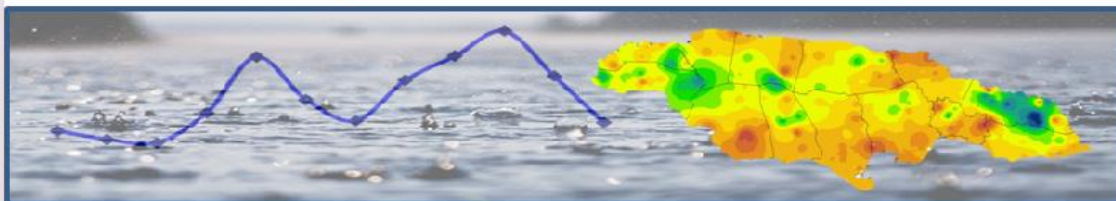




Monthly Rainfall Summary



July 2018

Introduction

This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica (MSJ). The MSJ maintains a network of rainfall stations located in every parish across the island. Rainfall is usually read at 7:00 a.m. and reported for the previous 24 hours. These readings are done by a cadre of paid but mainly voluntary dedicated observers.

General

Jamaica's bimodal rainfall pattern consists of two peak periods with higher values of rainfall and corresponding periods of lower rainfall. The primary peak occurs in October and the secondary in May. The lowest amounts are at a minimum during the period February to March and the month of July. This is based on long-term reports but deviations from this pattern do occur year to year.

A comparison of the old 30-year mean (1951-1980) with the 1971-2000 mean by the MSJ has shown that the island's rainfall patterns and values have not changed significantly for the current thirty-year (1971-2000) period. The main changes noted are

that of wetter dry periods and drier wet periods. This has however not affected the overall rainfall pattern for the island as seen in Figure 1 below.

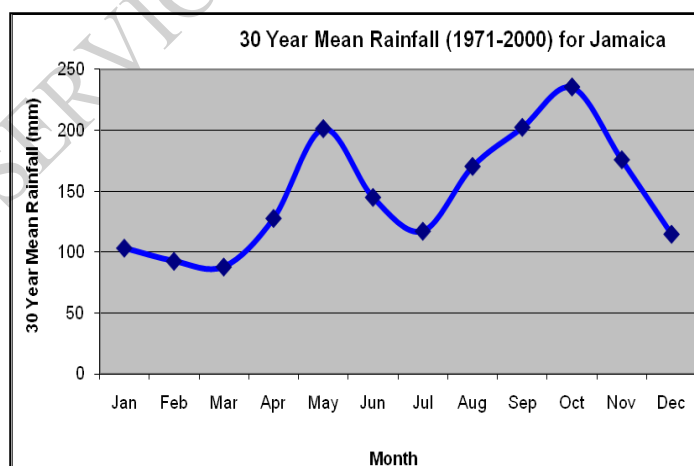


Figure 1: Precipitation Pattern from 1971-2000 for Jamaica.

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HIGHLIGHTS FOR JULY

- All thirteen parishes received below-normal rainfall.
- All 13 parishes experienced varying levels of dryness, with 11 parishes recording meteorological drought.
- Below-normal rainfall is forecast for the island, for August to October.

Parish Mean Rainfall and Comparison with 30-yr Averages							
Parishes	KEY	JULY	JULY	JULY	% OF 30 YR NORMAL		
		2018	2017	30 YR NORMAL (1971-2000)	2018	2018	2018
					MAY	JUNE	JULY
Hanover	HAN	151	166	234	103	47	64
Westmoreland	WES	119	189	220	124	57	54
Manchester	MAN	62	40	92	102	33	67
St. Elizabeth	STE	64	87	131	68	35	49
Clarendon	CLA	17	31	57	134	12	31
St. Catherine	STC	50	91	85	120	61	59
Trelawny	TRE	67	70	76	108	94	88
St. James	STJ	86	128	125	102	40	69
St. Ann	STA	44	54	67	126	28	66
St. Mary	STM	39	24	82	100	4	48
Portland	POR	125	83	170	100	28	74
St. Thomas	STT	81	25	120	185	17	68
Kgn. & St. And.	KSA	26	66	65	138	16	40
Jamaica	JAM	72	81	117	112	37	61

Table 1: Parish Mean Rainfall and Comparison with 30-yr Averages

Rainfall Assessment

For July 2018, all thirteen (13) parishes¹ recorded below-normal rainfall. It was noticed that nine of the thirteen parishes received less rainfall in July 2018 when compared to one year ago, with the exceptions being Manchester, St. Thomas, Portland and St. Mary. The percentages of mean rainfall in July were higher for 10 parishes when compared to those of June but, lower for those of May. Overall, the island's average rainfall for July was 72 mm, which is 9 mm less than that received in July 2017, and which corresponds to 61% of the 30-year (1971-2000) monthly mean value. There were three (3) parishes namely, Westmoreland, Trelawny and St. Catherine that recorded 3 consecutive months of decreasing rainfall percentages, although Trelawny remained the parish receiving the highest percentage of its mean monthly rainfall. No parish recorded increasing rainfall percentages, throughout the same period. Four (4) of the ten (10) parishes that received 50% or less of their 30-year monthly mean rainfall in June, did so again in July; these parishes were St. Elizabeth, Clarendon, Kingston & St. Andrew and St. Mary. The remaining 9 parishes received more than 50% of their normal rainfall for the month. Across the island, the parish percentages of the 30-year monthly means ranged from 31% for Clarendon to 88% for Trelawny.

