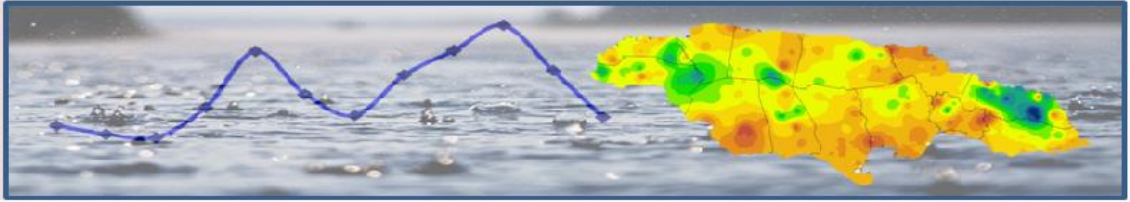




# Monthly Rainfall Summary



April 2017

## Introduction

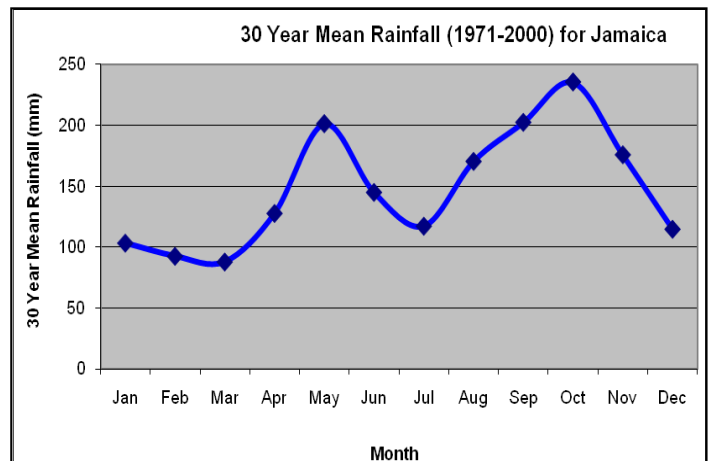
This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica. The Meteorological Service maintains a network of approximate two hundred (200) rainfall stations located across the island. Rainfall is usually read at 7:00 a.m. and reported for the previous 24 hours. These 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 APRIL

- All parishes received above-normal rainfall in April.
- Rainfall analysis indicated that all parishes were above drought conditions.
- Below-normal rainfall is forecast for May through to July.

Parish Mean Rainfall for April 2017 and April 2016							
Parishes	KEY	APR	APR	APR	% OF 30 YR NORMAL		
		2017	2016	30 YR NORMAL (1971-2000)	2017	2017	2017
					FEB	MAR	APR
Hanover	HAN	207	100	153	55	140	135
Westmoreland	WES	162	159	139	79	125	116
Manchester	MAN	296	408	168	118	197	177
St. Elizabeth	STE	220	246	175	119	163	125
Clarendon	CLA	268	158	68	79	195	394
St. Catherine	STC	306	151	91	150	296	336
Trelawny	TRE	152	90	89	63	175	171
St. James	STJ	128	67	95	57	189	134
St. Ann	STA	189	108	93	78	262	203
St. Mary	STM	161	94	141	33	147	114
Portland	POR	615	509	263	87	258	234
St. Thomas	STT	373	115	92	71	180	407
Kgn. & St. And.	KSA	141	82	93	91	162	151
Jamaica	JAM	248	176	128	79	194	194

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



### Island Monthly Rainfall

For April 2017, all thirteen (13) parishes<sup>1</sup> recorded above-normal rainfall. Overall, the island's average rainfall in April was 248 mm which corresponds to 194% of the 30-year (1971-2000) monthly mean. In general, all parishes recorded rainfall which was above their 30-year monthly means and range from 114% (St. Mary) to 407% (St. Thomas).

