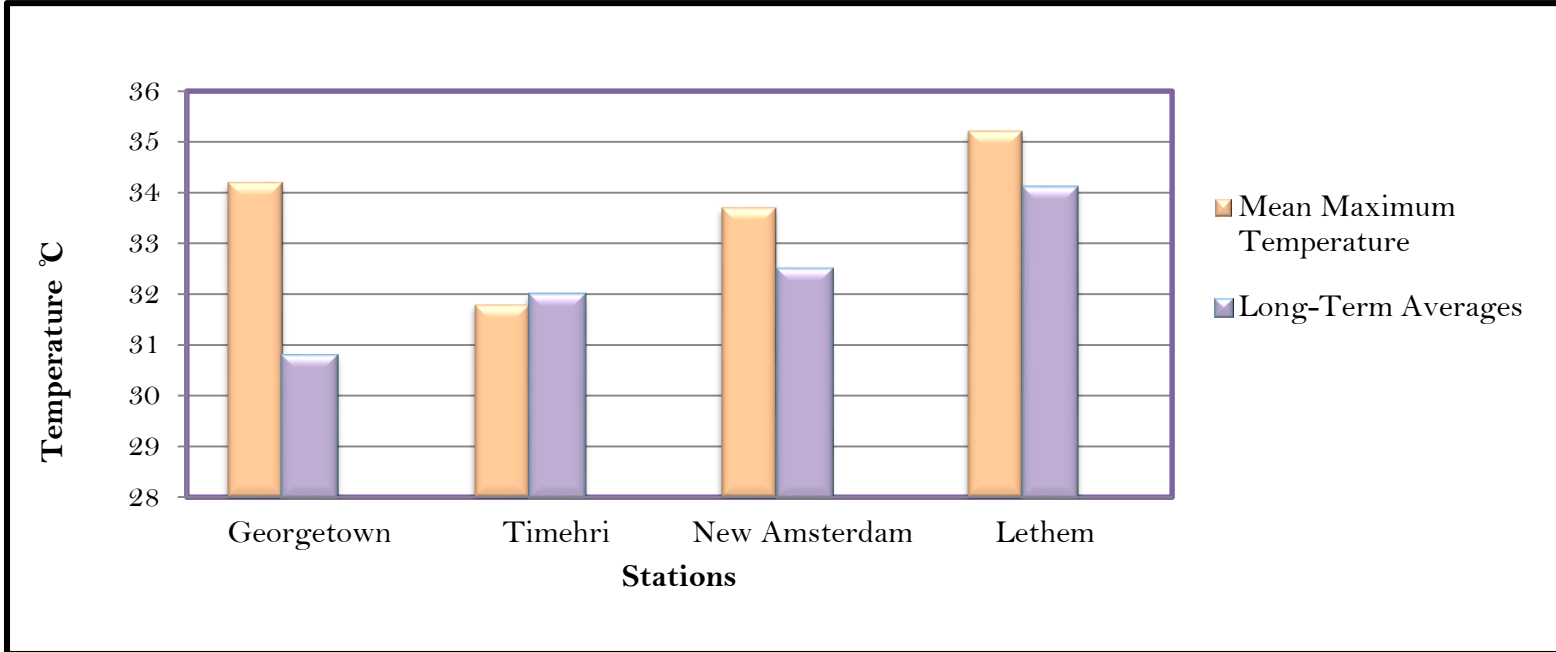
Lethem, Region 9 recorded the highest monthly mean sunshine hours with a total of 9 hours. The highest one day total of 11.5 sunshine hours was recorded on October 6<sup>th</sup> at Georgetown, Region 4. Georgetown also recorded the lowest mean sunshine hours of 7.6 hours. Most of the stations recorded mean sunshine hours above their long-term averages.



