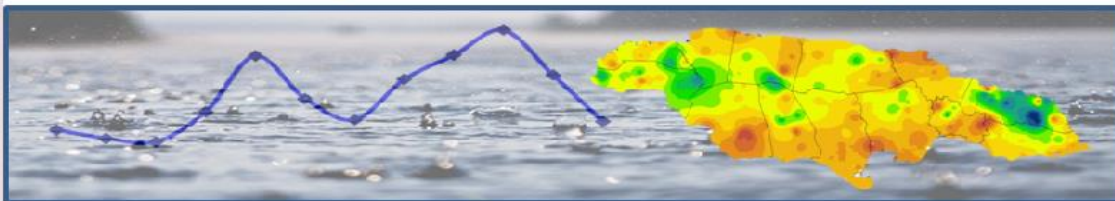




# Monthly Rainfall Summary



February 2018

## Introduction

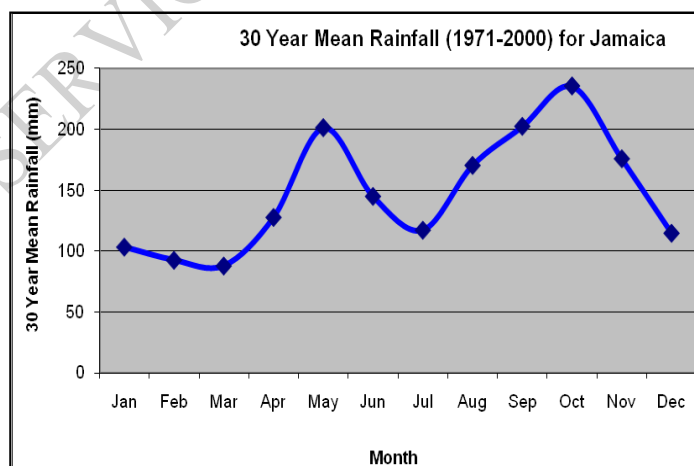
This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica. The Meteorological Service maintains a network of approximately one hundred and seventy (170) rainfall stations located across the island. Rainfall is usually read at 7:00 a.m. and reported for the previous 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.**

Prepared by the  
Climate Branch  
Meteorological Service, Jamaica  
65 ¾ Half Way Tree Road  
Kingston 10  
Telephone: 929-3700/3706  
Email: [datarequest@metservice.gov.jm](mailto:datarequest@metservice.gov.jm)



### HIGHLIGHTS FOR FEBRUARY

- Six of thirteen parishes received below-normal rainfall.
- All parishes experienced a significant decrease in rainfall compared to the previous month.
- Most areas are still experiencing very wet conditions.
- Near-normal to above-normal rainfall is forecast for the island, as the early wet season approaches.

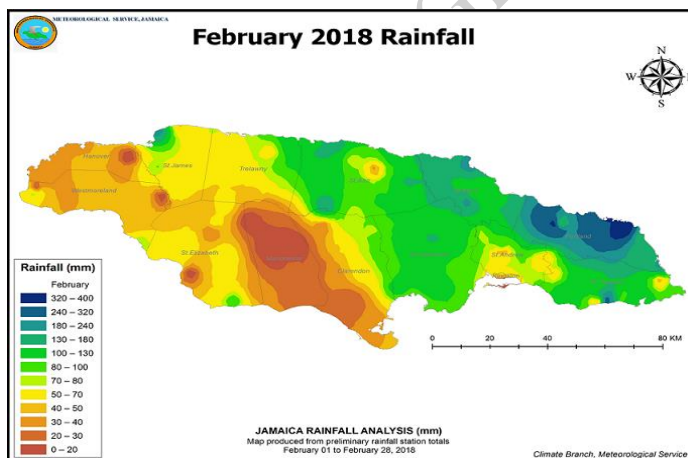
Parish Mean Rainfall and Comparison with 30-YR Averages							
Parishes	KEY	FEB	FEB	FEB	% OF 30 YR NORMAL		
		2018	2017	30 YR NORMAL (1971-2000)	2017 DEC	2018 JAN	2018 FEB
Hanover	HAN	32	59	109	106	224	29
Westmoreland	WES	48	63	80	98	162	60
Manchester	MAN	14	75	64	191	171	21
St. Elizabeth	STE	54	95	78	205	165	69
Clarendon	CLA	41	32	40	96	207	101
St. Catherine	STC	98	83	55	109	222	179
Trelawny	TRE	68	50	83	152	255	82
St. James	STJ	63	34	59	127	482	107
St. Ann	STA	116	64	82	152	428	141
St. Mary	STM	159	45	136	71	208	117
Portland	POR	297	247	264	163	291	112
St. Thomas	STT	93	57	81	150	256	115
Kgn. & St. And.	KSA	60	65	72	143	215	84
Jamaica	JAM	88	75	93	136	263	95

