

Monthly Bulletin **Ministry of Agriculture** **Hydrometeorological Service**

September 2018



"To observe, archive and understand Guyana's weather and climate and provide meteorological, hydrological and oceanographic services in support of the Guyana needs and national and international obligations."

HYDROMETEOROLOGICAL BULLETIN

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Highlights

- ❖ Guyana classified as *Moderately Dry* for August 2018
- ❖ Two thirds of the locations observed rainfall amounts less than their historical averages – 40 % of the locations across Guyana recorded rainfall amounts with a deficit greater than 25%.
- ❖ Warmer than average conditions dominated across much of the Earth's surface: Fifth highest August temperature recorded in 139 years.
- ❖ Expect drier to pretty much like usual for the period Sept – Nov 2018, confidence of 75%. – Low chance for extremely dry conditions
- ❖ 50-55% chance of El Niño onset during September – October – November, 2018

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Below: Booth showcasing the Hydromet Service at the first ever Regional Agriculture and Commercial Exhibition (RACE) organized and hosted by the Regional Democratic Council in Region Six at the Albion Sports Complex during August 2018.



Review of Synoptic Systems that influenced the Weather Conditions for August 2018

Climatologically, August month usually signals the transition into Guyana's Primary (main) Dry Season. Notwithstanding, due to the Country's geographical location, during this time of the year a wide range of meteorological systems can affect the local weather. These include, but are not limited to, the Inter-Tropical Convergence Zone (ITCZ), Low and Mid-Level Troughs and Tropical

Waves /Easterly Waves (TW/EW), along with other Synoptic Systems. Additionally, the month falls within the period of the Atlantic Hurricane Season which may also contribute to the prevailing weather condition. Analysis of the rainfall data observed and recorded during August 2018 showed the usual spatial variation in the rainfall values.

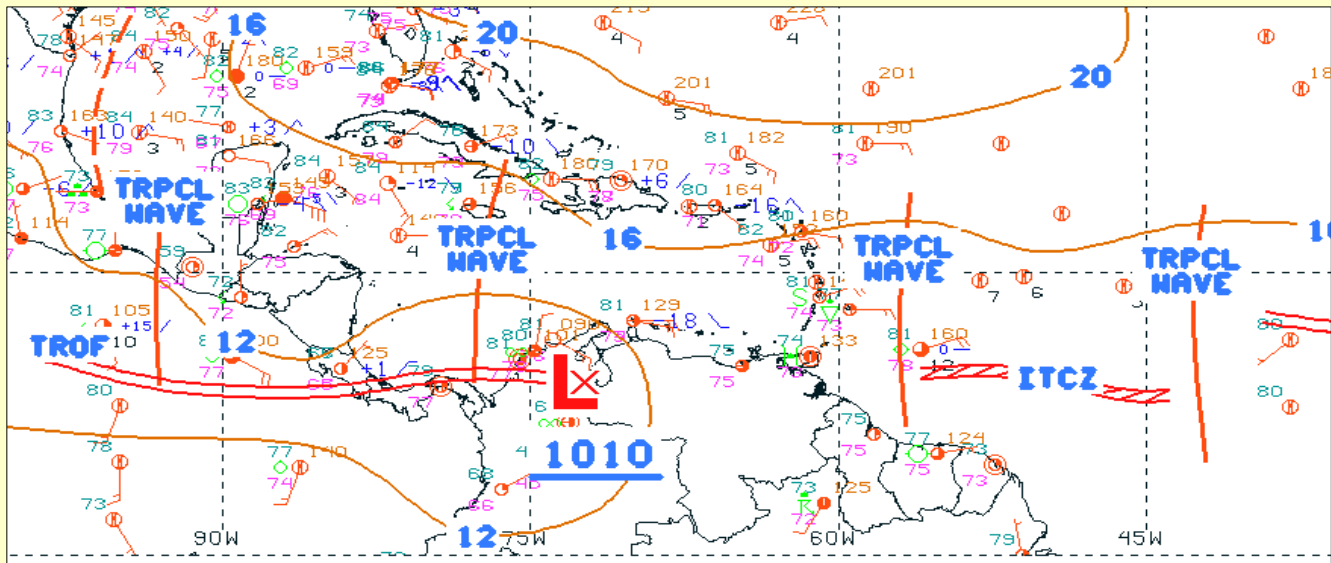


Figure 1 Surface Chart (valid August 04, 2018) showing axis of the ITCZ lying to the North of Guyana.

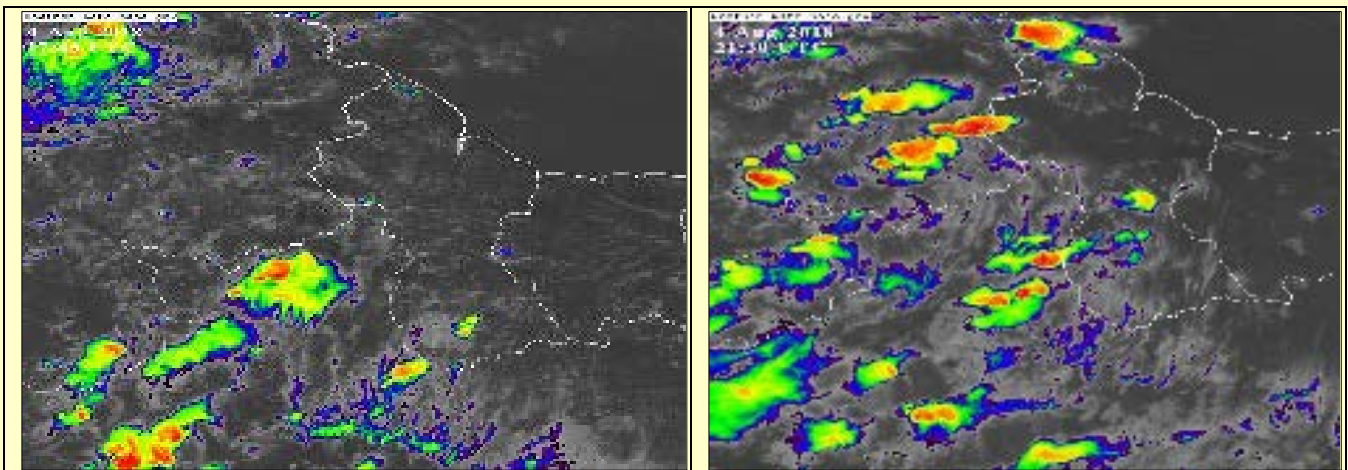


Figure 2 ((a) Satellite Image (valid August 04, 2018 at 13:45 local time) showing no significant convection (b) Satellite Image (valid August 04, 2018 at 17:45 local time) showing some convection as a result of day time heating.

As can be seen from Figure 1 and Figure 2(a) above, the ITCZ was north of Guyana, and as a result was not responsible for any significant precipitation. Notwithstanding the absence of synoptic systems responsible for precipitation, as

the day progressed, noticeably amounts of convection and rainfall was observed. This observed rainfall was due to the effect of *day – time heating*.

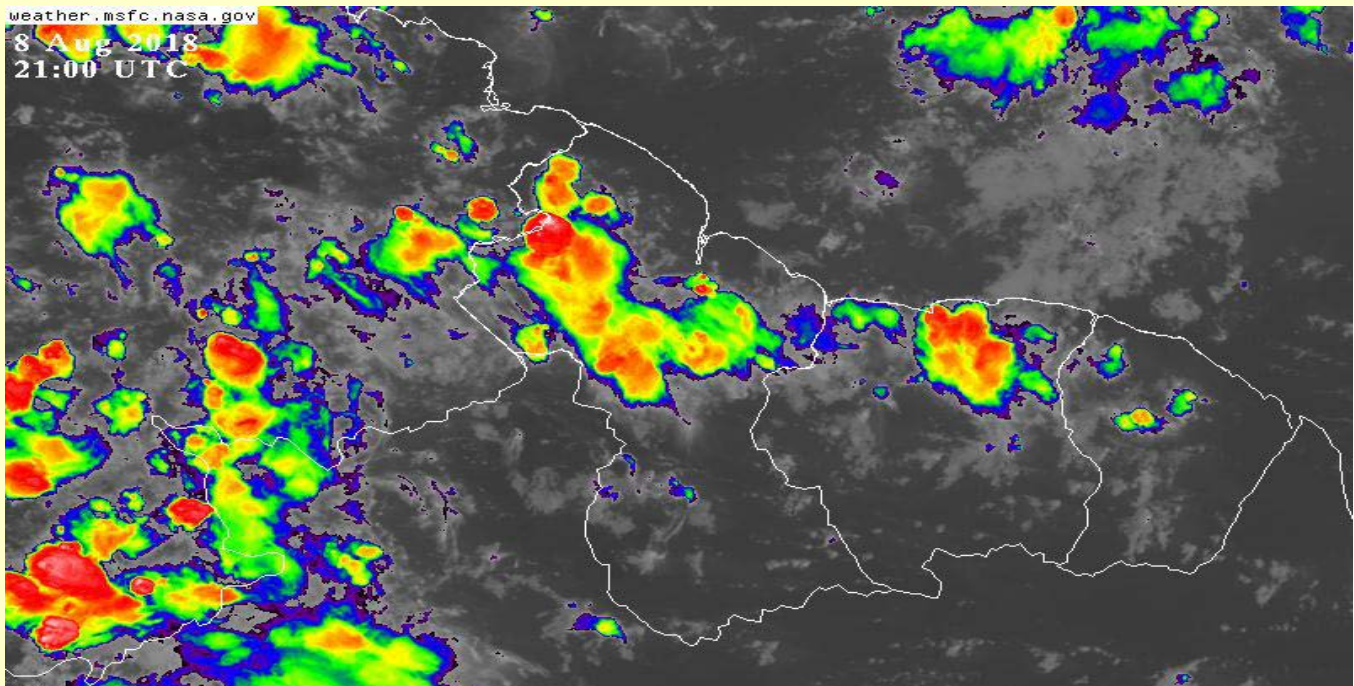


Figure 3 Satellite image (valid August 08, 2018 at 17:00 local time) showing significant convection as a result of daytime heating.