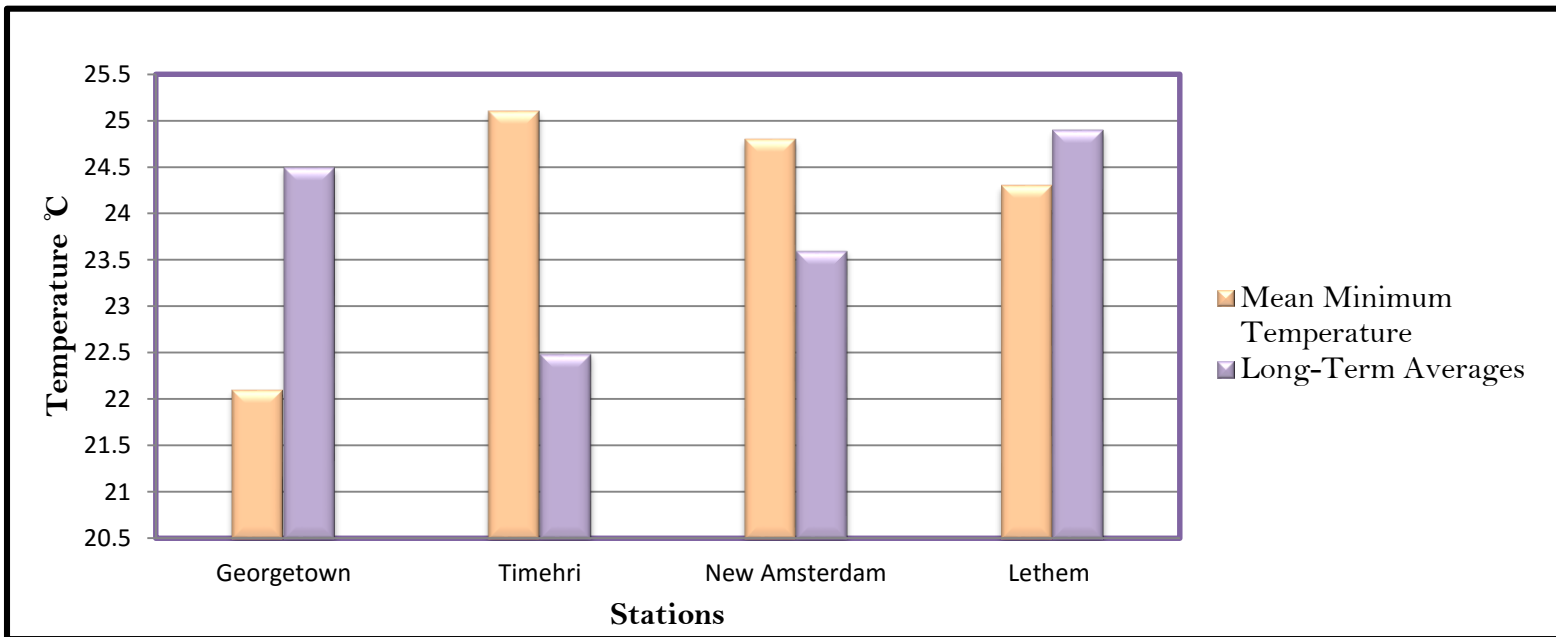
**Figure 3:** Comparison of the mean sunshine hours and the long-term averages for selected stations for October, 2016.

## Temperature Overview for October, 2016

For the month of October, the highest one day temperature was recorded at Lethem, Region 9 with a total of 36.8°C on October 16<sup>th</sup>. Lethem also recorded the highest mean maximum temperature of 35.2°C. The highest mean minimum temperature was recorded at Timehri, Region 4 with a value of 25.1°C, while Ogle, Region 4 recorded the highest one day minimum temperature of 27°C on October 10<sup>th</sup>, 2016.



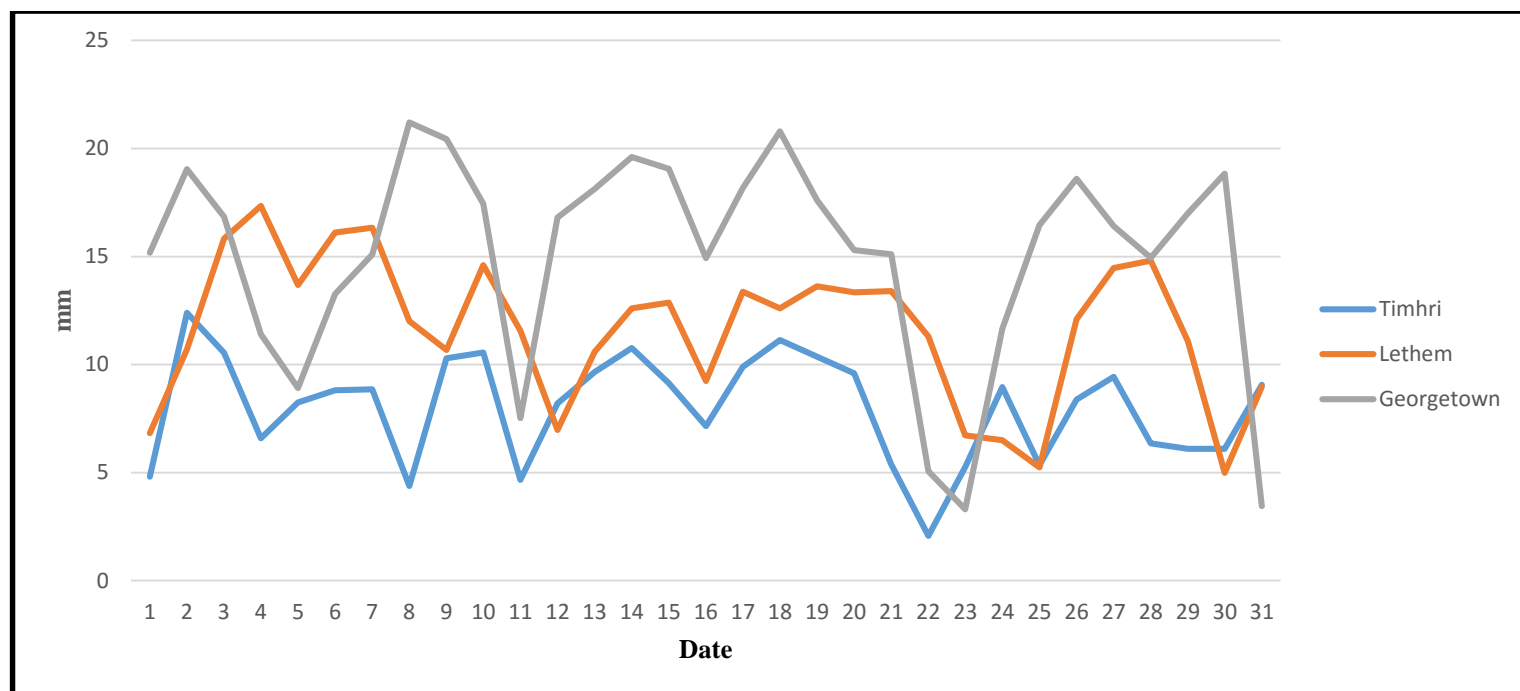
**Figure 4:** Comparison of the long-term averages and mean maximum temperatures for selected stations for October, 2016.



