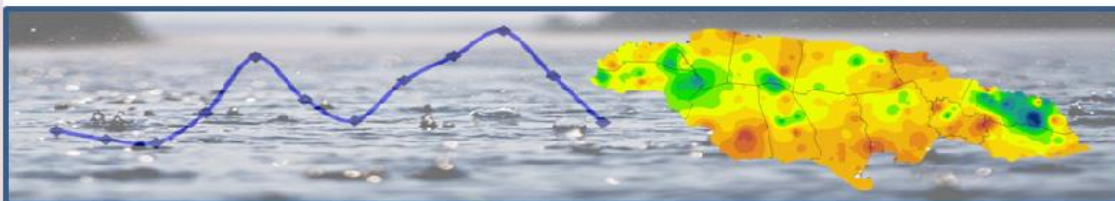




Monthly Rainfall Summary



April 2018

Introduction

This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica. The Meteorological Service maintains a network of approximately one hundred and seventy (170) rainfall stations located 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.

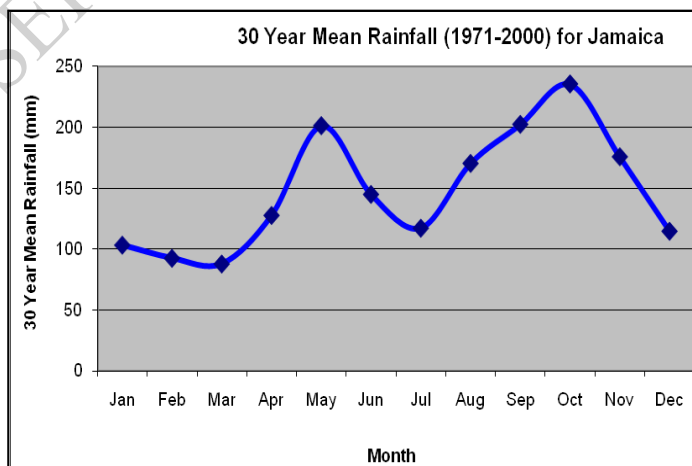


Figure 1: Precipitation Pattern from 1971-2000 for Jamaica.

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HIGHLIGHTS FOR APRIL

- Seven of thirteen parishes received below-normal rainfall.
- Some eastern parishes were experiencing drought conditions.
- Western parishes were experiencing wet conditions.
- Near-normal to above-normal rainfall is forecast for the island, for May to July.

Parish Mean Rainfall and Comparison with 30-YR Averages							
		APR	APR	APR	% OF 30 YR NORMAL		
		2018	2017	30 YR NORMAL (1971-2000)	2018	2018	2018
Parishes	KEY	2018	2017		FEB	MAR	APR
Hanover	HAN	241	207	153	29	61	158
Westmoreland	WES	213	162	139	60	86	153
Manchester	MAN	177	296	168	23	98	105
St. Elizabeth	STE	184	220	175	69	104	105
Clarendon	CLA	52	268	68	98	52	76
St. Catherine	STC	74	306	91	179	47	81
Trelawny	TRE	147	147	89	79	121	165
St. James	STJ	145	128	95	107	94	153
St. Ann	STA	71	191	93	165	111	77
St. Mary	STM	9	161	141	117	105	7
Portland	POR	69	615	263	112	101	26
St. Thomas	STT	44	385	92	115	41	48
Kgn. & St. And.	KSA	68	141	93	84	42	73
Jamaica	JAM	115	248	128	96	86	90

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

Rainfall Assessment

For April 2018, seven (7) of thirteen (13) parishes¹ recorded below-normal rainfall while, the other six (6) parishes recording above-normal rainfall. It was noticeable that eleven parishes received less rainfall in April 2018 when compared to April 2017. Trelawny received the same amount of rainfall as it did one year ago, while St. James received more rainfall this April than it did last year April. The rainfall percentages in April were down significantly for 2 of the 7 parishes when compared to those of March. Overall, the island's average rainfall for April was 115 mm, which is 133 mm less than that received a year ago, and which corresponds to 90% of the 30-year (1971-2000) monthly mean value. The accumulated rainfall for Jamaica for the 4-months of 2018 was 134% of what is expected, thanks to the above-normal rainfall received in January. On the parish level, St. Ann, St. Mary and Portland have recorded 3 consecutive months with decreasing rainfall percentages, with St. Mary receiving 7% and Portland receiving 26% respectively of their 30-year monthly means. St. Thomas received 48% of its 30-year monthly mean. In contrast, Hanover and Westmoreland received significantly more rainfall percentage-wise than they did in March. Across the island, the parish percentages of the 30-year monthly means were from 7% for St. Mary to 165% for Trelawny.

