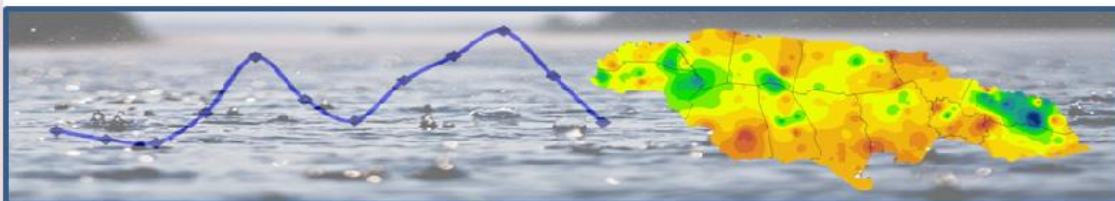




Monthly Rainfall Summary



June 2018

Introduction

This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica. The Meteorological Service 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 Meteorological Service 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.

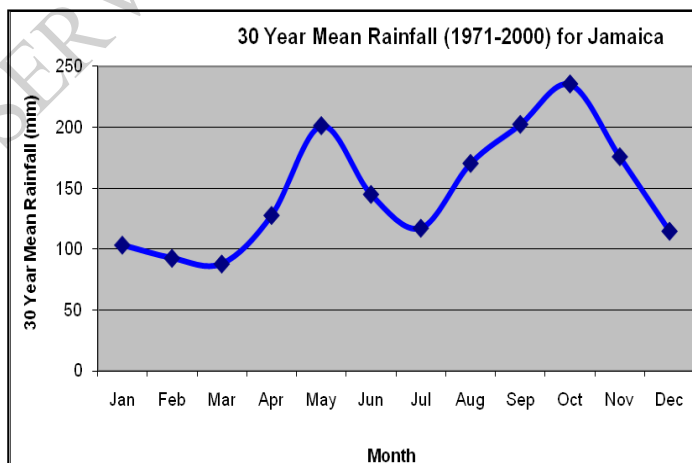


Figure 1: Precipitation Pattern from 1971-2000 for Jamaica.

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HIGHLIGHTS FOR JUNE

- All thirteen parishes received below-normal rainfall.
- St. Elizabeth recorded drought conditions, while, dry/drought conditions were recorded across sections of other parishes.
- Below-normal rainfall is forecast for the island, for July to September.

Parish Mean Rainfall and Comparison with 30-yr Averages							
Parishes	KEY	JUNE	JUNE	JUNE	% OF 30 YR NORMAL		
		2018	2017	30 YR NORMAL (1971-2000)	2018	2018	2018
					APR	MAY	JUNE
Hanover	HAN	142	159	283	158	112	50
Westmoreland	WES	124	106	216	153	133	57
Manchester	MAN	40	255	115	105	102	35
St. Elizabeth	STE	42	159	127	105	68	33
Clarendon	CLA	11	246	94	76	140	11
St. Catherine	STC	69	252	110	81	120	63
Trelawny	TRE	88	116	93	165	108	94
St. James	STJ	71	102	161	181	102	44
St. Ann	STA	27	148	95	77	126	28
St. Mary	STM	4	82	117	13	111	3
Portland	POR	58	279	206	26	100	28
St. Thomas	STT	31	165	170	50	185	18
Kgn. & St. And.	KSA	16	101	98	73	141	16
Jamaica	JAM	55	167	145	92	116	38

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

Rainfall Assessment

For June 2018, all thirteen (13) parishes¹ recorded below-normal rainfall. It was noticeable that twelve of the thirteen parishes received less rainfall in June 2018 when compared to June 2017, with the exception being Westmoreland. The rainfall percentages in June were down significantly for several parishes when compared to those of May. Overall, the island's average rainfall for June was 55 mm, which is 112 mm less than that received a year ago, and which corresponds to 38% of the 30-year (1971-2000) monthly mean value. The accumulated rainfall for Jamaica, for the 1st quarter of 2018 was 154% of what is expected. However, during the 2nd quarter, accumulated rainfall was only 96% of what is expected. There were six (6) parishes that recorded 3 consecutive months of decreasing rainfall percentages and none with increasing rainfall percentages, throughout the same period. There were ten (10) parishes that received 50% or less of their 30-year monthly mean rainfall in June. Westmoreland, St. Catherine and Trelawny were the only parishes to receive more than 50% of their normal rainfall for the month. Across the island, the parish percentages of the 30-year monthly means ranged from 3% for St. Mary to 94% for Trelawny.