**Figure 5:** Comparison of the long-term averages and mean minimum temperatures for selected stations for October, 2016

## Comparison of Evapotranspiration (ET<sub>o</sub>) Totals for selected stations, October 2016

Georgetown recorded the highest average daily evapotranspiration with a total of 15.08 mm along with the highest one day evapotranspiration total of 21.20 mm on the October 8<sup>th</sup>. Timehri recorded the lowest daily average evapotranspiration total of 8.01 mm and the lowest one day evapotranspiration total of 2.06 mm on October 22<sup>nd</sup>. A comparison can be seen in figure 6 below.



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

**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

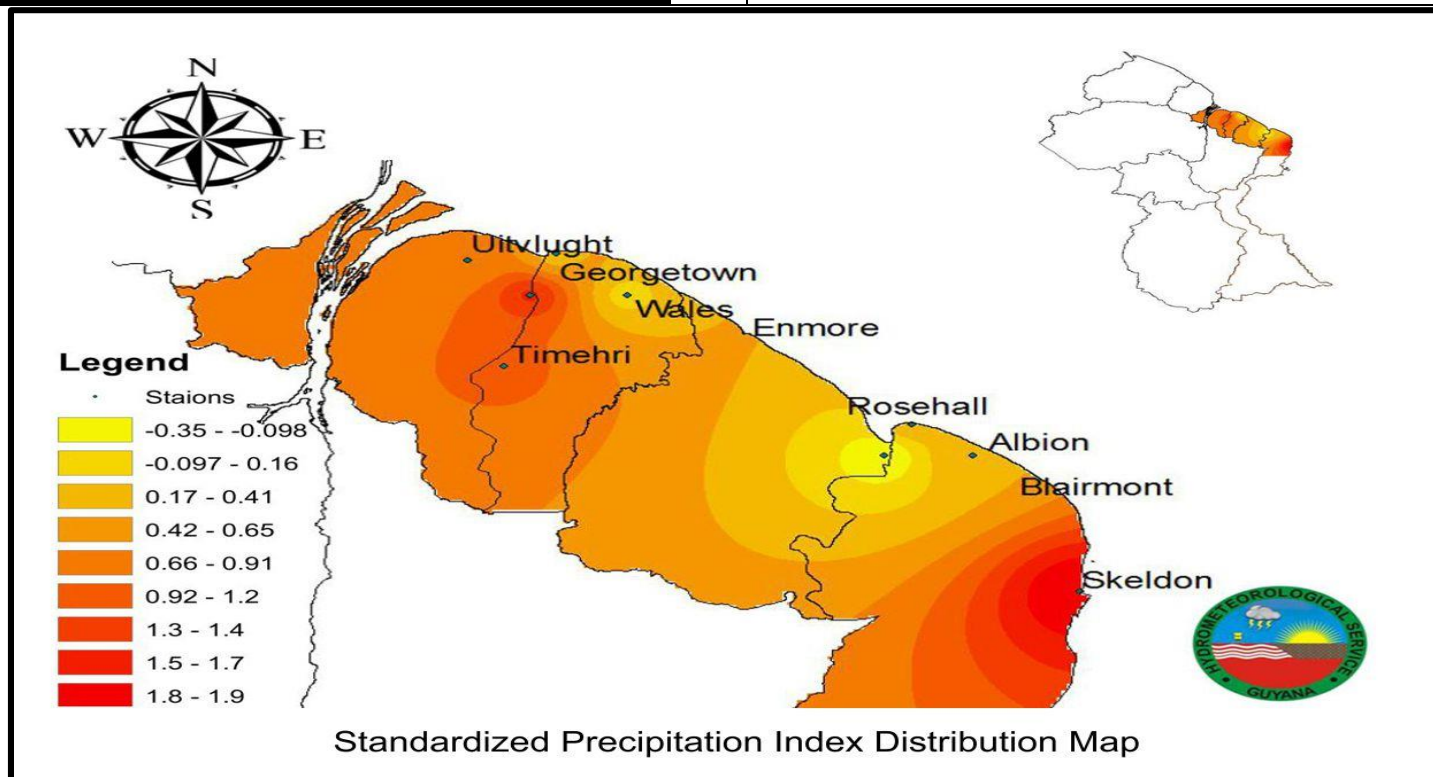
The Standardized Precipitation Index (SPI), developed by T.B. McKee, N.J. Doesken, and J. Kleist in 1993, is based only on precipitation. One unique feature is that the SPI can be used to monitor conditions on a variety of time scales namely 1- month, 3-month, 6-month, 9-month and 12-month periods. This temporal flexibility allows the SPI to be useful in both short-term agricultural and long-term hydrological applications. Tables 2 and 3 below 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 below. 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.

