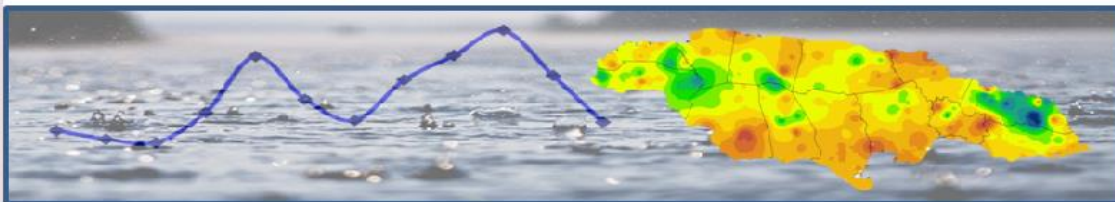




Monthly Rainfall Summary



March 2017

Introduction

This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica. The Meteorological Service maintains a network of approximate two hundred (200) 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.

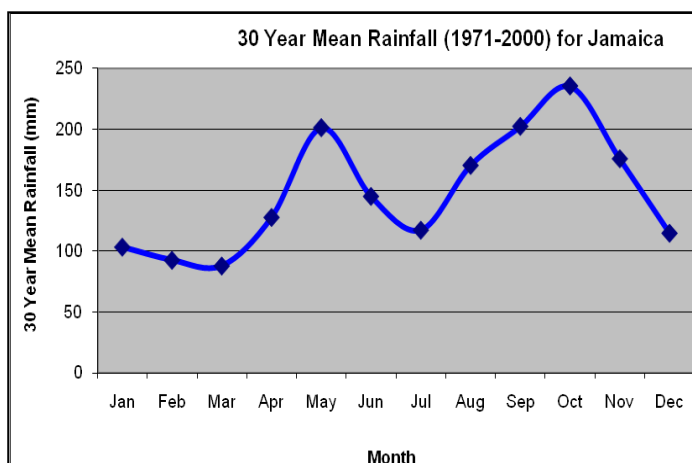


Figure 1: Precipitation Pattern from 1971-2000 for Jamaica.

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HIGHLIGHTS FOR MARCH

- All parishes received above-normal rainfall in March.
- Rainfall analysis indicated that no parish experienced drought condition.
- Below-normal to near-normal rainfall is forecast for April through to June.

Parish Mean Rainfall for March 2017 and March 2016							
Parishes	KEY	MAR	MAR	MAR	% OF 30 YR NORMAL		
		2017	2016	30 YR NORMAL (1971-2000)	2017	2017	2017
					JAN	FEB	MAR
Hanover	HAN	145	64	104	35	55	140
Westmoreland	WES	110	36	88	77	79	125
Manchester	MAN	179	40	91	17	118	197
St. Elizabeth	STE	161	51	99	43	119	163
Clarendon	CLA	109	39	56	24	79	195
St. Catherine	STC	180	19	61	50	150	296
Trelawny	TRE	106	12	61	103	63	175
St. James	STJ	114	25	60	89	57	189
St. Ann	STA	186	36	71	102	78	262
St. Mary	STM	159	57	108	34	33	147
Portland	POR	539	126	209	53	87	258
St. Thomas	STT	123	16	68	34	71	180
Kgn. & St. And.	KSA	108	32	67	61	91	162
Jamaica	JAM	171	43	88	55	79	194

Table 1: Parish Mean Rainfall for March 2017 and March 2016 (rainfall in mm).



Island Monthly Rainfall

For March 2017, all thirteen (13) parishes¹ recorded above-normal rainfall. Overall, the island's average rainfall in March was 171 mm which corresponds to 194% of the 30-year (1971-2000) monthly mean. In general, all parishes recorded rainfall which were above their 30-year monthly means and range from 125% (Westmoreland) to 296% (St. Catherine).

Cumulative (accumulated) mean rainfall for Jamaica for the first quarter of 2017 was 301 mm, or 106% of the 30-year (1971-2000) mean.