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



### Rainfall Assessment

For February 2018, six (6) of thirteen (13) parishes<sup>1</sup> recorded above-normal rainfall, six (6) other parishes recording below-normal rainfall and one parish recording normal rainfall. For those parishes recording 100% or more of their 30-year mean monthly rainfall, it was noted that they also recorded more rainfall in February 2018 when compared to February 2017. Meanwhile five of the six parishes recording less than 100% (below-normal) of their 30-year monthly mean rainfall, also recorded less rainfall in February 2018 than they did one year ago; the exception being Trelawny, which recorded below-normal rainfall in February, but, more rainfall in February 2018 compared to February 2017. In February 2018, the rainfall percentages were down significantly and for most parishes by more than half when compared to January, however, it should be noted that activity in January was considered an anomaly due to the fact that the Island is currently in the dry season. Overall, the island's average rainfall for February was 88 mm, which is 13 mm more than that received a year ago, and which corresponds to 95% of the 30-year (1971-2000) monthly mean value. The accumulated rainfall for Jamaica for the 2 months in 2018 is 67% of what is expected. On the parish level Manchester and St. Elizabeth have recorded consecutively lower percentages of monthly rainfall in the last 3-months. Across the island, the parish percentages of the 30-year monthly means were from 21% for Manchester to 179% for St. Catherine.



**Fig.2. Distribution of Jamaica's Rainfall for February 2018**

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

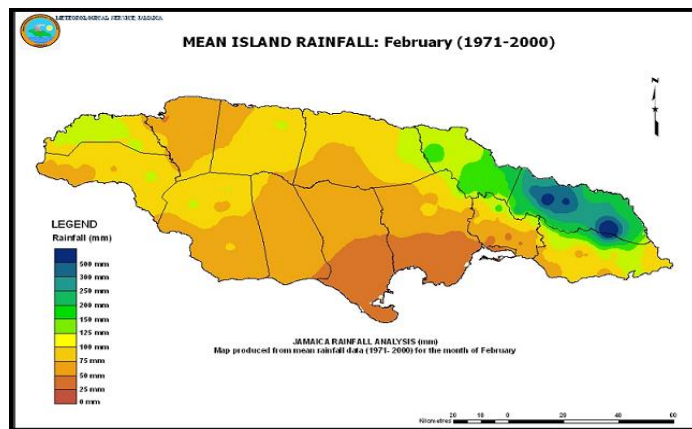


Fig.3. Thirty-year (1971-2000) Mean Island Rainfall for February

## 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

<b>Observed SPI for November 2017 to February 2018</b>			
<b>Parishes</b>	<b>Nov/Dec</b>	<b>Dec/Jan</b>	<b>Jan/Feb</b>
Hanover	0.67	1.52	1.08
Westmoreland	0.47	1.01	0.69
Manchester	0.82	1.84	0.43
St. Elizabeth	1.41	1.99	0.83
Clarendon	1.47	1.00	1.60
St. Catherine	0.35	1.12	1.90
Trelawny	0.81	1.87	1.59
St. James	1.53	2.64	2.47
St. Ann	0.95	2.46	2.88
St. Mary	0.20	0.88	1.81
Portland	1.42	2.49	2.72
St. Thomas	1.26	1.84	1.81
Kingston & St. Andrew	-0.29	0.09	0.22

**Table 2: Parish SPI for November 2017 to February 2018**

<b>SPI Value</b>	<b>Category</b>	<b>SPI Value</b>	<b>Category</b>
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