**Table 2:** The Standardized Precipitation Index for selected stations

Station Name	3 Months SPI Value (August ,September, October)
Georgetown	0.17
Uitvlugt	-0.22
Wales	0.43
Enmore	-0.59
Timehri	-0.06
Blairmont	-0.27
Rose Hall	0.06
Albion	0.31
Skeldon	1.54

**Table 3:** The Standardized Precipitation Index Classification

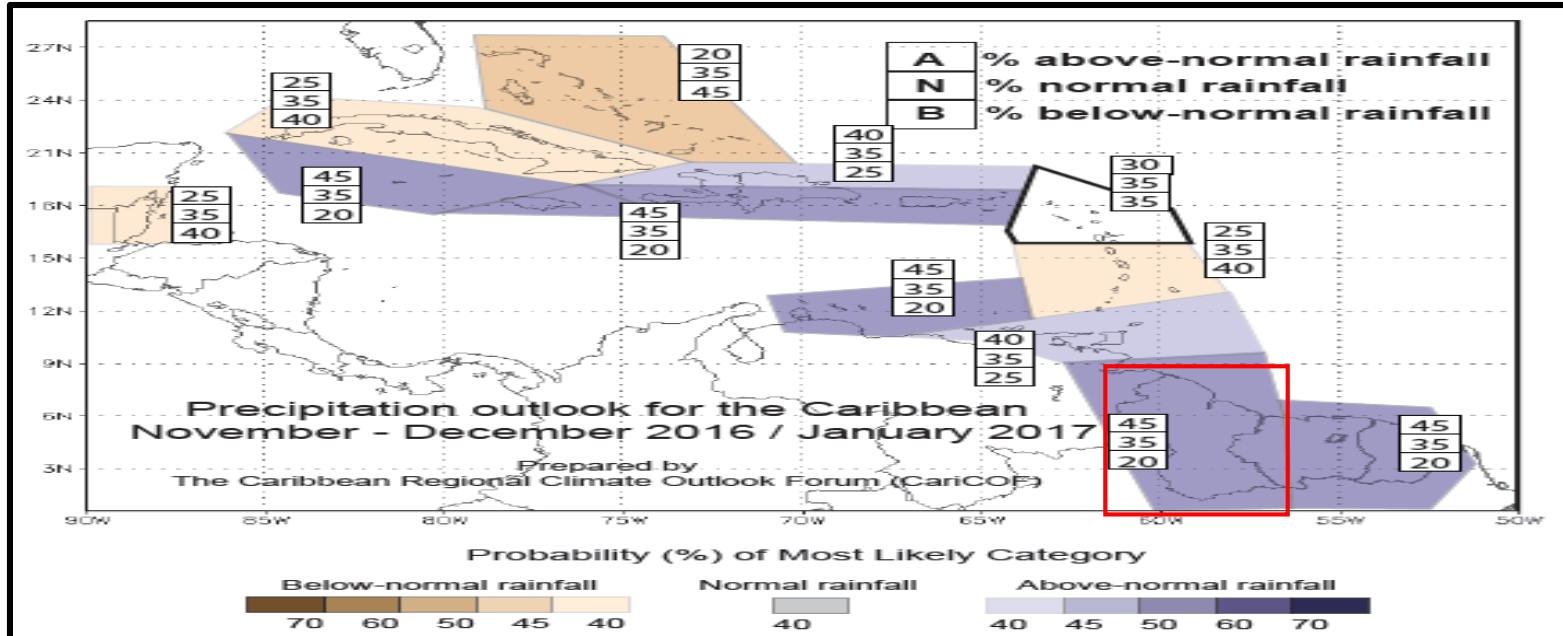
SPI Values	Categories
0 to -0.4	Near Normal
-0.5 to -0.7	Abnormally Dry
-0.8 to -1.2	Moderately Dry
-1.3 to -1.5	Severely Dry
-1.6 to -1.9	Extremely Dry
-2.0 or less	Exceptionally Dry
0 to 0.4	Near Normal
0.5 to 0.7	Abnormally Wet
0.8 to 1.2	Moderately Wet
1.3 to 1.5	Severely Wet
1.6 to 1.9	Extremely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