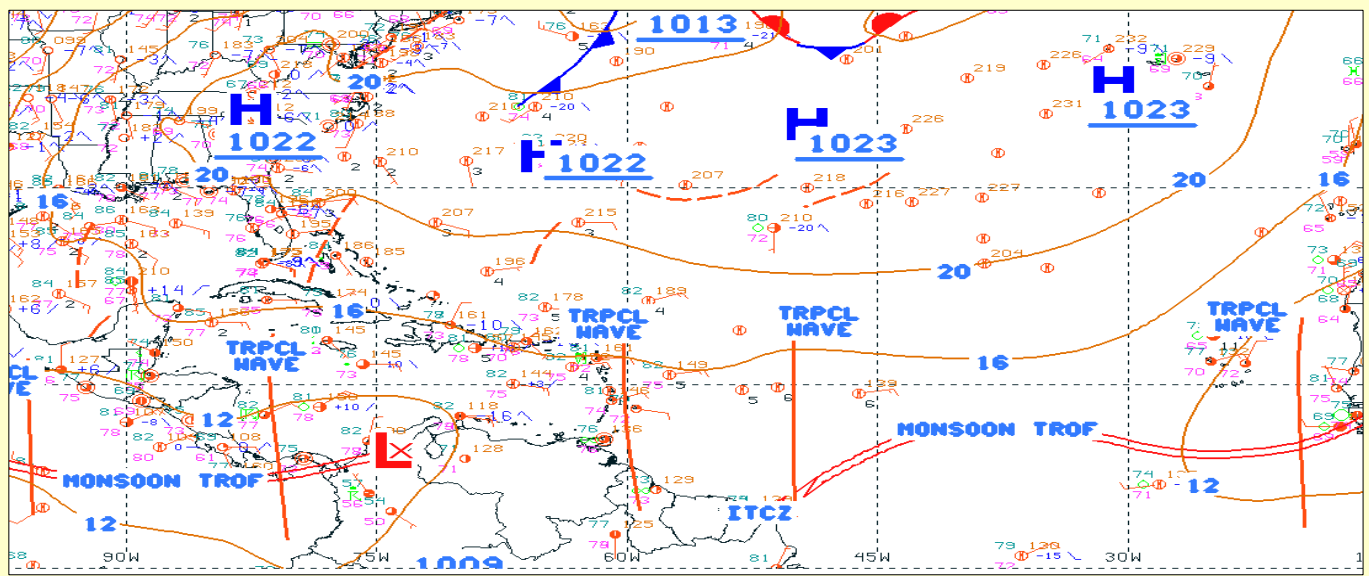


Figure 4 Satellite image (valid March 13, 2018) showing shallow clouds and a very dry atmosphere throughout Guyana.

Review of Seasonal Outlook provided in August 2018.

Below is a brief review of the Seasonal Outlook for Guyana which was provided by the Hydrometeorological Service earlier in August 2018.

Precipitation: Model output for August – October had suggested drier than usual conditions for most areas across the country as shown in probabilistic rainfall map in Figure 5(b) below.

Northern Guyana usually experiences 16 to 31 wet days (rainfall $\geq 1.0\text{mm}$) during this period, the forecast had suggested the same number of Wet

Days for the season., with at least 2 extreme wet spell.

Temperature: Across Guyana, Cooler than usual daytime temperatures was expected, while little had been said for the nighttime temperatures, however, there was equal chances for warmer and cooler nights

Drought: The forecast did not indicating any drought concerns for the ASO season. However, there were increasing concerns of drier than usual conditions through November

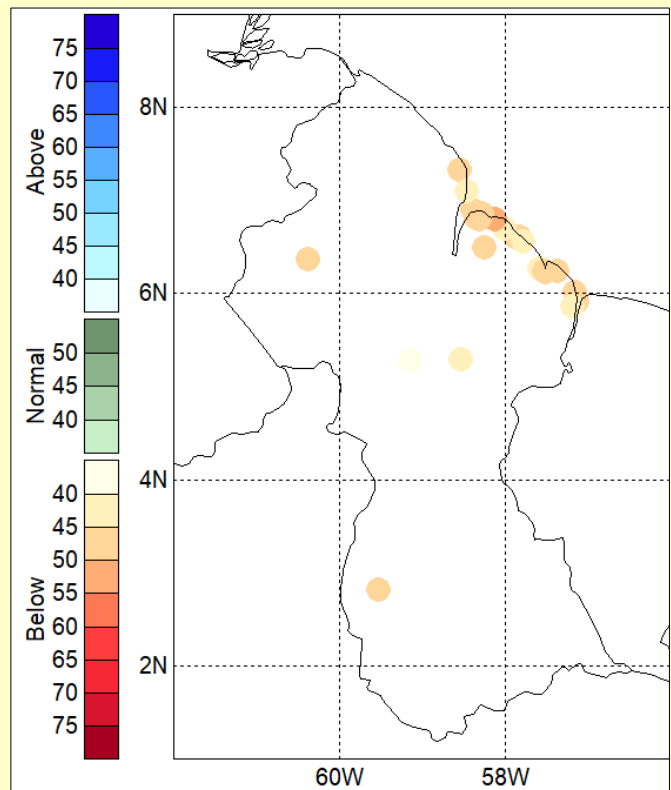
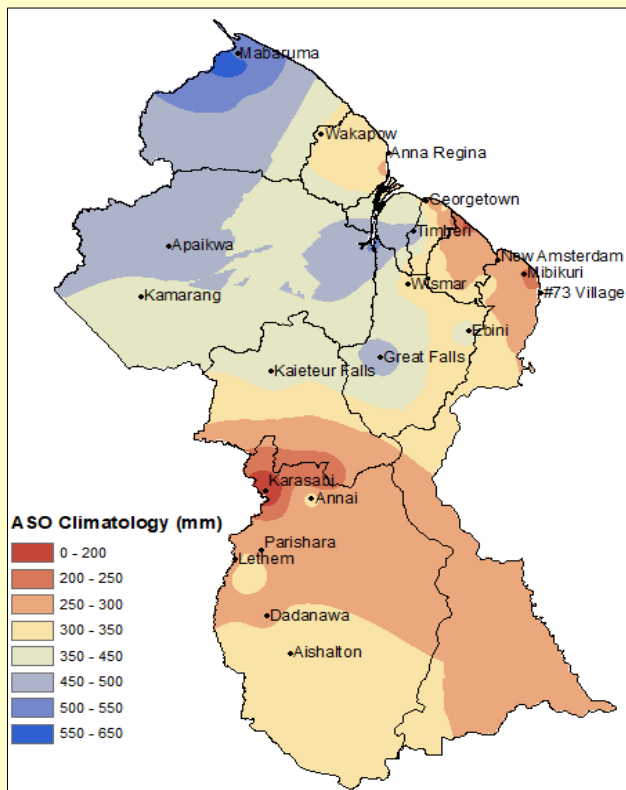


Figure 5 Maps of Guyana showing (a) Climatological Normal and (b) probabilistic seasonal forecast¹ (chances of occurrence) across Guyana for period August – October 2018.

¹The forecast and projection above was prepared taking into account the usual Climatological trends along with current dynamical models and Climate Prediction Tools (CPT)

August 2018 Rainfall Analysis

On average, Guyana was classified as *Moderately Dry* (MD) for the month of August 2018, with a nationwide average rainfall of 132.1 mm distributed over 10 rain days. A detailed

comparison of the August 2018 rainfall with the historical average for selected stations can be seen in Figure 6 below.