Cumulative (accumulated) mean rainfall for Jamaica for the four months of 2017 was 552 mm, or 134% 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 one parish recording over 400% and two other parishes recording over 300%. The parish rainfall figures indicate the following:

- The parishes recording from 101% to 200% of their normal were **St. Mary (114%) or 161mm, Westmoreland (116%) or 162mm, St. Elizabeth (125%) or 220mm, St. James (134%) or 128mm, Hanover (135%) or 207mm, KSA (151%) or 141mm, Trelawny (171%) or 152mm, and Manchester (177%) or 296mm.**
- The parishes which recorded more than 200% of their normal rainfall were **St. Ann (203%) or 189mm, Portland (234%) or 615mm, St. Catherine (336%) or 306mm, Clarendon (394%) or 268mm and St. Thomas (407%) or 373mm.**

### 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

<sup>1</sup> 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.



periods are used locally instead of eight consecutive weeks.

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 January to April 2017</u>			
Parishes	Jan/Feb	Feb/Mar	Mar/Apr
Hanover	45	96	137
Westmoreland	78	103	120
Manchester	69	165	184
St. Elizabeth	84	144	139
Clarendon	50	146	305
St. Catherine	101	227	320
Trelawny	83	109	172
St. James	74	124	155
St. Ann	91	163	229
St. Mary	34	84	128
Portland	68	171	253
St. Thomas	51	121	310
Kingston & St. Andrew	76	125	156
Jamaica	67	137	195

Table 3: Parish Drought Indices (%) for January to April 2017

Based on the indices, no parish reported drought condition during the bi-monthly period March/April. This makes consecutive bi-monthly periods with no drought.

**Precipitation Outlook: April to June 2017**

The rainfall outlook for May to July 2017 indicates that most stations will likely receive below-normal rainfall. Therefore, the unusual rains experienced in March and April before the start of the traditional early rainfall season (May/June), have brought relief from the dry/drought conditions which were being experienced. Should the outlook materialize, this may bring relief in many areas which experienced flooding, but, could also create a suitable environment for pest and disease outbreak.

Table 4 below, shows the precipitation outlook for selected stations across Jamaica as analysed by the Climate Predictability Tool. Sixteen (16) of the seventeen (17) stations are indicating higher probabilities for below-normal rainfall for the May to July 2017 period, while one (1) station is indicating the probability for near-normal rainfall.



Stations	Below (B) %	Normal (N) %	Above (A)%
Manley (Kingston)	50	30	20
Sangster (St. James)	33	34	33
Savanna-la-mar (Westmoreland)	40	35	25
Beckford Kraal (Clarendon)	50	30	20
Serge Island (St. Thomas)	40	35	25
Cave Valley (St. Ann)	50	30	20
Tulloch Estate (St. Catherine)	40	35	25
Y.S. Estate (St. Elizabeth)	45	30	25
Hampstead (St. Mary)	50	30	20
Orange Valley (Trelawny)	45	30	25
Langley (Kingston)	45	30	25
Mount Peto (Hanover)	50	30	20
Shirley Castle (Portland)	50	30	20
Suttons (Manchester)	40	35	25
Potsdam (St. Elizabeth)	50	30	20
Frome (Westmoreland)	50	30	20
Worthy Park (St. Catherine)	40	35	25
<p><b>Key</b>            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 May to July 2017**

**Forecast Verification for May to July 2016**

For the same period last year, the model performed exceptionally well with accuracy ranging between 59-82 percent. The initial forecast indicated that rainfall was likely to remain below normal for the period. Throughout the period most stations recorded below normal rainfall amounts.

**Summary**

All thirteen parishes recorded rainfall that were above their respective 30-year (1971-2000) means. Eight parishes recorded rainfall of more than 100% but less than 200%, of their 30-year means, two parishes recorded more than 200% of their 30-year monthly means and the remaining three parishes recorded more than 300% of their 30-year monthly means. Jamaica received rainfall of 194% of what is normal for the month of April.

For the March/April bi-monthly period, no parish experienced drought condition. This meant consecutive bi-monthly periods in 2017(Feb/Mar and Mar/Apr) for which there was no drought.

Should the current forecast of below-normal rainfall for May to July materialize, then it would bring some relief from the flooding which was experienced however, there are also concerns for pest and disease outbreaks due to the rains.