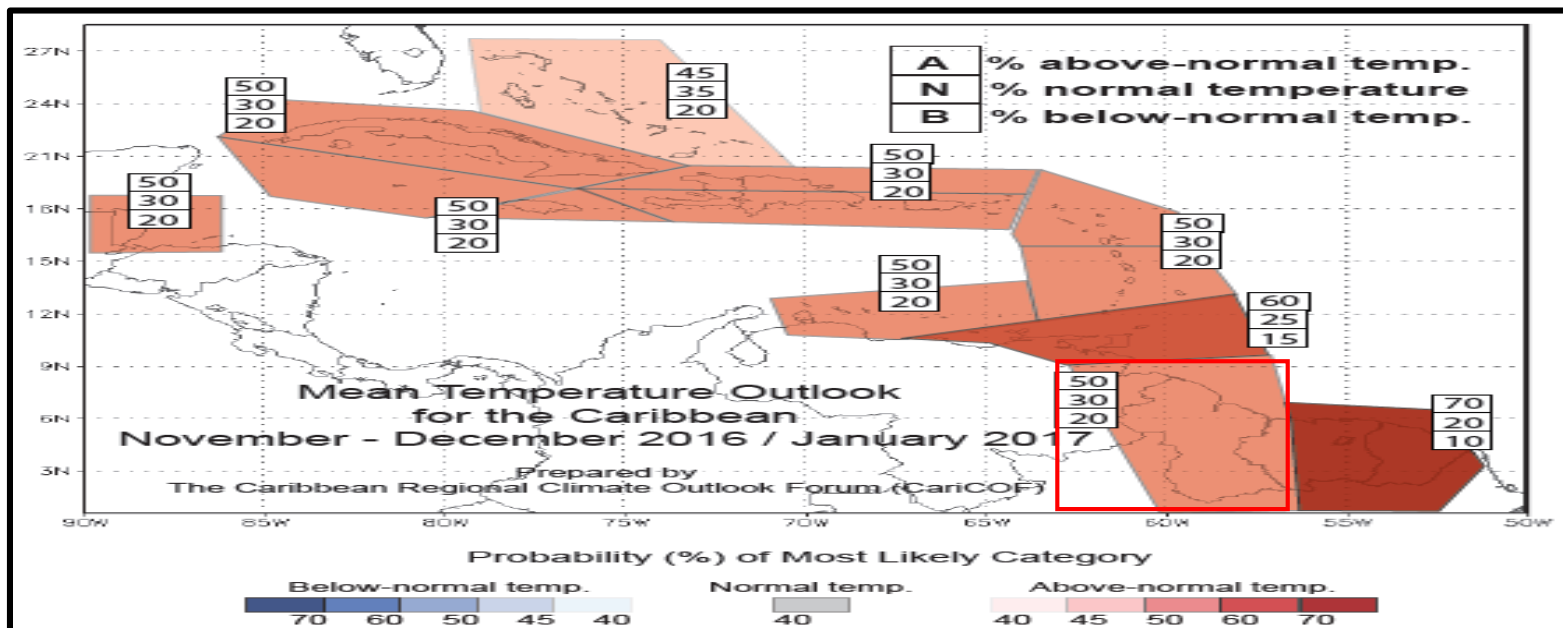
**Figure 7:** The Standardized Precipitation Index for selected stations for August through October, 2016

## Seasonal Outlook for Guyana and the Caribbean for November, 2016-January, 2017

Guyana is currently in its primary dry season of 2016 (the long dry season). The latest forecast based on statistical models indicates that Guyana may experience wetter or similar to the usual rainfall conditions for the coming months with an 80% confidence. With this, Guyana will continue to see generally dry conditions over most parts of the country up until half of November. However, with the secondary wet season of 2016-2017 starting around mid-November in northern Guyana, there are 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 above normal temperatures, but those temperatures may cool down to more comfortable values.