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

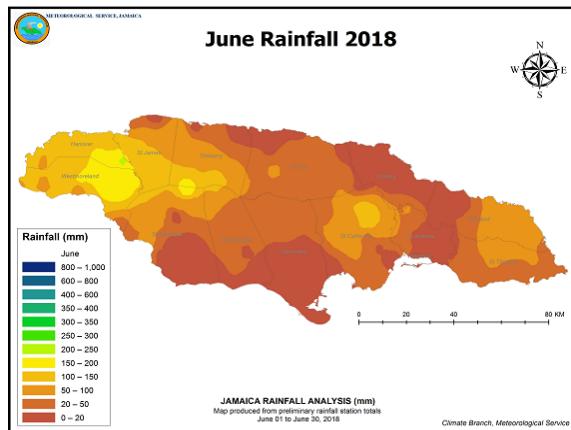


Fig.2. Distribution of Jamaica's Rainfall for June 2018

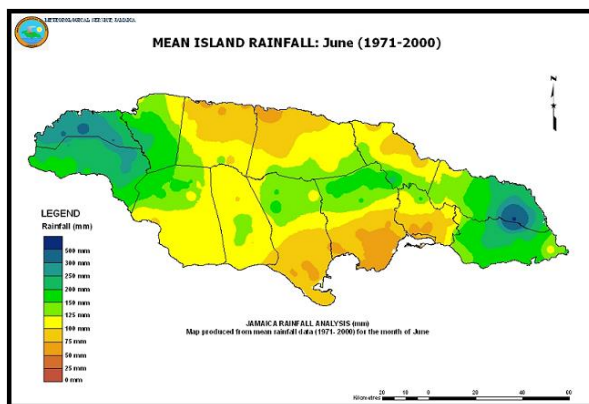


Fig.3. Thirty-year (1971-2000) Mean Island Rainfall for June

Drought Conditions

Meteorological Drought Methodology and Index

The Standardized Precipitation Index (SPI), developed by T.B. McKee, 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 a 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 Meteorological Service, Jamaica (MSJ) calculates an observed SPI Drought Index (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 March to June 2018			
Parishes	Mar/Apr	Apr/May	May/Jun
Hanover	0.54	0.92	-0.18
Westmoreland	0.78	1.20	0.46
Manchester	0.25	0.27	-0.49
St. Elizabeth	0.40	0.13	-0.88
Clarendon	-0.65	0.32	0.12
St. Catherine	-0.90	0.00	-0.13
Trelawny	0.14	0.14	0.32
St. James	0.77	0.43	-1.02
St. Ann	-0.11	0.22	-0.24
St. Mary	-1.06	-0.70	-0.49
Portland	-0.84	-0.79	-0.64
St. Thomas	-0.91	0.52	0.11
Kingston & St. Andrew	-0.66	-0.10	-0.38

Table 2: Parish SPI for March to June 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 May/June, two parishes have shown consecutive increases (slight improvements) in their SPI values over the last 3 bi-monthly periods, while, two other parishes have shown consecutive decreases (deterioration) in their SPI values over the same period. The latter two parishes were, St. James and St. Elizabeth, with both recording moderately dry conditions at the end of June. Of the parishes with increasing SPI values, Portland had

become abnormally dry, while, St. Mary improved its ranking to near-normal (dry). Other parishes with near-normal (dry) rankings were Hanover, Manchester, St. Catherine, St. Ann and Kingston & St. Andrew. The remaining four parishes namely, Westmoreland, Clarendon, Trelawny and St. Thomas had rankings of near-normal (wet). Of note, is that St. James also had the largest change in SPI values over the last 3 bi-monthly periods. The parish previously had a ranking of abnormally wet during the March/April period. (see Fig 4 below for current drought conditions).

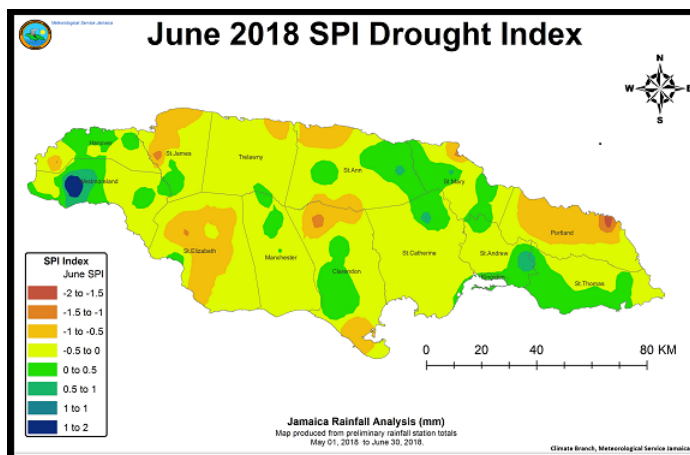


Fig.4. Drought Analysis for May-June 2018

Precipitation and Temperature Outlook: July to September 2018

During the next three months which includes the peak period (August/September) of the hurricane season, the forecast models are indicating that Jamaica should receive below-normal rainfall. Should this forecast materialize, this could result in the expansion of dryness to more areas across the island, as well as, further exacerbating existing conditions.

Above-normal temperatures are 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 July to September 2018 period, the majority of stations are indicating higher probabilities for below-normal rainfall. Two stations, one each in Manchester and St. Ann, are showing higher probabilities for above-normal rainfall.

Stations	Parishes	Below (B) %	Normal (N) %	Above (A)%
Beckford Kraal	Clarendon	60	25	15
Mount Peto	Hanover	45	25	30
Manley Airport	Kingston	55	25	20
Lawrence Tavern	Kingston	60	20	20
Suttons	Manchester	25	35	40
Shirley Castle	Portland	60	20	20
Cave Valley	St. Ann	25	30	45
Tulloch Estate	St. Catherine	60	25	15
Worthy Park	St. Catherine	50	25	25
Y.S. Estate	St. Elizabeth	60	20	20
Potsdam	St. Elizabeth	55	25	20
Sangster	St. James	45	30	25
Serge Island	St. Thomas	70	15	15
Hampstead	St. Mary	60	20	20
Orange Valley	Trelawny	60	20	20
Savanna-La-Mar	Westmoreland	60	20	20
Frome	Westmoreland	45	25	35
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 July to September 2018

Forecast Verification

For the same period last year, July-September 2017, the models performed generally fair, with accuracy in the range of 18-65 percentage points. The initial forecast indicated that rainfall was likely to be 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 below their respective 30-year (1971-2000) monthly means.

Overall, Jamaica recorded rainfall 62% below normal in June. On the parish level, Westmoreland, St. Catherine and Trelawny were the only parishes to receive more than half of their normal rainfall amounts for the month of June. The other parishes received 50% or less 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, this could result in the expansion of dry/drought conditions to other areas across the island, as well as serve, to exacerbate existing conditions.

METEOROLOGICAL SERVICES, JAMAICA