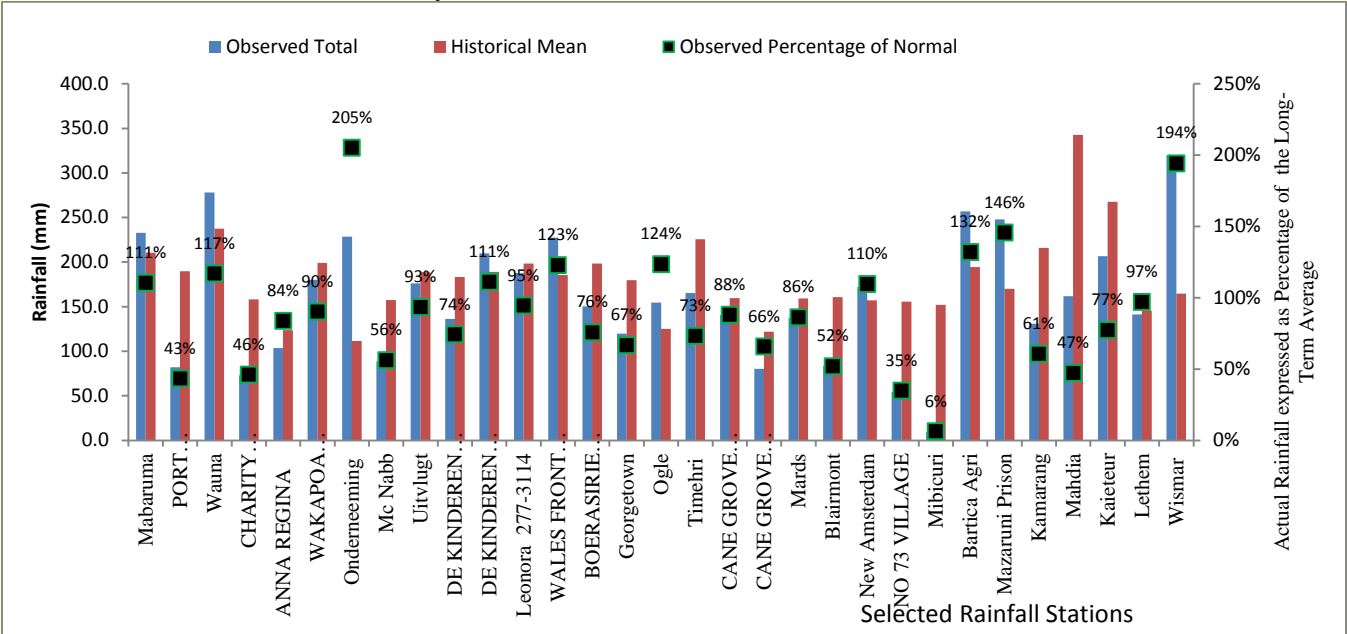


Figure 6 Comparison of the accumulated observed Rainfall for August 2018 expressed as a percentage of the Historical mean

According to the records collected and processed by the Hydromet Service, almost two thirds of the locations recorded rainfall amounts less than their historical averages. For stations with long term data available, Region 2 at Onderneeming recorded the largest deviation from its historical average – rainfall amounts more than doubling (205% of the usual) the historical average at an observed accumulated rainfall total of 228.5 mm for the month, notwithstanding this location did not record the maximum rainfall countrywide. In addition, few other locations also recorded rainfall amounts considerably more than the usual for the month. Region 10 at Wismar recorded the second highest deviation in the observed rainfall when compared to the historical average, with an observed amount that is 194% of the historical average at 320.1 mm. On the other hand, Region 6 at Mibicuri Black Bush Polder experienced the highest deficit (94%) in the observed rainfall when compared to its historical average at merely 9.6mm for the month

Details of the temporal distribution of daily rainfall for several locations are shown in Figure 7 below.

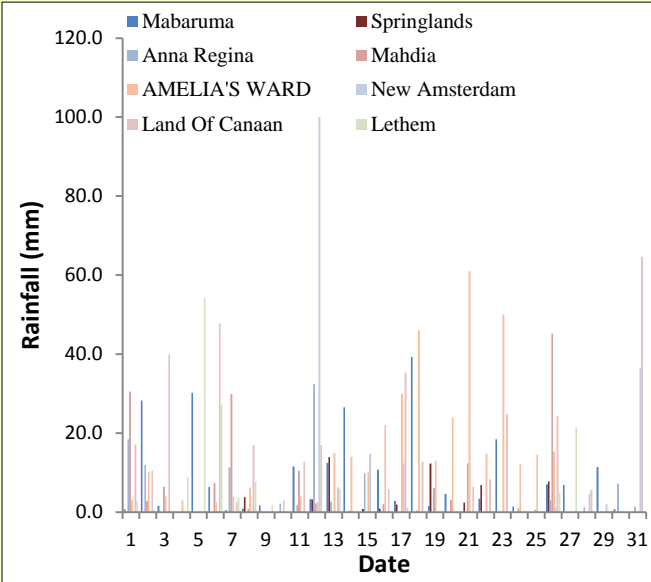


Figure 7 Temporal distribution of daily rainfall for August 2018 for selected stations throughout Guyana

Further analysis of the rainfall amount in Figure 6 above was done and the results presented in Figure 8 below as a histogram. The horizontal axis shows August 2018 accumulated rainfall expressed as a Percentage difference of the long-term average, with -ve values indicating rainfall amounts below the historical averages, while +ve values represent rainfall amounts greater than the historical average. Most notable observation made is that almost two

thirds of the rainfall stations recorded rainfall amounts falling short of their Historical average. In addition, the histogram shows that 40 % of the locations across Guyana recorded rainfall amounts with a deficit greater than 25% of their historical averages. Likewise, almost equal amount of stations recorded accumulated rainfall amounts in excess of 25% of the historical averages for August 2018.

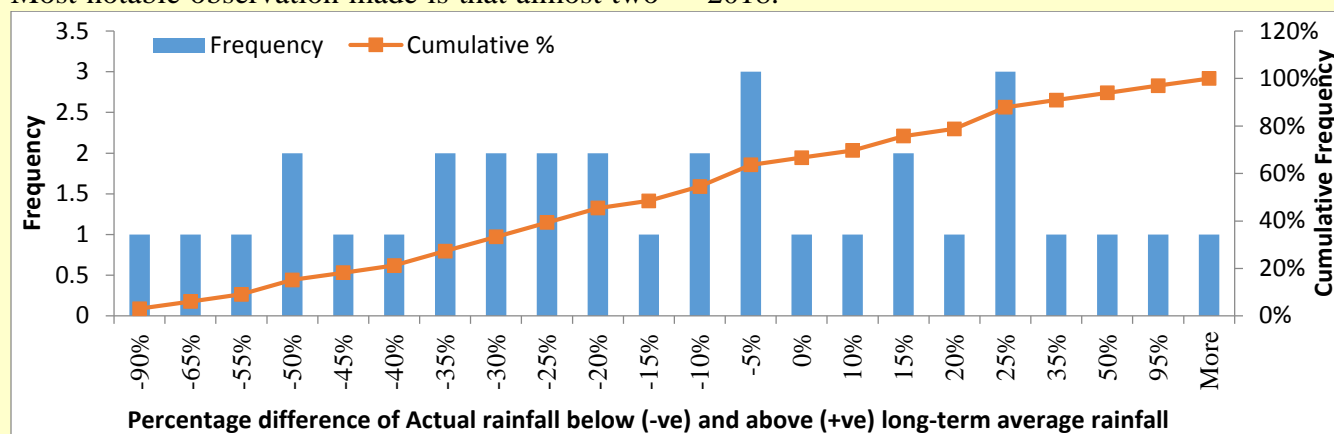


Figure 8 Histogram of August 2018 rainfall as percentage difference of Long term average rainfall

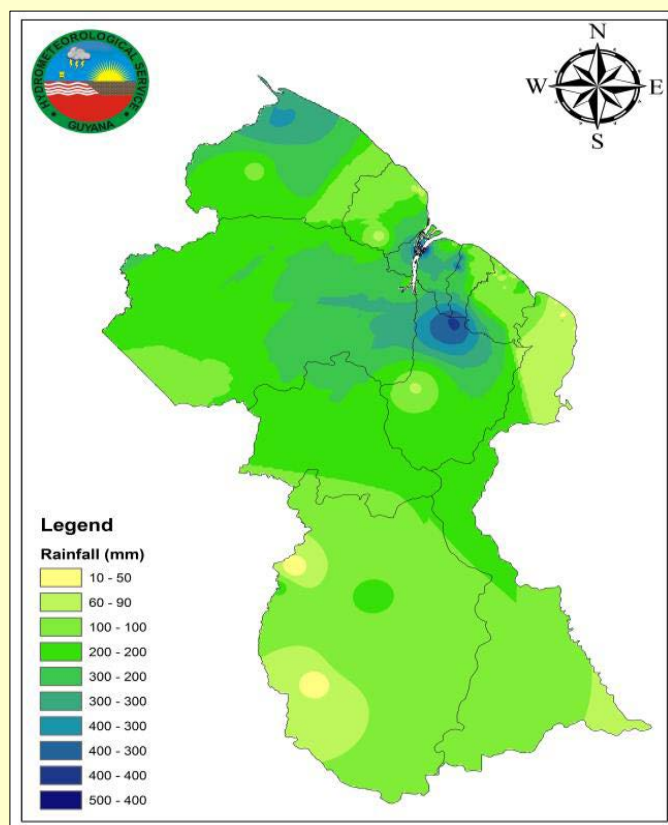


Figure 9 shows a spatial representation of the rainfall distribution across Guyana. Region 3 at Fort Island, Essequibo river recorded the highest accumulated rainfall for August 2018 at 413.3 mm over 17 rain days, in addition Region 10 at Amelia's Ward and Region 4 at Land of Canaan also recorded significant rainfall amounts at 384.4 mm and 359.3 mm respectively. The highest one – day rainfall amount of 101.5 mm was recorded in Region 6 at New Amsterdam on August 12, 2018 (see Figure 7 above). Table 1 below shows classification of rainfall by administrative regions across Guyana.