**Figure 8:** Precipitation forecast map for November, 2016-January, 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:** Maximum temperature forecast map for November, 2016-January, 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	November	December	January	Regions	Station Names	November	December	January
1	MABARUMA *	210.2	246.9	183.0	5	BLAIRMONT	97.8	228.8	184.8
	WAUNA	212.0	245.3	177.8	6	MARDS	116.1	203.8	197.3
2	PORT KAITUMA	190.4	270.8	162.8	6	ALBION	29.2	197	167.8
	ANNA REGINA*	182.3	283.4	286.0		SKELDON	114.7	151.7	147.9
3	CHARITY	212.6	285.5	265.6	6	CRABWOOD CREEK*	92.3	98.1	111.5
	Mc NABB	185.0	247.3	219.5		ROSE HALL	84.2	266.6	203.4
3	WAKAPOW	212.8	342.5	266.6	6	NIGG 58	84.9	177.1	163.7
	ONDERNEEMING	141.5	225.9	197.0		ALBION 33	60.4	162	166.8
3	BOERSARIE	205.2	345.8	301.8	6	#73 VILLAGE	101.7	174.5	165.4
	DeKENDEREN B	197.9	325.2	270.6		# 54 VILLAGE*	79.4	139.9	125.9
3	DeKENDEREN F	158	302.2	262	6	ANKERVILLE	77.4	185.2	175.1
	LEONORA F	156.3	265.5	238.2		MIBIKURI	95.4	183	166.9
3	LEONORA B	163	282.5	282.6	6	MARA LAND DEV. SCHEME*	95.1	165.9	128.5
	WALES	171.7	238.5	231.4		NEW AMSTERDAM	94.7	223	180.6
4	UITVLUGT B	143.9	257.7	253.8	7	APAIKWA	190.9	299.6	299.6
	La BAGATELLE LEGUAN*	113.2	205.6	199.3	7	MAZARUNI	171.7	197.1	183.6
4	BOTANIC GARDENS	175.9	270.9	239.7		BARTICA DEM. STATION*	139.8	151.7	172.4
	TIMEHRI	181.6	258.3	239.9	8	JAWALLA KAIETEUR FALLS *	175.7	157.8	167.4
4	CANE GROVE B	90.8	199.1	168.0		LETHEM	33.8	40.8	17.2
	CANE GROVE F	120	214.7	189.5	9	KARASABAI	9	5.1	6.7
4	L.B.I FRONT	140.5	246.3	189.2		DADANAWA	57.5	37.6	34.9
	OGLE FRONT	136.7	222.6	194.6	10	GREAT FALLS	152.5	221.2	199.1
	ENMORE FRONT	127.8	268.2	204.3		WISMAR*	107.3	148.5	139.4
4	KAIRUNI*	130.7	121.6	****					

**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 November - January for selected stations

Station Name	November	December	January
Georgetown Botanical Gardens	12 days	18 days	15 days
Timehri Meteorological Station	14 days	11 days	17 days
Ogle	11 days	17 days	13 days
Lethem	3 days	4 days	3 days
Anna Regina	10 days	14 days	12 days
New Amsterdam	9 days	16 days	14 days

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



**Table 6: HIGH TIDE\* TABLE FOR NOVEMBER, 2016**

Dates	HIGH TIDE $\geq 2.74(\text{m})$	
	Time	Height(m)
2016/11/01	04:39	2.80
	16:57	2.87
2016/11/02	05:12	2.75
	17:26	2.80
2016/11/11	01:05	2.77
	13:23	2.89
2016/11/12	01:58	2.92
	14:08	3.09
2016/10/13	02:49	3.04
	14:52	3.23
2016/11/14	03:39	3.11
	15:36	3.31
2016/11/15	04:28	3.13
	16:20	3.32
2016/11/16	05:17	3.09
	17:05	3.26
2016/11/17	06:06	2.99
	17:51	3.13
2016/11/18	06:58	2.85
	18:40	2.96
2016/11/19	19:34	2.76
2016/11/25	13:58	2.77
2016/11/26	14:33	2.83
2016/11/27	15:04	2.86
2016/11/28	15:35	2.88
2016/11/29	16:05	2.88
2016/11/30	16:36	2.86

\*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

 New moon 29<sup>th</sup> 18:18
  First quarter 07<sup>th</sup> 15:51
  Full moon 14<sup>th</sup> 09:52
  Last Quarter 21<sup>st</sup> 04:33

Lunar calendar for November, 2016

## Agricultural Review for October, 2016

Climatologically the secondary rainy season of (“November-January”) transitions in mid (“February-April”) to the primary dry season (Short dry season). Regionally despite dry conditions in Lethem during October other than occasional spontaneous combustion on hillside, there were no reports of significant impacts of the weather on Agricultural production. Here are some images of the current conditions in Lethem.