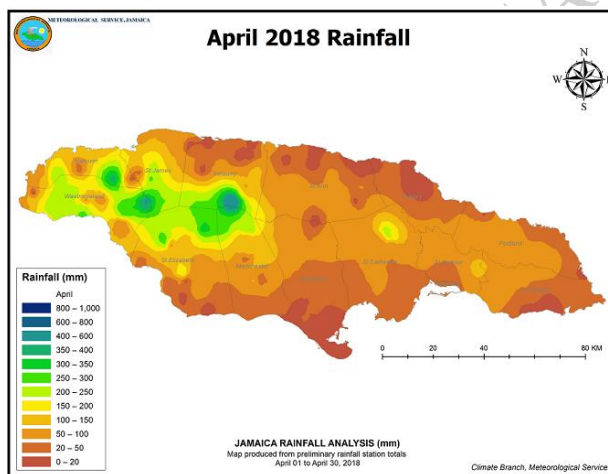


Fig.2. Distribution of Jamaica's Rainfall for April 2018

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

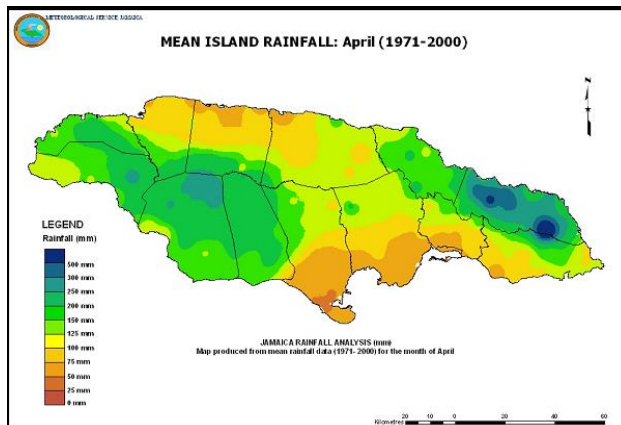


Fig.3. Thirty-year (1971-2000) Mean Island Rainfall for April

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 January to April 2018			
Parishes	Jan/Feb	Feb/Mar	Mar/Apr
Hanover	0.74	-0.89	0.54
Westmoreland	0.69	-0.29	0.78
Manchester	0.40	-0.64	0.17
St. Elizabeth	0.83	0.09	0.41
Clarendon	1.55	-0.04	-0.61
St. Catherine	1.90	0.34	-0.92
Trelawny	1.87	0.06	0.14
St. James	2.47	-0.08	0.39
St. Ann	3.02	0.77	-0.08
St. Mary	1.91	0.64	-0.87
Portland	2.72	0.38	-0.84
St. Thomas	1.84	0.11	-0.93
Kingston & St. Andrew	0.22	-0.45	-0.66

Table 2: Parish SPI for January to April 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 SPI figures for the March-April period, 7 parishes have shown decreases in their SPI values, 4 of this 7 parishes having rankings of moderately dry and two other parishes with abnormally dry conditions and the other parish with near-normal (dry) conditions. Four (4) other parishes had rankings in the near-normal (wet) category and the other two (2) parishes had rankings of moderately wet. Over the last two bi-monthly periods St. Mary, Portland, St. Thomas and St. Catherine have experienced significant decreases in their SPI values with each parish having a ranking of moderately dry. In the case of St. Mary, Portland and St. Thomas, these

parishes were recording drought conditions. In contrast, Hanover and Westmoreland which experienced dry conditions the previous bi-monthly period, had rankings of moderately wet this bi-monthly period. Sections of St. Elizabeth and Manchester also experienced reversals in conditions, moving from dry to wet (see Fig 4 below). There were however, pockets of dryness being observed in Trelawny, St. James and Westmoreland despite increases in these parishes SPI values.