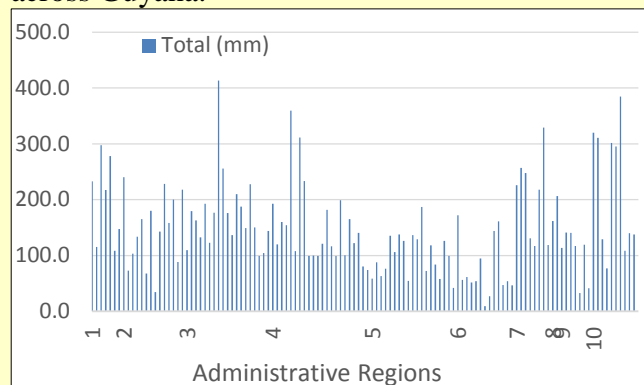


Figure 9 (a)Map and (b) Graph showing Spatial Interpolation (IDW) and distribution of rainfall amounts acrosss Guyana.

Table 1 Classification of Regional rainfall throughout Guyana for August 2018.

<i>Region</i>	Average Rainfall (mm)	Average Rain days	Classification	Station with the highest total
1	204.7	18 days	Moderately Wet (MW)	Wauna recorded 278.2mm of rainfall with 20 rain days.
2	136.0	12 days	Moderately Dry (MD)	Onderneeming recorded 228.5mm of rainfall with 12 rain days.
3	182.3	13 days	Moderately Wet (MW)	Hog Island Essequibo recorded 225.9mm of rainfall with 22 rain days.
4	153.6	11 days	Moderately Wet (MW)	Land of Canaan recorded 359.3mm of rainfall with 18 rain days.
5	98.6	6 days	Dry (D)	Abary MMA recorded 186.9mm of rainfall with 8 rain days.
6	75.4	6 days	Dry (D)	New Amsterdam recorded of 172.3mm of rainfall with 7 rain days.
7	218.0	19 days	Wet (W)	Dagg Point Recorded 329.3mm of rainfall with 21 rain days
8	Mahdia recorded 161.8mm of rainfall with 13 rain days.			
9	98.8	10 days	Dry (D)	Lethem recorded 141.4mm of rainfall with 11 rain days.
10	220.4	17 days	Wet (W)	Amelia's Ward recorded 384.4mm of rainfall with 24 rain days.

Climatological Summary for August 2018

Table 2 Summary of Observed data and Historical averages for Synoptic stations across Guyan during August 2018

STATION	RAINFALL (mm)		MAX. TEMP (°C)		MIN. TEMP (°C)		SUNSHINE HOURS	
	TOTAL	LONG TERM AVERAGE	MEAN	LONG TERM AVERAGE	MEAN	LONG TERM AVERAGE	MEAN	LONG TERM AVERAGE
Mabaruma	232.9	209.8	31.3	*	23.4	*	6.4	*
G/Town	119.8	179.6	31.0	30.9	24.6	24.0	8.3	7.7
Timehri	165.2	225.7	32.3	31.8	22.2	22.4	7.5	7.1
Ogle	154.9	125.0	30.9	*	24.2	*	9.4	*
N/Amsterdam	171.8	157.1	32.2	32.0	24.0	23.2	9.3	8.0
Kaieteur	206.7	257.0	30.0	*	21.3	*	8.0	7.0
Lethem	141.4	160.2	32.8	32.1	22.4	23.8	9.6	7.1
Kamarang	130.5	215.8	30.6	30.4	20.6	20.1	6.9	*
Ebini	197.8	180.7	33.0	33.0	23.2	22.3	8.2	7.7

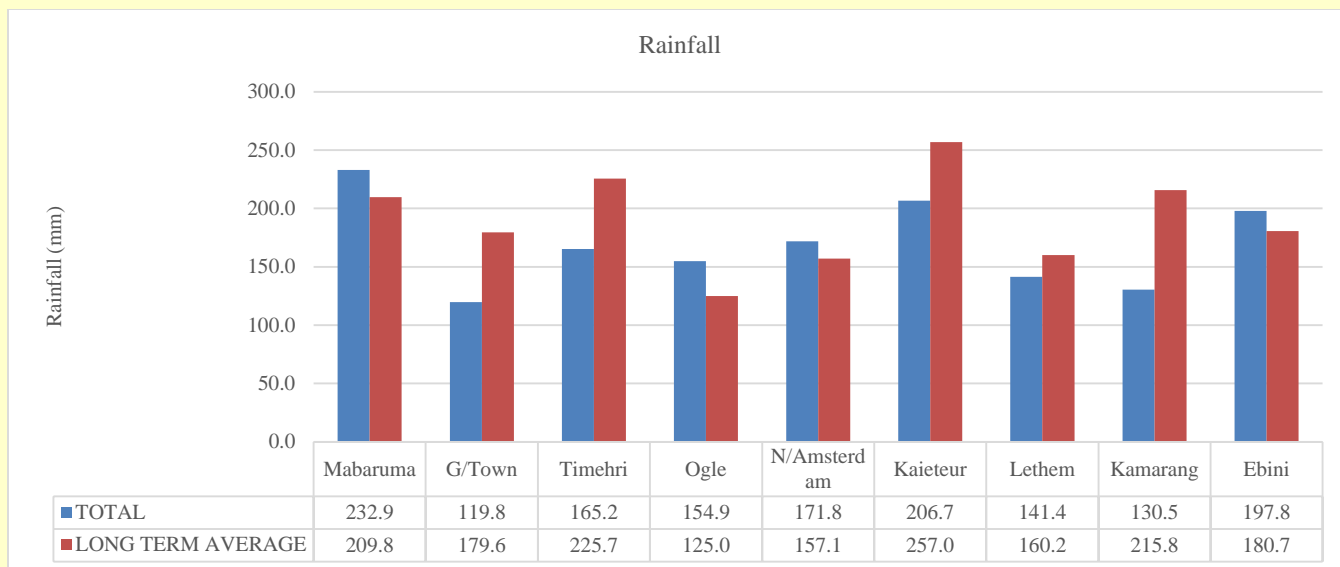


Figure 10 Comparison of August observed rainfall with its historical average for Synoptic Weather Stations across Guyana.

Figure 7 shows a comparison of August 2018 actual accumulated rainfall with the historical average for the Synoptic weather stations across Guyana. Five of the eight synoptic stations across Guyana recorded rainfall amounts in excess of their historical averages. During August month, according to the available historical averages, it is expected that the synoptic station located in Region 8 at Kaieteur National Park records the highest rainfall amounts, however, for August 2018,

Region 1 at Mabaruma recorded the highest amount which was also above the historical average for the location, while Kaieteur recorded rainfall amounts below the historical average for the month. The Georgetown synoptic station at the Botanical Gardens recorded the least rainfall amounts which was below the historical average for the location. In addition, the synoptic station located in Region 7 at Kamarang recorded the largest deficit in rainfall amounts for the month..

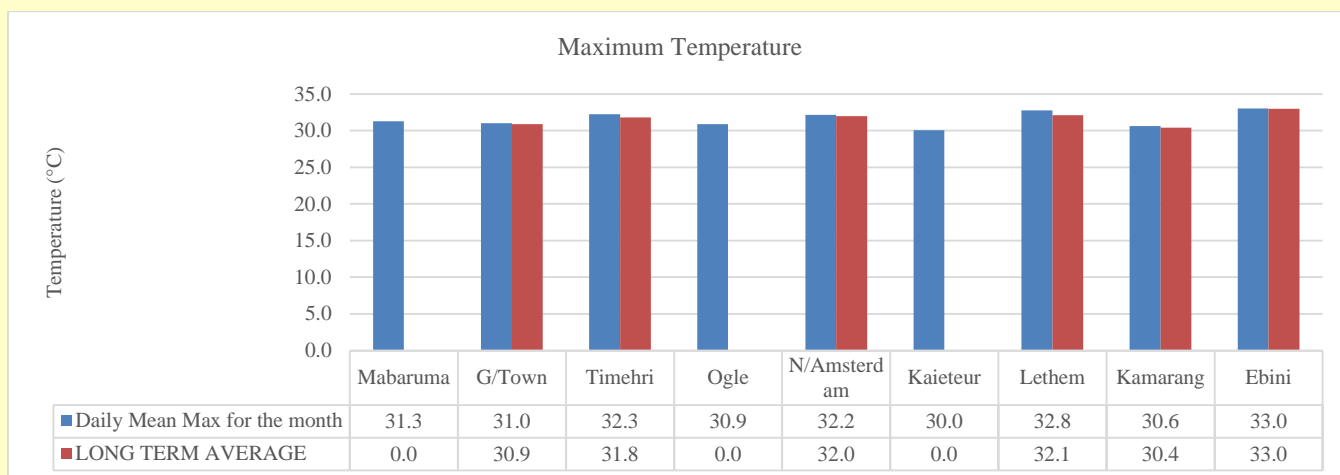


Figure 11 Comparison of August 2018 actual mean monthly Maximum Temperature with mean monthly historical average for August for Synoptic Weather Stations across Guyana

As with the previous few months, during August 2018 all Synoptic stations recorded maximum and

minimum temperatures consistent with their long-term averages (correlation factor of more than 0.9)

– with only very slight variation. In keeping with the usual trends according to the long term averages, Region 10 at Ebini recorded the highest monthly mean temperature – 33.0 ° C for the month. In addition, Region 9 at Lethem recorded the highest one-day Max Temperature of 34.5 °C on August 25, 2018. On the other hand, in keeping

with the usual trend again as it relates to the Minimum temperatures(long term averages shown in Figure 12), Region 7 at Kamarang recorded the lowest minimum temperature of 20.6°C, however, Region 9 at Lethem recorded the lowest one – day minimum temperature of 19.5°C on August 06, 2018.