## Farmer's Note for November, 2016

The Seasonal outlook for Guyana indicates that Guyana may experience wetter or similar to the usual rainfall conditions for the coming months. With this, Guyana will continue to see dry conditions over some parts of the country up until half of November 2016 and beyond that in the south. 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 Hydrometeorological service's daily and three day forecasts via the radio on 56.0 AM and on our website at <http://hydromet.gov.gy/>.

Farmers are also advised to:

- Provide thinner shading for some vegetable crops that cannot withstand high temperatures and excessive sunlight.
- Pens and holding areas for animals should be regularly cleaned, in an effort to minimize the onset of vectors that may carry diseases.
- In light of the rains, one should practice checks and necessary pruning for rapid growth of limbs or on productions vegetative shoots from crops specifically the (auxiliary buds), to maintain healthy crop growth.
- Transplanting should be done preferably early in the morning and/or late in the afternoon, and the irrigation schedule can be reduced to avoid over watering.
- Farmers should take steps to and prevent any wastage of irrigation water.
- When debeaking and administering any form of drugs to your animals, it should be complemented with a antibiotic as well as coated with an antiseptic agent to prevent the risks of opportunistic infections and infestations of diseases.
- Farmers and other stakeholders should take this opportunity to clean drains, trenches, canals, etc. in anticipation of the upcoming secondary wet season (short wet season) in the northern part of Guyana.

**Common Name:** *Passion Fruit*

**Scientific Name:** *Passiflora edulis*

**Temperature:** 18 °c -25°c & 25°c - 30°

**Soil pH:** 5.5 - 6.5

## Introduction

A native to South America, from Paraguay, Brazil and Argentina, Passion Fruit is (*Passiflora* sp) a choice crop of the tropical and sub-tropical belt because it is one of the few fruits that comes into production within a year and is referred to as the 'fruit cash crop'. It yields a sprightly juice rich in vitamins A, B5 and C. Passion Fruit, a woody perennial climber (vine) belongs to the genus *Passiflora*, which includes four hundred varieties but only a few are considered for commercial cultivation: the Purple, Yellow, Kaveri and Noel Special. In Guyana, the most popular variety cultivated is the yellow variety. The plant is generally propagated through vegetative means, and seedlings and grafts have been found to be more vigorously growing than the cuttings. The yellow type is better adapted to tropical lowland areas and is the principal type produced in Guyana. The fruit is widely distributed in the domestic market and small volumes are exported to Barbados and Canada. The purple type is better adapted to tropical highland areas of production.



## Rainfall Requirements

A well distributed rainfall of 900mm to 2000mm per year is suitable for passion fruit production. Excess rainfall causes poor fruit set and encourages diseases. Passion fruit 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.



## Planting

As indicated before, the plants are spaced around 3m apart so that two of them fall between two poles. Planting holes are dug to a size to accommodate the plant in the bag but usually around 30 cm in length, width and depth. The topsoil removed in digging the plant hole could be mixed with rotted pen manure, compost or some phosphate fertiliser. Some of this mixed soil is then returned to the planting hole before putting the plant. The plants are then placed in the holes following which the balance of the topsoil is returned to fill the holes and thoroughly compressed. If conditions are dry the plants should be watered.

## Health Benefits of Passion Fruit

- Helps regulate heart rate and blood pressure.
- Good fiber in the diet helps remove cholesterol from the body
- Helps the body develops resistance against flu-like infectious agents and harmful scavenge, pro-inflammatory free radicals.

## Insect Pests and diseases

- Caterpillars
- leaf-spot
- Mealy bugs
- Anthracnose

## Recommended Varieties

- Purple passion fruit
- Yellow passion fruit
- Kaveri
- Noel Special

## Harvesting/Storage

Initial fruit harvest from seeded yellow passion fruit plants normally begins about 10 months after transplanting, with full production occurring after 18 months. Grafted passion fruit plants begin initial production earlier, after about 7 months. The timing of initial harvest depends on the vigor of the plant and environmental growing conditions. The fruit matures in about 75 days after flowering and will naturally fall to the ground when fully coloured and mature. A mature passion fruit vine normally produces two to three crops annually; one main harvest followed by several smaller crops. Therefore, passion fruit are usually available for harvest year round.