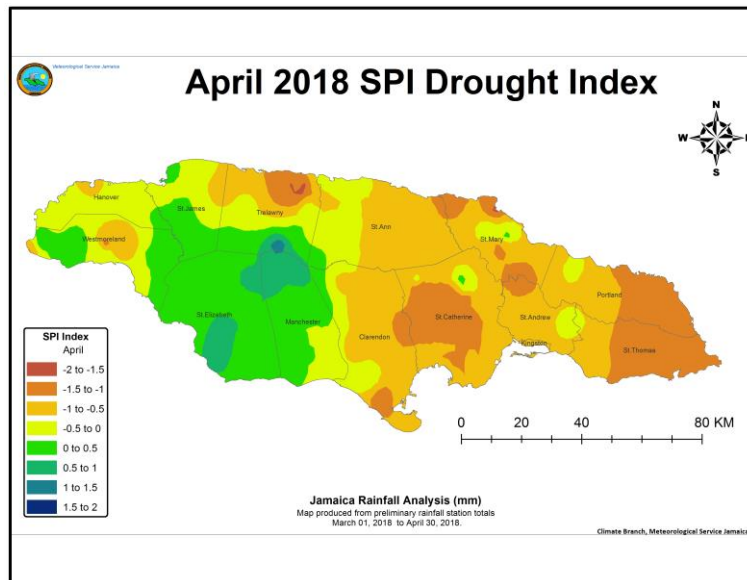


Fig.4. Drought Analysis for March-April 2018

Precipitation and Temperature Outlook: May to July 2018

During the next three months, the forecast models are indicating that Jamaica should receive near-normal to above-normal rainfall, during the early rainfall season to the mid-summer dry period (July). Previous forecasts of near-normal to above-normal rainfall have not materialized as, dryness has spread to more areas across the island, especially in the south and east. Therefore, confidence in this forecast is low.

On the parish level, St. Mary, Portland and St. Thomas which recorded normal drought conditions, could receive below-normal rainfall during the period. Above-normal temperatures are still expected across the island.

Table 4 below shows the precipitation outlook for selected stations across Jamaica as analysed by the Climate Predictability Tool. For the May to July 2018 period, seven (7) of seventeen (17) stations are indicating higher probabilities for above-normal rainfall and the remaining ten (10) stations showing higher probabilities for below-normal rainfall.

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

Forecast Verification

For the same period last year, May-July 2017, the models under-performed, with accuracy in the range of 30-45 percentage points. This was due to very weak signals from the oceans during this

transitional period. The initial forecast indicated that rainfall was likely to be below-normal for the period; however, most stations recorded above-normal rainfall amounts.

Summary

Seven of thirteen parishes recorded rainfall that were below their respective 30-year (1971-2000) monthly means and the remaining six parishes recorded above-normal rainfall.

Overall, Jamaica recorded below-normal (90%) rainfall in April. On the parish level, St. Ann, St. Mary and Portland have recorded consecutively lower percentages of monthly rainfall over the last 3-months.

There were seven parishes recording less than 100% of their 30-year monthly mean rainfall in April, including St. Mary, Portland and St. Thomas which, also recorded less than 50% of their monthly means.

Parishes over the western half of the island recorded above-normal rainfall in April and this has brought relief from the dry conditions which were being experienced, especially over sections of Hanover, Westmoreland, St. Elizabeth and Manchester. Conversely, parishes over the eastern half of the island recorded below-normal rainfall which has now resulted in St. Mary, Portland and St. Thomas experiencing normal drought conditions.

The projection over the next three (3) months is for near-normal to above-normal rainfall across the island, however, confidence in this forecast is low. On the parish level, St. Mary, Portland and St. Thomas could still receive below-normal rainfall, which could result in the worsening of drought conditions in these parishes. Should St. Ann, Kingston & St. Andrew, St. Catherine and Clarendon which were experiencing relatively dry conditions not receive sufficient rainfall, then these parishes could be at risk for falling into drought conditions over the next three months.