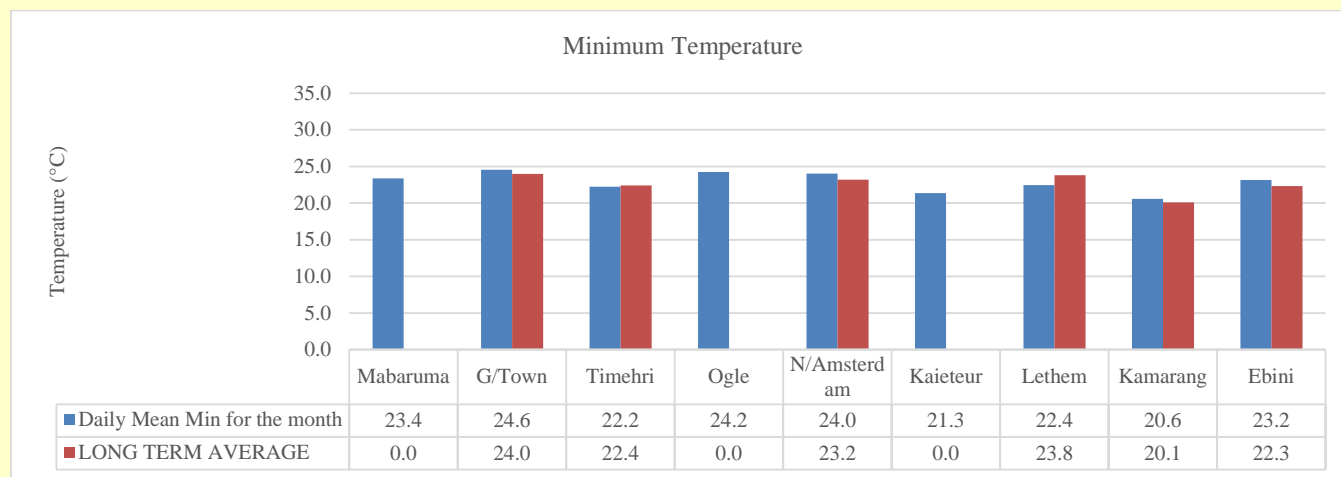


Figure 12 Comparison of August 2018 actual mean monthly Minimum Temperature with mean monthly historical average for August for Synoptic Weather Stations across Guyana

According to the available data, all station (with available historical records) recorded mean daily bright sunshine hours above their long term averages. Region 4 at Ogle, recorded the highest mean daily Bright Sunshine Hours of 9.4 hours/day

for August 2018 with New Amsterdam, trailing by only 0.1 hours/day as the second highest. It is no surprise that Ogle also recorded the maximum one – day Bright Sunshine hour of 11.5 hours on August 04, 2018.

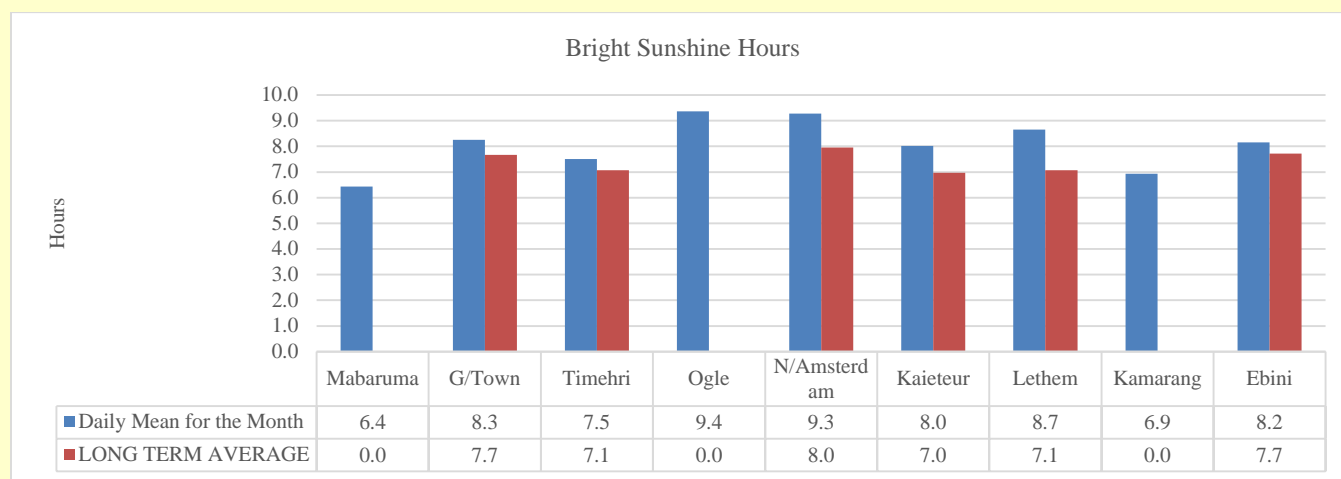


Figure 13 Comparison of August 2018 actual daily mean Bright Sunshine Hours with historical average for August for Synoptic Weather Stations across Guyana

Global Analysis

August 2018 was characterized as warmer to much warmer-than-average conditions for much of the world's land and ocean surfaces. Record warm temperatures were present across parts of each major ocean basin. The most notable temperature departures from average were present across Europe, central Asia, the northeastern contiguous U.S., and southeastern Canada, with temperatures 2.0°C (3.6°F) or higher above average. In contrast, the most notable cool land temperature departures from average were present across northern Canada and parts of southern South America with temperatures 1.5°C (2.7°F) below average.

Averaged as a whole, the global land and surface temperature for August 2018 was the fifth highest August temperature since global records began in

1880 at 0.74°C (1.33°F) above the 20th century average of 15.6°C (60.1°F), notwithstanding, this was the smallest global land and ocean surface temperature since 2013. In addition, nine of the ten warmest August global land and ocean surface temperatures have occurred since 2009, with the last five years (2014–2018) comprising the five warmest on record. The record warmest August occurred in 2016, with a temperature departure from average of $+0.90^{\circ}\text{C}$ ($+1.62^{\circ}\text{F}$). August 1998 is the only 20th century August among the ten warmest Augusts on record, ranking as the seventh highest on record at $+0.68^{\circ}\text{C}$ ($+1.22^{\circ}\text{F}$). August 2018 also marks the 42nd consecutive August and the 404th consecutive month with temperatures, at least nominally, above the 20th century average.

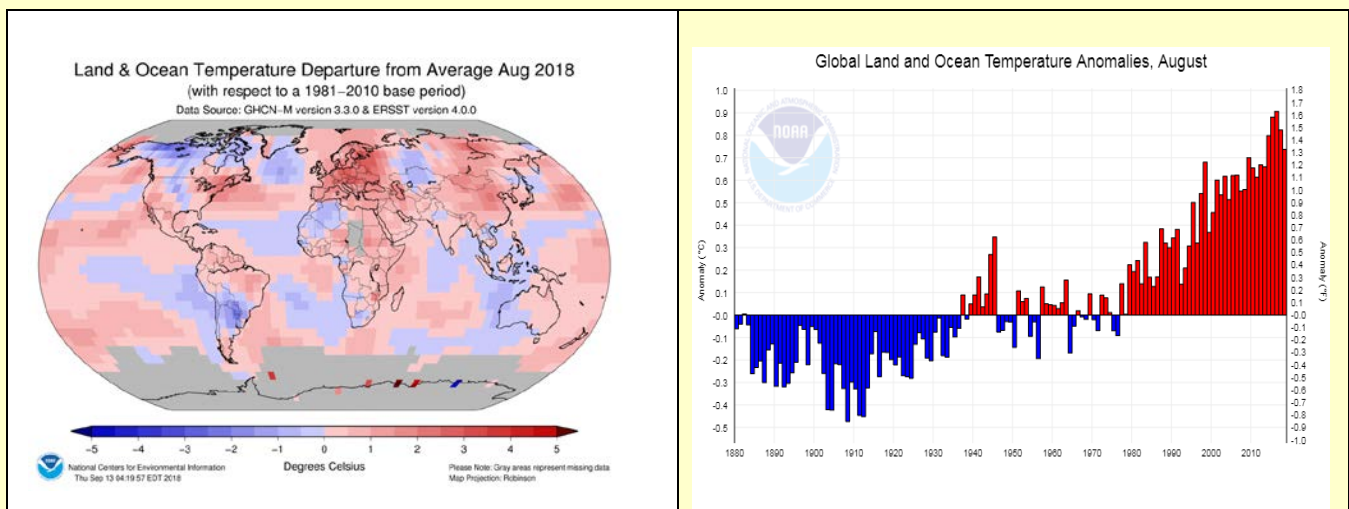


Figure 14(a) Global departure of August 2018 Land and Ocean Temperatures from the Historical averages taken for period 1981 - 2010. Compliments of NOAA². (b) Global Land and Ocean Temperature Anomalies for the month of August from 1880 to 2018³

The global land surface temperature was the sixth warmest August in the 139-year record at 0.94°C (1.69°F) above the 20th century average of 13.8°C (56.9°F). Nine of the ten warmest August global land temperatures have occurred since 2001, with August 1998 the only 20th century August among the ten warmest Augusts on record.