Assessment of Parish Rainfall

All thirteen parishes recorded rainfall above their respective 30-year (1971-2000) means, with three parishes recording over 200%. The parish rainfall figures indicate the following:

- The parishes recording from 101% to 200% of their normal rainfall were **Westmoreland (125%) or 110mm, Hanover (140%) or 145mm, St. Mary (147%) or 159mm, KSA (162%) or 108mm, St. Elizabeth (163%) or 161mm, Trelawny (175%) or 106mm, St. Thomas (180%) or 123mm, and St. James (189%) or 114mm, Clarendon (195%) or 109mm, and Manchester (197%) or 179mm.**
- The parishes which recorded more than 200% of their normal rainfall were **Portland (258%) or 539mm St. Ann (262%) or 186mm and St. Catherine (296%) or 180mm.**

Meteorological Drought Methodology and Index

Locally, the onset and the duration of a meteorological drought is determined by comparing the average rainfall over a period of two consecutive months with the 30-year historical averages (normal) for a similar bi-monthly period for each parish and the island. The percentage value that is generated is used to quantify the thresholds of the drought index (see Table 2). This index is similar to that used by the Australian Meteorological Service, except that bi-monthly periods are used locally instead of eight consecutive weeks.

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

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.



The Drought Index is calculated as follows:

$$\text{Drought Index} = \{(\text{Month 1} + \text{Month 2}) / (\text{Normal month 1} + \text{Normal month 2})\} \times 100$$

Percentage of Normal for 2 Consecutive Months	Drought Condition or Status
20% or less	Extreme Drought
21% to 40%	Severe Drought
41% to 60%	Normal Drought
Above 60%	No Drought

Table 2: Meteorological Drought Index

Island Drought Assessment

<u>Drought Indices (%) for December 2016 to March 2017</u>			
Parishes	Dec/Jan	Jan/Feb	Feb/Mar
Hanover	29	46	96
Westmoreland	51	78	103
Manchester	25	69	165
St. Elizabeth	57	84	144
Clarendon	35	50	146
St. Catherine	66	101	227
Trelawny	63	84	110
St. James	62	74	124
St. Ann	128	91	163
St. Mary	62	34	84
Portland	72	68	162
St. Thomas	58	51	121
Kingston & St. Andrew	82	76	125
Jamaica	65	67	135

Table 3: Parish Drought Indices (%) for December 2016 to March 2017

Based on the indices, no parish reported drought condition during the bi-monthly period February/March. This is similar to the July/August period last year when all parishes were above drought conditions.

**Precipitation Outlook: April to June 2017**

The rainfall outlook for April to June 2017 indicates that most stations will likely receive below to near-normal rainfall. Therefore, the unusual rains in March may have brought only temporary relief from the drying/drought conditions which were being experienced and so, a return to these conditions over some areas is a possibility as Jamaica approached the onset of the early rainfall season (May/June).

Table 4 below, shows the precipitation outlook for selected stations across Jamaica as analysed by the Climate Predictability Tool. Fifteen (15) of the seventeen (17) stations are indicating higher probabilities for below-normal rainfall for the April to June 2017 period, another two (2) stations are indicating probabilities for near-normal rainfall.



Stations	Below (B) %	Normal (N) %	Above (A)%
Manley (Kingston)	50	30	20
Sangster (St. James)	50	20	30
Savanna-la-mar (Westmoreland)	50	20	30
Beckford Kraal (Clarendon)	45	30	25
Serge Island (St. Thomas)	50	30	20
Cave Valley (St. Ann)	33	33	33
Tulloch Estate (St. Catherine)	50	30	20
Y.S. Estate (St. Elizabeth)	33	33	33
Hampstead (St. Mary)	45	30	25
Orange Valley (Trelawny)	45	30	25
Langley (Kingston)	50	20	30
Mount Peto (Hanover)	45	20	35
Shirley Castle (Portland)	45	30	25
Suttons (Manchester)	40	25	35
Potsdam (St. Elizabeth)	45	30	25
Frome (Westmoreland)	45	20	35
Worthy Park (St. Catherine)	50	30	20
<p>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</p>			

Table 4: Precipitation Outlook for Selected Stations for April to June 2017

Forecast Verification for April to June 2016

For the same period last year, the performance from the models were considered to be average with accuracy ranging about 35-65 percentage. The initial forecast indicated that rainfall was likely to remain above normal. Throughout the period most stations recorded near normal to above normal rainfall amounts.



Summary

All thirteen parishes recorded rainfall that were above their respective 30-year (1971-2000) means. Ten parishes recorded rainfall of more than 100% but less than 200%, of their 30-year mean, while the other three parishes recorded more than 200% of their 30-year monthly means. Jamaica received rainfall of 194% of what is normal for the month of March.

For the February/March bi-monthly period, no parish experienced drought condition, with the most recent occurrence of this being the July/August period last year.

With the current forecast of below-normal to near-normal rainfall and despite the rainfall received in March, there should be concerns for the possible return of drying/drought conditions over sections of the island over the next three months. **Therefore, drought monitoring/alleviation activities should continue, to prevent significant damage for the agricultural sector.**