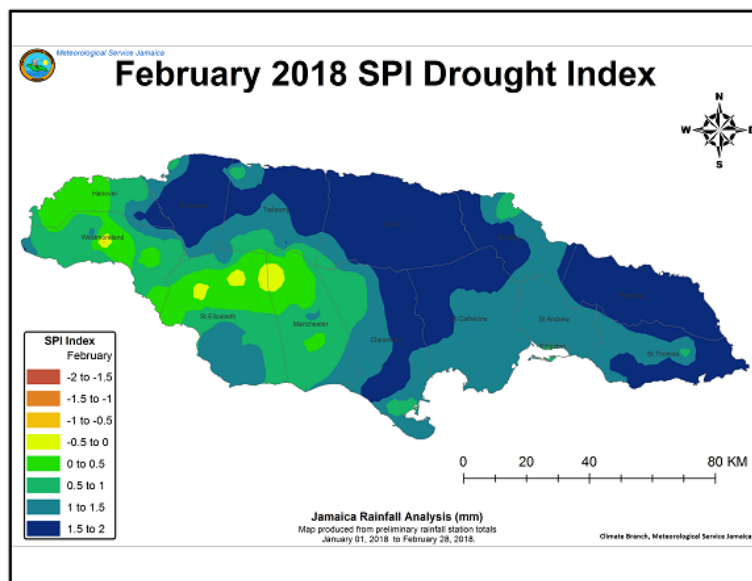
**Table 3: Severity Classes of the SPI**

### Drought Index Discussion

Based on the SPI figures for the January-February period, all 13 parishes showed rankings from near-normal (wet) to exceptionally wet conditions. Over the last two bi-monthly periods Manchester and St. Elizabeth have experienced **significant** decreases in their SPI values. Hanover and Westmoreland have also experienced decreases in their SPI values. These decreases were the result of the low rainfall amounts received in these parishes (see Fig 2 above) and were reflected in areas showing less wetness, when compared to the rest of the island (see Fig 4



below). Wet conditions were still being experienced across northern parishes from St. James to Portland, while sections of Clarendon experienced wetter conditions.



**Fig.4. Drought Analysis for January/February 2018**

### **Precipitation Outlook: March to May 2018**

During the next three months (March-May), the forecast models are indicating that Jamaica should receive near-normal to above-normal rainfall, as we transition from the dry season to the early rainfall season. On the parish level, Trelawny, St. Ann and St. Mary which were experiencing wet conditions should receive above-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 March to May 2018 period, ten (10) of seventeen (17) stations are indicating higher probabilities for near-normal rainfall, while the remaining seven (7) stations are indicating higher probabilities for above-normal rainfall.



Stations	Parishes	Below (B) %	Normal (N) %	Above (A)%
Beckford Kraal	Clarendon	33	34	33
Mount Peto	Hanover	25	35	40
Manley Airport	Kingston	33	34	33
Lawrence Tavern	Kingston	33	34	33
Suttons	Manchester	15	35	50
Shirley Castle	Portland	33	34	33
Cave Valley	St. Ann	20	35	45
Tulloch Estate	St. Catherine	33	34	33
Worthy Park	St. Catherine	33	34	33
Y.S. Estate	St. Elizabeth	25	35	40
Potsdam	St. Elizabeth	33	34	33
Sangster	St. James	33	34	33
Serge Island	St. Thomas	33	34	33
Hampstead	St. Mary	25	35	40
Orange Valley	Trelawny	20	35	45
Savanna-La-Mar	Westmoreland	33	34	33
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 March to May 2018**

**Forecast Verification**

For the same period last year, March-May 2017, the models under-performed, with accuracy in the range of 1-30 percentage points. This was due to very weak signals for 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

Six of thirteen parishes recorded rainfall that were below their respective 30-year (1971-2000) monthly means, another six parishes recorded above-normal rainfall and one parish recorded normal rainfall.

Overall, Jamaica recorded slightly below-normal (95%) rainfall in February. On the parish level, Manchester and St. Elizabeth have recorded consecutively lower percentages of monthly rainfall over the last 3-months.

With Hanover, Westmoreland, St. Elizabeth and Manchester receiving less than expected rainfall in February, this has resulted in conditions becoming less wet in sections of these parishes and especially over northern sections of Manchester and St. Elizabeth. This is also reflected in the decreases in the SPI values for these four parishes, when comparing the December/January bi-monthly period with that of January/February.

The projection over the next three (3) months is for near-normal to above-normal rainfall across the island. On the parish level, Trelawny, St. Ann and St. Mary which were experiencing wet conditions should receive above-normal rainfall during the period.

The outlook for above-normal temperatures over the next 3 months, may cause heat stress to livestock and other animals and therefore, cooling solutions are still being recommended.