The global ocean temperature was 0.67°C (1.21°F) above average—the fifth highest on record. The years 2014–2018 comprise the five warmest Augusts on record, with 2015 the warmest August at 0.79°C (1.42°F) above average.

² <http://www.ncdc.noaa.gov/sotc/service/global/map-blended-mntp/201808.gif>

³ http://www.ncdc.noaa.gov/cag/time-series/global/globe/land_ocean/1/8/1880-2018

Climatological Outlook for the next few Weeks

CariCOF Precipitation and Temperature Outlook for September to November 2018

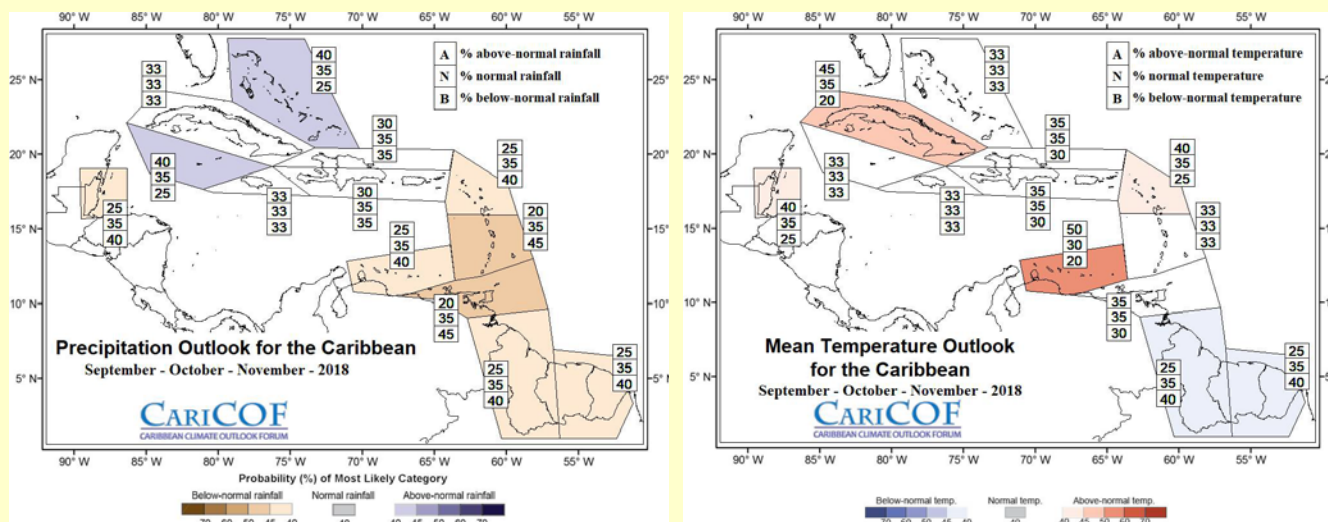


Figure 15 CariCOF (a) Precipitation and (b) Temperature outlook for the Caribbean for the period valid September – November, 2018 showing 80% confidence for *Above Normal to Normal* rainfall and Temperature for Guyana

According to the Outlook provided by CariCOF for the period September – November 2018 in Figure 15(a) above; Expect drier to pretty much like usual for this period, with a confidence of 75%. However, there is a low chance for extremely dry conditions, nevertheless, the chance is still a bit higher than usual.

Similarly, according to the Temperature Outlook in Figure 15(b) above, expect cooler than to pretty much like usual for this period with a confidence of 75%. Since the chance for cool condition is a bit higher than usual for the season, extreme heat is not a concern at this time.

CariCOF Wet Days and Wet Spells Outlook for September – November 2018

Table 3 Climatological Normals and Forecasted Number of *Wet Days* and various categories of *Wet Spells* for selected locations across Guyana for the period September – November, 2018

September to November 2018	No. of wet days		No. of 7-day wet spells (20% wettest)		No. of 7-day very wet spells (10% wettest)		No. of 3-day extremely wet spells (1% wettest)	
	Climatology	Forecast	Climatology	Forecast	Climatology	Forecast	Climatology	Forecast
Guyana_73	10-19	9-20	0.4-2.6	0.4-2.5	0-1.3	0-1.3	0-0	0-0
Guyana (Albion)	11-26	9-30	0.4-2.6	0.2-2.3	0-0.9	0-1.1	0-0.4	0-0.5
Guyana (Blairmont)	13-30	10-30	0.4-2.3	0.2-2.3	0-1.3	0-1.3	0-0	0-0
Guyana (Enmore)	12-34	11-33	0.4-2.6	0.2-2.2	0-1.3	0-1.1	0-0.1	0-0
Guyana (Georgetown)	19-37	19-38	0.5-3	0.4-2.5	0.2-1.6	0.1-1.2	0-1	0-1.1
Guyana (Greatfall)	24-40	24-43	0.7-2.6	0.6-2.9	0-1.3	0-1.7	0-0.1	0-0.5
Guyana (New Amsterdam)	16-28	12-32	0.4-2.6	0.3-2.3	0-1.7	0-1.4	0-1	0-0.8
Guyana (Skeldon)	15-32	15-37	0.5-2.6	0.5-2.6	0.4-1.3	0.2-1.4	0-0.5	0-0.4
Guyana (Timehri)	31-42	28-44	1.3-3	1.2-2.8	0.4-1.7	0.4-1.6	0-0	0-0
Guyana_Wales	25-40	26-42	1.3-3.2	1.1-3.6	0.4-1.7	0.2-1.8	0-0.7	0-0.6

brown is a decrease in frequency, dark blue an increase, grey none are expected

Wet Days: Usually, during September – October – November, 20 to 35 of the 91 days are Wet Days along Coastal Guyana – shown in Table 3 above. For September – November 2018, the forecast indicates drier than usual condition, however, it also indicate a small increase in the amount of Wet Days across coastal Guyana.

7 – Days Wet Spells: Usually, Coastal Guyana experiences up to 3 ‘Seven – Days’ Wet Spell, with up to 2 of them being Very Wet for the period September to November. For September – November 2018, the forecast indicates that there will be slight increase in the usual number of Wet and Very Wet spells – mid confidence (see Table 3 for usual and forecast occurrences).

IRI-ENSO Forecast

Synopsis: There is a 50-55% chance of El Niño onset during September – October – November, 2018 increasing to 65-70% during December – January – February, 2018-19.

During August 2018, ENSO-neutral continued, as indicated by a blend of slightly above- and below-average sea surface temperatures (SSTs) across the equatorial Pacific Ocean.

Over August month, the westernmost Niño-4 region was the warmest, while the Niño-3 and Niño-3.4 regions were weakly positive, with Niño1+2 showing negative. Subsurface temperature anomalies (averaged across 180°-100°W) were positive, with an increase in above-average subsurface temperatures in the central Pacific and slight expansion of negative anomalies

in the eastern Pacific. In addition, Convection returned to near average over the Date Line, and was slightly enhanced over Indonesia, while Low-level westerly wind anomalies re-developed across the east-central and western Pacific, although they were only slightly evident in the monthly average. Upper-level wind anomalies were westerly over the eastern Pacific.

Overall, the oceanic and atmospheric conditions reflected ENSO-neutral.