¹ Note that Kingston and St. Andrew (KSA) are combined and reported as one parish.

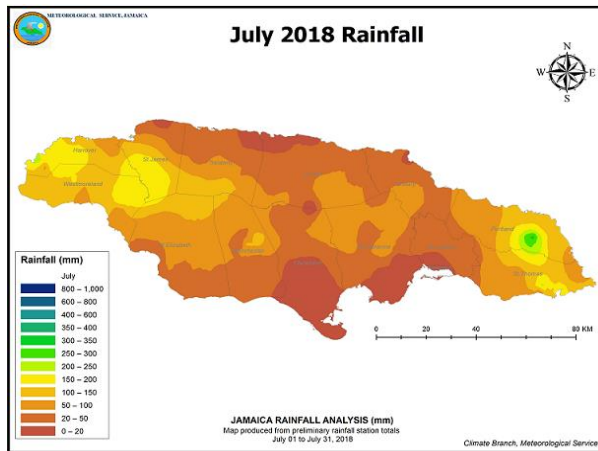


Fig.2. Distribution of Jamaica's Rainfall for July 2018

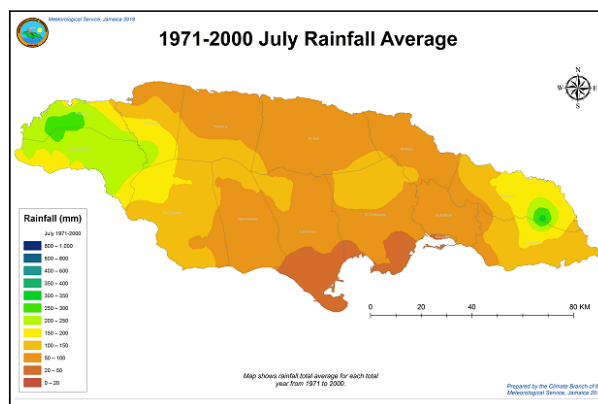


Fig.3. Thirty-year (1971-2000) Mean Island Rainfall for July

Drought Conditions

Meteorological Drought Methodology and Index

The Standardized Precipitation Index (SPI), developed by T.B. McNeen, N.J. Doesken, and J. Kleist in 1993, is a tool used to monitor drought conditions based on precipitation. The SPI can be used to monitor conditions on a variety of time scales ranging from 1-month to 12-months. This temporal flexibility allows the SPI to be useful in both short-term meteorological, agricultural and long-term hydrological applications by providing early warning of drought and for making assessments on the severity of a drought. The MSJ calculates an observed SPI (see Table 2) using a 2-month time interval.

Drought is defined as a long period of weather without rain (Heinemann English Dictionary). The more precise definitions for specific areas of concern that are most commonly used are:

- Agricultural drought* – a period when soil moisture is inadequate to meet the demands for crops to initiate and sustain plant growth.
- Hydrological drought* – period of below average or normal stream-flow and/or depleted reservoir storage.
- Meteorological drought* – a period of well-below average or normal precipitation (rainfall) that spans from a few months to a few years.

Parish Drought Assessment

Observed SPI for April to July 2018			
Parishes	Apr/May	May/Jun	Jun/Jul
Hanover	0.78	-0.53	-1.42
Westmoreland	1.06	0.27	-1.10
Manchester	0.27	-0.49	-1.20
St. Elizabeth	-0.13	-0.88	-1.36
Clarendon	0.32	-0.12	-1.38
St. Catherine	0.00	-0.13	-0.93
Trelawny	0.14	0.32	-0.03
St. James	0.43	-1.10	-1.65
St. Ann	0.21	-0.25	-1.47
St. Mary	-0.70	-0.49	-1.55
Portland	-0.79	-0.64	-1.32
St. Thomas	0.52	0.10	-1.22
Kingston & St. Andrew	-0.42	-0.40	-1.06

Table 2: Parish SPI for April to July 2018

SPI Value	Category	SPI Value	Category
0.00 to -0.50	Near Normal	0.00 to 0.50	Near Normal
-0.51 to -0.79	Abnormally Dry	0.51 to 0.79	Abnormally Wet
-0.80 to -1.29	Moderately Dry	0.80 to 1.29	Moderately Wet
-1.30 to -1.59	Severely Dry	1.30 to 1.59	Severely Wet
-1.60 to -1.99	Extremely Dry	1.60 to 1.99	Extremely Wet
-2.00 or less	Exceptionally Dry	2.00 or more	Exceptionally Wet

