



METEOROLOGICAL SERVICE JAMAICA

CLIMATE BRANCH

PRELIMINARY MONTHLY RAINFALL SUMMARY FOR JUNE 2016

Introduction

This rainfall summary is prepared by the Climate Branch of the Meteorological Service, Jamaica. The Meteorological Service maintains a network of over two hundred (200) rainfall stations located across the island. Rainfall is usually read at 7am by a cadre of paid but mainly voluntary dedicated observers and reported for the previous 24 hours.

General

Jamaica's bimodal rainfall pattern consists of two peak periods with higher values of rainfall and corresponding periods of lower rainfall amounts. 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 and deviations from this pattern do occur year to year.

A comparison of the old 30 year mean (1951-80) 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.

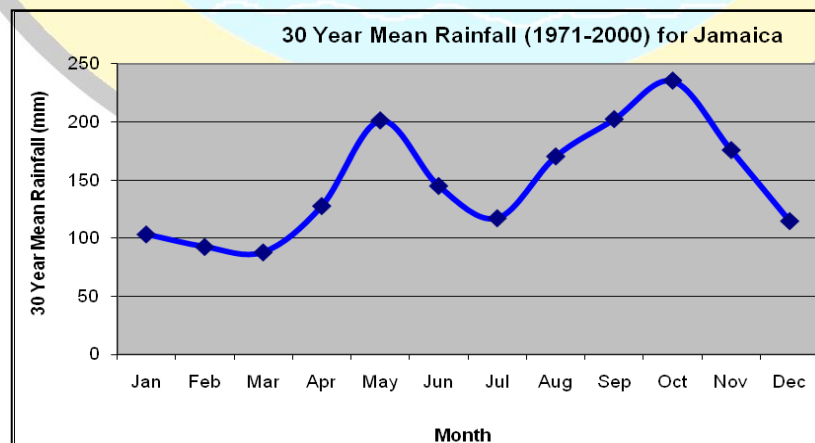


Figure 1: Precipitation Pattern for 1971-2000 for the island of Jamaica.

Island Monthly Rainfall

For June 2016, eleven (11) of thirteen (13) parishes¹ recorded below normal rainfall. Overall, the island's average rainfall was 96mm which corresponds to 67% of the 30-year (1971-2000) monthly mean. This value is well above the 41mm received in June 2015, which was only 28% of the 30-yr mean.

The cumulative rainfall for the island up to June 2016 is 782mm, or 103% of the 30-year (1971-2000) mean, that is, 3% above what is normal for this time of the year.

Although June's rainfall was below normal the cumulative value remains above normal since the island consistently recorded above normal rainfall for the previous two months.

Parish Mean Rainfall (mm) for June 2016 and 2015							
(Rainfall in mm)							
Parishes	KEY	JUN	JUN	JUN	% OF 30 YR NORMAL		
		2016	2015	30 YR NORMAL (1971-2000)	2016 APR	2016 MAY	2016 JUN
Hanover	HAN	185	111	283	63	115	65
Westmoreland	WES	95	99	216	114	101	44
Manchester	MAN	82	21	115	243	63	71
St. Elizabeth	STE	72	33	127	140	60	56
Clarendon	CLA	25	11	94	232	113	26
St. Catherine	STC	55	37	110	174	120	50
Trelawny	TRE	59	19	93	101	157	64
St. James	STJ	178	61	161	85	114	111
St. Ann	STA	66	27	95	116	178	69
St. Mary	STM	27	10	117	66	132	23
Portland	POR	294	73	206	194	186	143
St. Thomas	STT	77	13	170	125	269	45
Kgn. & St. And.	KSA	40	16	98	87	130	41
Jamaica	JAM	96	41	145	139	129	67

Table 1: Parish Mean Rainfall for June 2016 and 2015 (rainfall in mm)

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

Assessment of Parish Figures

In sharp contrast to May 2016, only two parishes recorded rainfall totals that were above their 30-year (1971-2000) means, while eleven parishes recorded rainfall totals below their 30-year means. The parish rainfall figures indicate the following:

- The parishes recording above normal rainfall were **Portland** with the highest of **294mm** or **143%**, followed by **St. James** with **178mm** or **111%**. **Hanover** received the third highest rainfall total of all parishes in June but this represented **65%** of its 30-year mean.
- **Clarendon (25mm)** received the least amount of rainfall followed by **St. Mary (27mm)**. This represents **26%** and **23%** of their respective 30-year means.
- **Westmoreland, Clarendon, St. Mary, St. Thomas and Kingston and St. Andrew** received less than half the rainfall customary for this time of year in these parishes.

Drought Conditions

Definition

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.

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 that is presented in 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.

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

Drought Indices (%) for March to June 2016			
Parishes	Mar/Apr	Apr/May	May/June
Hanover	63	98	92
Westmoreland	84	106	76
Manchester	173	138	62
St. Elizabeth	108	92	57
Clarendon	160	152	75
St. Catherine	117	140	88
Trelawny	68	136	120
St. James	67	104	118
St. Ann	88	155	136
St. Mary	54	100	67
Portland	135	190	171
St. Thomas	82	217	129
Kgn. & St. And.	72	114	96
Jamaica	101	133	100

Table 3: Drought indices (%) for March to June 2016

Table 3 is calculated as follows:

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

Drought Assessment

Based on the indices, St. Elizabeth experienced normal drought conditions during the May/June bi-monthly period while all other parishes remained above drought.

FORECAST

Precipitation Outlook for the period July to September 2016

For the July to September period, precipitation models have indicated an expectation of normal to above normal rainfall across most areas. Temperatures are also predicted to remain warmer than normal over much of the Caribbean and western Atlantic over this period, which will likely provide favourable environmental and local conditions for rainfall to be in the normal and above normal ranges

Although July is forecast to receive a slight reduction in rainfall, no significant agricultural impact is expected, particularly to key areas across southern parishes. Projected increases for August and September correspond to the climatological peak in activity of the Atlantic Hurricane Season.

VERIFICATION OF MODELS

For the same period last year, the models predicted below normal rainfall for most sections of the island. A comparison with actual conditions indicates that several stations recorded below normal (less than what is expected) rainfall for the three-month period July to September.

The forecast verification indicates relatively fair forecast accuracy over the same period last year.