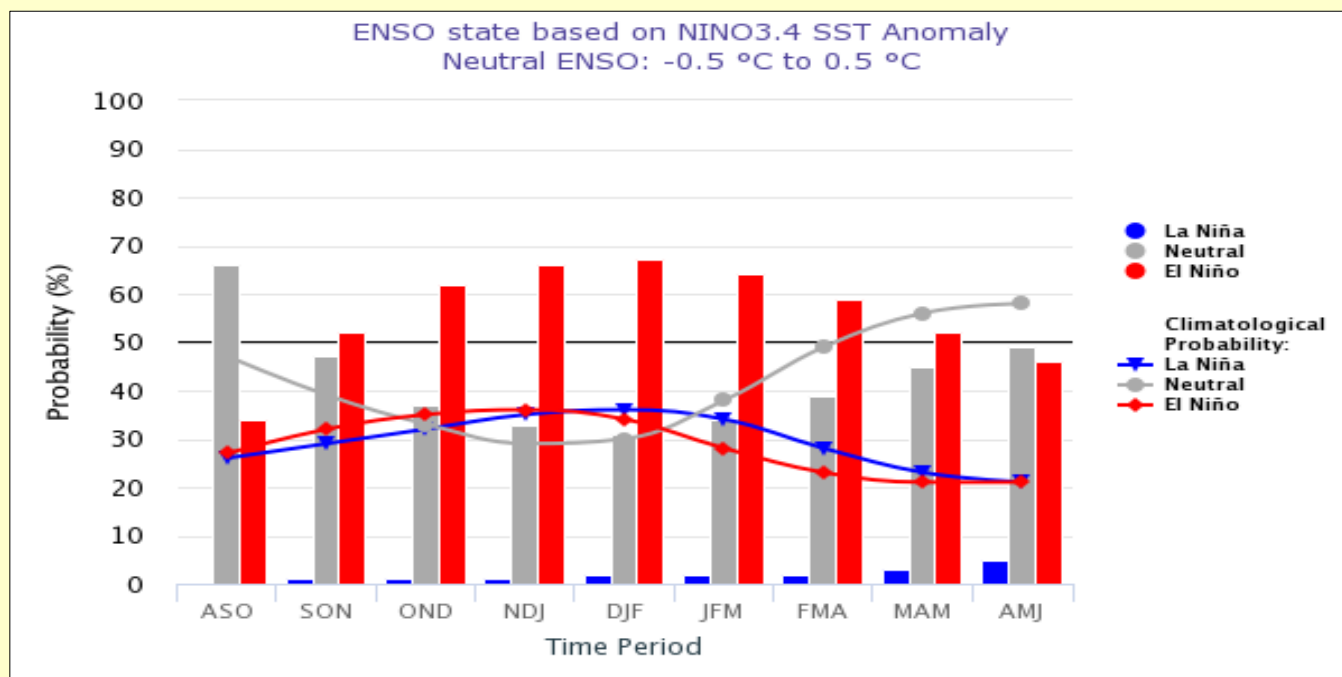


Figure 16 September 2018 CPC/IRI Official Probabilistic ENSO Forecast

Recent and Current Conditions

In mid-September 2018, the NINO3.4 SST anomaly showed neutral ENSO conditions. For August the SST anomaly was 0.30 C, indicating neutral conditions, and for Jun-Aug it was 0.27 C, also neutral. According to the IRI and NOAA/Climate Prediction Center, the condition for El Niño requires that the SST anomaly in the Nino3.4 region (5S-5N; 170W-120W) exceed 0.5 C. Similarly, for La Niña, the anomaly must be -0.5 C or less. The climatological probabilities for La Niña, neutral, and El Niño conditions vary seasonally, and are shown in a table in Annex IV for each 3-month season. The most recent weekly anomaly in the Nino3.4 region was 0.3, showing neutral conditions. Additionally, most of the key atmospheric variables, including the upper level zonal wind anomalies, the outgoing longwave radiation pattern (convection), and the Southern

Oscillation Index suggest neutral conditions over recent weeks. However, during the most recent month the low-level zonal wind anomalies have become weakly westerly, suggesting a tendency toward El Niño conditions. The subsurface temperature anomalies across the eastern equatorial Pacific remain at moderately above-average, and have recently shown a slight further increase. These warmed waters at depth have been impacting the surface, resulting in slightly above-average temperatures, and also presaging likely further warming of the SST in the coming months. Given the current and recent SST anomalies, the subsurface profile and the conditions of most key atmospheric variables, we see a likely warming to at least weak El Niño conditions beginning in the Sep-Nov period

Expected Conditions

The official diagnosis and outlook produced jointly by CPC and IRI issued by the NOAA/Climate Prediction Center ENSO Diagnostic Discussion suggested a 50-55% chance for El Niño development during fall season, rising to 65-70% for winter 2018-19. As of mid-September, about 60-65% of the models predict El Niño conditions for the immediate forecast period (Sep-Nov 2018), while about 35-40% suggests neutral conditions.

For the extended forecast period (Oct-Dec 2018 through May-Jul 2019), probabilities for neutral decreases (15-30%). Meanwhile, the probability for El Niño rises to 80-85% for Oct-Dec through Dec-Feb, but remains at more than 70% through to the final forecast season from May-Jul 2019. La Niña probabilities are near zero throughout the forecast period. – see Table 4 below for probability of occurrence.

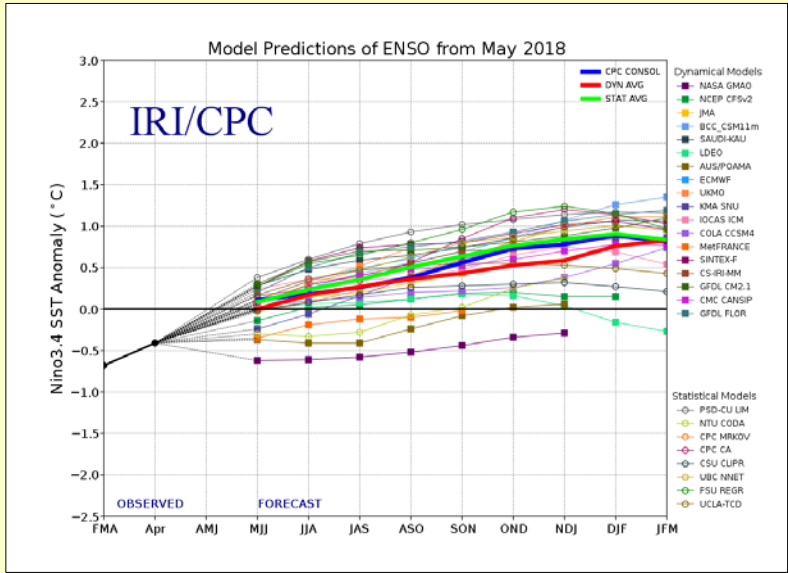


Figure 17 May 2018 Plume of Model ENSO Predictions

Table 4 Showing IRI/CPC Early – September Official Forecast probabilities for La Niña, neutral, and El Niño conditions for each 3-month season.

Season	La Niña	Neutral	El Niño
ASO 2018	0%	66%	34%
SON 2018	1%	47%	52%
OND 2018	1%	37%	62%
NDJ 2018	1%	33%	66%
DJF 2018	2%	31%	67%
JFM 2018	2%	34%	64%
FMA 2019	2%	39%	59%
MAM 2019	3%	45%	52%
AMJ 2019	5%	49%	46%

In summary, the probabilities derived from the models on the IRI/CPC plume describe, on average, a tilt of the odds toward El Niño conditions starting from Sep-Nov and continuing through May-Jul 2019, peaking around 70-75% from Nov-Jan through Apr-Jun. The predicted

continuation of elevated chances for El Niño well into spring/early summer 2019 hints at the possibility of a two-year El Niño episode, likely related to the late predicted onset of El Niño in 2018. Probabilities for La Niña are less than 5% throughout the entire forecast period.