Table 3: Severity Classes of the SPI

Drought Index Discussion

Based on the latest SPI figures for June/July, all 13 parishes have shown consecutive decreases (deterioration/drier conditions) in their SPI values over the last 2 bi-monthly periods, with twelve (12) parishes recording SPI values of less than -0.90, which equates to rankings ranging from moderately dry to extremely dry. There were 11 parishes that recorded meteorological drought, with the exceptions being Trelawny and St. Catherine. On the parish level, Westmoreland and St. Thomas recorded large decreases in their SPI values over the last 2 bi-monthly periods, with

rankings for both parishes moving from near-normal (wet) to moderately dry conditions, a change of 3 severity classes for each parish. Three other parishes also had rankings of moderately dry namely, Manchester, St. Catherine and Kingston & St. Andrew. The following 6 parishes recorded severely dry conditions, Hanover, St. Elizabeth, Clarendon, Portland, St. Mary and St. Ann, with the latter parish also changing 3 severity classes. St. James recorded the lowest SPI value, with a ranking of extremely dry conditions. Meanwhile, Trelawny had the highest SPI value (-0.03) with a ranking of near-normal (dry) (see Fig 4 below for current drought conditions).

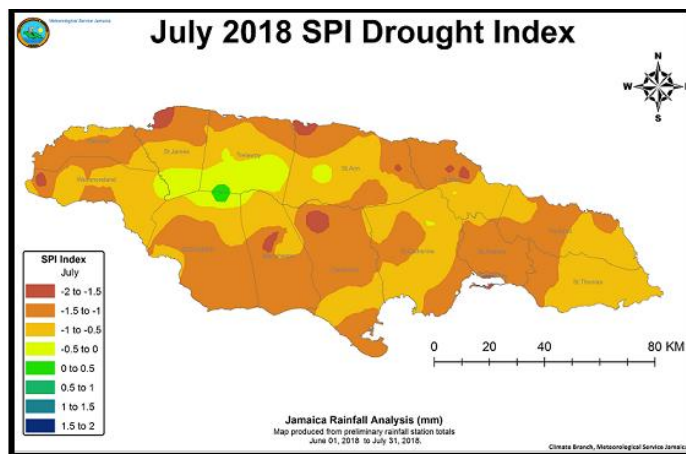


Fig.4. Drought Analysis for June-July 2018

Precipitation and Temperature Outlook: August to October 2018

During the next three months which includes the peak period (August/September) of the hurricane season and the transition to the (traditional) primary wet season, the forecast models are indicating that Jamaica should receive below-normal rainfall. Should this forecast materialize, it could add to the deficit in rainfall that occurred in June and July and therefore, further exacerbate the existing dry/drought conditions across the island and forcing immediate responses. Above-normal temperatures are also still expected across the island over the next 3 months.

Table 4 below, shows the Precipitation Outlook for 17 selected stations across Jamaica as analysed by the Climate Predictability Tool. For the August to October 2018 period, all stations are indicating higher probabilities for below-normal rainfall.

Stations	Parishes	Below (B) %	Normal (N) %	Above (A)%
Beckford Kraal	Clarendon	60	25	15
Mount Peto	Hanover	45	30	25
Manley Airport	Kingston	60	25	15
Lawrence Tavern	Kingston	60	25	15
Suttons	Manchester	50	30	20
Shirley Castle	Portland	45	30	25
Cave Valley	St. Ann	50	30	20
Tulloch Estate	St. Catherine	60	25	15
Worthy Park	St. Catherine	60	25	15
Y.S. Estate	St. Elizabeth	50	30	20
Potsdam	St. Elizabeth	55	30	15
Sangster	St. James	45	30	25
Serge Island	St. Thomas	40	35	25
Hampstead	St. Mary	40	35	25
Orange Valley	Trelawny	50	30	20
Savanna-La-Mar	Westmoreland	50	30	20
Frome	Westmoreland	45	30	25
Key A: Above-normal rainfall means greater than 66 percentile of the rank data N: Near-normal rainfall means between 33 and 66 percentile of the rank data B: Below-normal rainfall means below 33 percentile of the rank data				

Table 4: Precipitation Outlook for Selected Stations for August to October 2018

Forecast Verification

For the same period last year, August-October 2017, the models performed fairly well, with accuracy in the range of 35-71 percentage points. The initial forecast indicated that rainfall was likely to be near-normal to above-normal for the period and preliminary findings confirmed that most stations recorded near-normal to above-normal rainfall amounts during the period.

Summary

All thirteen parishes recorded rainfall amounts that were below their respective 30-year (1971-2000) monthly means. Eleven of thirteen parishes recorded meteorological drought conditions, the exceptions being Trelawny and St. Catherine.

Overall, Jamaica recorded rainfall of 61% of its normal rainfall in July. On the parish level and for a second consecutive month, **St. Elizabeth, Clarendon, Kingston & St. Andrew and St. Mary**, were the parishes to receive 50% or less of their normal rainfall amounts. The other parishes received more than 50% but less than 100% of their 30-year means.

The projection over the next three (3) months is for below-normal rainfall across the island. Should this forecast materialize, it would add to the deficit in rainfall that was experienced in June and July and therefore, further exacerbate existing dry/drought conditions across the island and require immediate responses.

METEOROLOGICAL SERVICE, JAMAICA