## Fun Facts About Passion Fruit

- In Hawaii the common name of the passion fruit is lilikoi.
- Catholic missionaries in South America gave the fruit its name because they thought the flowers of the plant looked like the crown of thorns that was placed on Christ's head





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## El Niño and La Niña Update

### ENSO Alert System Status: No Advisory

- ENSO-neutral conditions are present.\*
- Equatorial sea surface temperatures (SST) are below the average in the central and eastern Pacific Ocean.
- La Niña is favored to develop (~70% chance) during the Northern Hemisphere September – December 2016 and slightly favored to persist (~55% chance) Northern Hemisphere December – March 2016-17.\*

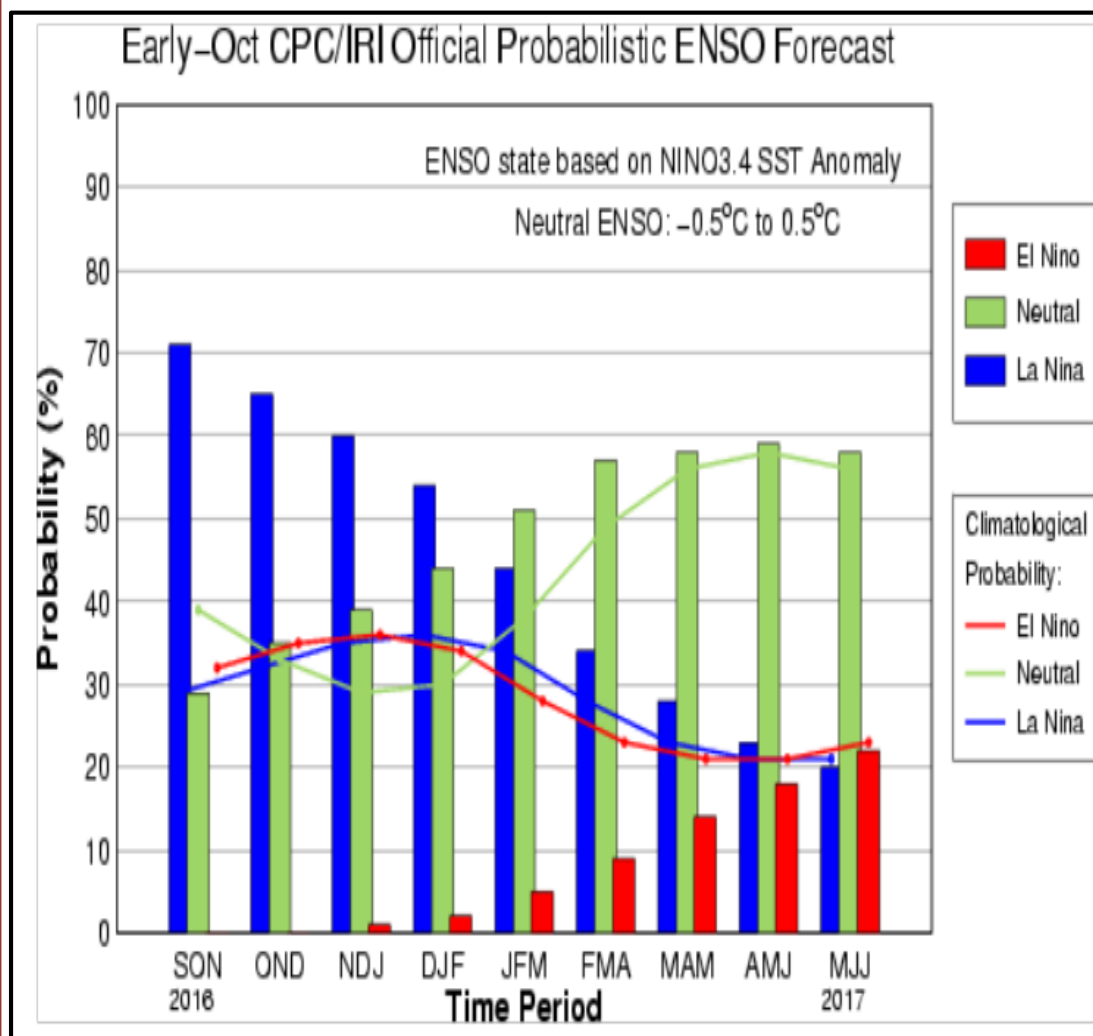


Figure 12: CPC/IRI Early-Month Consensus ENSO Forecast Probabilities