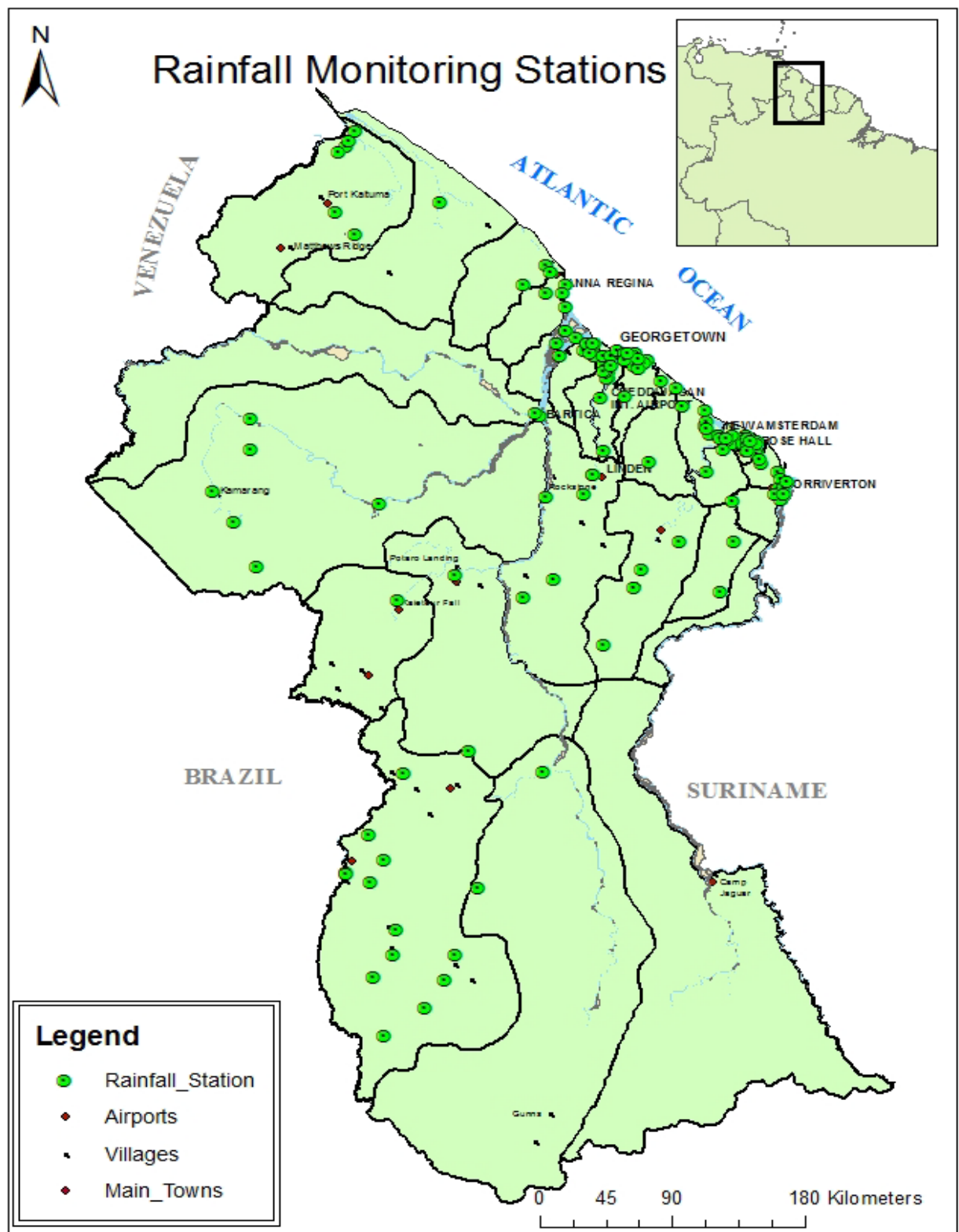
Annex I

Glossary of Terms

- **CariCOF** - Caribbean Climate Outlook Forum
- **CPC** – Climate Prediction Center
- **ENSO** - *El Niño–Southern Oscillation* is an irregularly periodical variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean, affecting much of the tropics and subtropics.
- **Fall Season (Northern Hemisphere)** – Period from March to May
- **Historical Mean** - Arithmetical mean computed using all the available Historical data from time of commencement of data collection.
- **IRI** – International Research Institute
- **ITCZ** - *The Inter Tropical Convergence Zone* is a belt of low pressure which circles the Earth generally near the equator where the trade winds of the Northern and Southern Hemispheres come together.
- **Long Term Average** - Same as Historical Mean
- **NOAA** - National Oceanic and Atmospheric Administration
- **Normal** - An Arithmetical mean taken over a Thirty (30) years period defined by WMO - currently 1981-2010.
- **OLR** – Outgoing Longwave Radiation.
- **Primary Dry Season** - The Major Dry Season in Guyana Occurring during the period August to mid-November
- **Primary Wet Season** - A period of heavy rainfall in Guyana occurring during the period Mid-April to Mid-July as a result of the northward movement of the ITCZ
- **Secondary Dry Season**
- **Secondary Wet Season** - A rainfall season in Guyana occurring during the period mid-November to January as a result of the Southward movement of the ITCZ
- **Spring Season (Northern Hemisphere)** – Period from March to May
- **SST** - Sea Surface Temperature

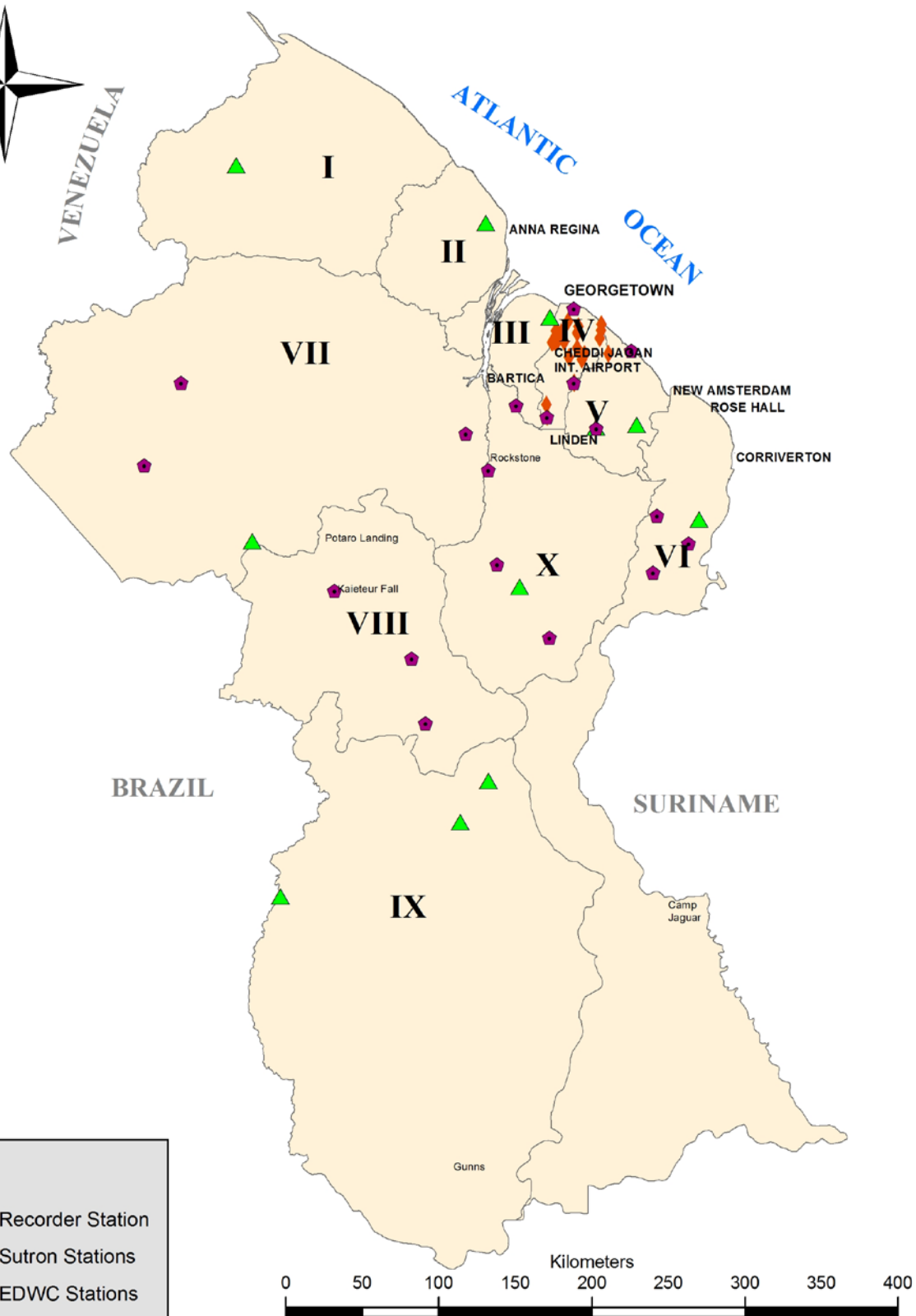
- **Summer Season (Northern Hemisphere)** – Period from June to August
- **Winter Season (Northern Hemisphere)** – Period from December to February
- **WMO** - World Meteorological Organization

Annex II





Administrative Distribution of Hydrological Stations



Annex III**Classification of Precipitation Values**

DESCRIPTION	ABBREVIATION	RAINDAYS	RAINFALL (mm)
Very Dry	VD	0-10 11-20	0-59.9 11-29.9
Dry	D	1-10 11-20 21-31	60-119.9 30-89.9 21-59.9
Moderately Dry	MD	1-10 11-20 21-31	120-179.9 90-149.9 60-119.9
Moderately Wet	MW	1-10 11-20 21-31	180-239.9 150-209.9 120-179.9
Wet	W	1-10 11-20 21-31	240-329.9 210-269.9 180-239.9
Very Wet	VW	1-10 11-20 21-31	330-449.9 270-389.9 240-329.9
Exceedingly Wet	EeW	1-10 11-20 21-31	450-569.9 390-509.9 330-449.9
Excessively Wet	EsW	1-10 11-20 21-31	>570 510-629.9 450-569.9
Extremely Wet	EtW	11-20 21-31	>630 >570

Table Showing variation in seasonal climatological probabilities for La Niña, neutral, and El Niño conditions for each 3-month season

SEASON	LA NIÑA	NEUTRAL	EL NIÑO
DJF	36%	30%	34%
JFM	34%	38%	28%
FMA	28%	49%	23%
MAM	23%	56%	21%
AMJ	21%	58%	21%
MJJ	21%	56%	23%
JJA	23%	54%	23%
JAS	25%	51%	24%
ASO	26%	47%	27%
SON	29%	39%	32%
OND	32%	33%	35%
NDJ	35%	29%	36%

Sources

- <http://carogen.cimh.edu.bb/index.php/component/countrydata/countrydata?dataset=rainfall>
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- <http://www.ncdc.noaa.gov/sotc/global/201808>
- <http://iri.columbia.edu/wp-content/uploads/2018/08/figure1.gif>

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