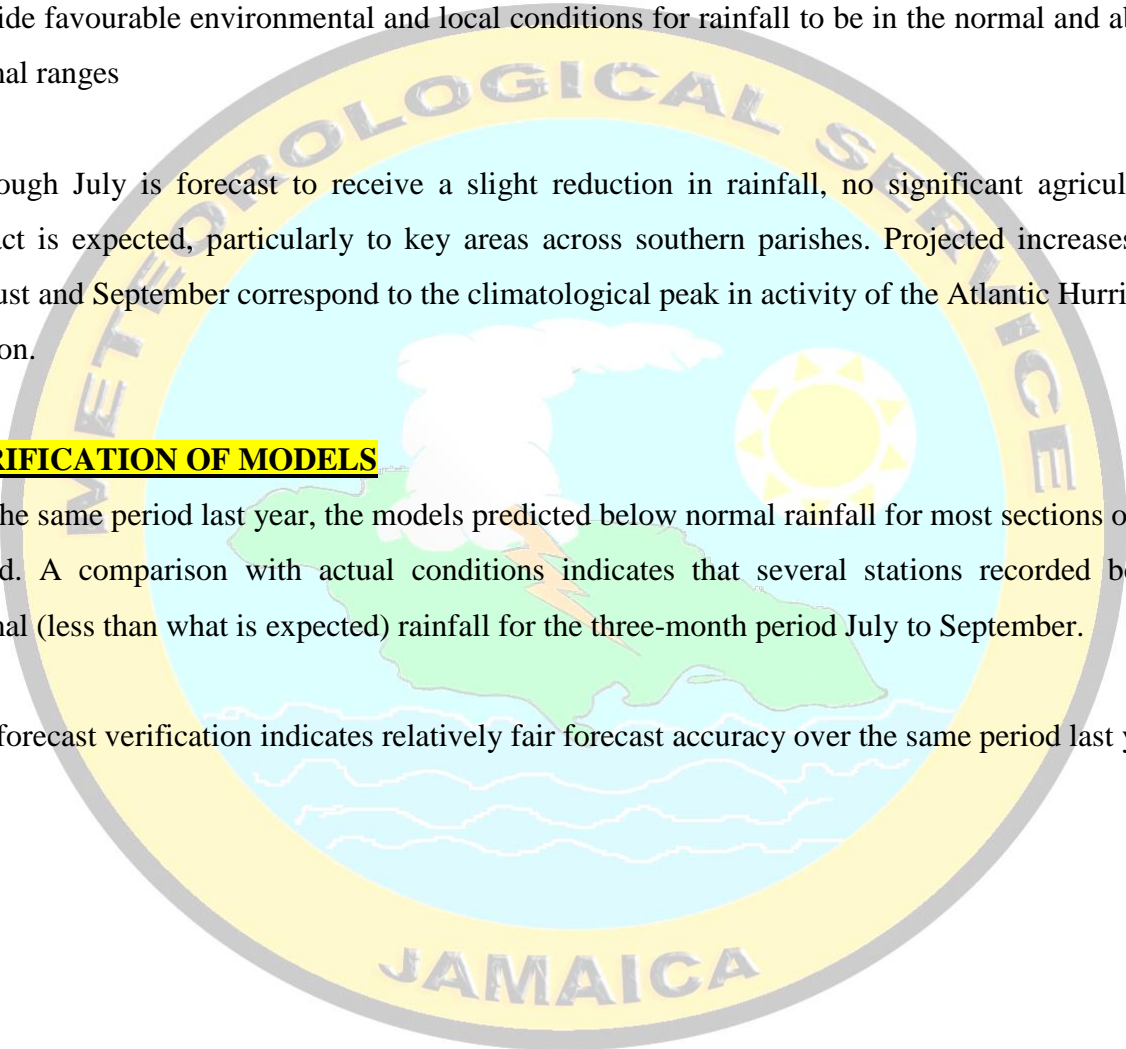


Table 4. Climate Predictability Tool (CPT) Station Outlook- JAS

Stations	Below (B) %	Normal (N) %	Above (A)%
Manley (Kingston)	15	30	55
Sangster (St. James)	20	30	50
Savanna-la-mar (Westmoreland)	30	25	45
Beckford (Clarendon)	15	25	60
Serge Island (St. Thomas)	50	30	20
Cave Valley (St. Ann)	15	25	60
Tulloch Estate (St. Catherine)	15	25	60
Y.S. Estate (St. Elizabeth)	25	30	45
Hampstead (St. Mary)	40	35	25
Orange Valley (Trelawny)	50	30	20
Langley (Kingston)	15	25	60
Mount Peto (Hanover)	15	25	60
Shirley Castle (Portland)	40	35	25
Suttons (Manchester)	15	25	60
Potsdam (St. Elizabeth)	20	25	55
Frome (Westmoreland)	15	25	60
Worthy Park (St. Catherine)	15	25	60
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			

Summary

Only two parishes recorded rainfall totals that were above their 30-year (1971-2000) means, while eleven parishes recorded rainfall totals below their 30-year means. Despite this, it is the third consecutive month in this calendar year 2016 where Jamaica recorded more than expected (above 100%) *cumulative* monthly rainfall.

The accumulated rainfall for Jamaica for the first 6 months in 2016 is 3% above normal (more than expected) versus 32% below normal (less than expected) for the same period in 2015.

St. Elizabeth experienced normal drought conditions during the May/June bi-monthly period.

The current projections indicate near to above normal rainfall for July through September. Specifically, July is expected to receive near-normal rainfall while August and September are forecast to receive above normal rainfall.

