



# AGROMET BULLETIN



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## HIGHLIGHTS

- ✚ All thirteen parishes received below-normal rainfall in June.
- ✚ St. Elizabeth was experiencing normal drought, while varying levels of drying/drought conditions were still affecting some communities in other parishes.
- ✚ Below-normal rainfall is forecast for Jamaica for July through September.
- ✚ Above-normal temperatures are forecast for the next 3 months.

### Weather Summary June 2018

During the month of June, the weather was dominated mainly by Tropical Waves. Despite the presence of these Waves there was no significant rainfall or severe weather event reported across the island.

During the month, Sangster International Airport (SIA) in the northwest recorded 5.7 mm of rainfall, while Norman Manley International Airport (NMIA) in the southeast recorded 1.6 mm of rainfall. SIA received 6% of its 30-year mean rainfall, while NMIA received 2% of its 30-year mean rainfall. There was one (1) rainfall day recorded for SIA and NMIA, compared with the monthly means of thirteen (13) and six (6) rain days respectively.

The highest maximum temperature recorded for SIA was 35.2°C (June 23). A look at the records from 1992 showed that, this value ranks 4<sup>th</sup> for a June highest maximum temperature, behind the 35.8°C recorded in 2012. Meanwhile, the highest maximum temperature recorded for NMIA was 33.8°C (June 23). This value is ranked 14<sup>th</sup> as a highest maximum temperature recorded at the station since June 1993; behind the 35.3°C recorded in 2015.



### Standardized Precipitation Index (SPI)

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 namely 1-month, 3-month, 6-month, 9-month and 12-month periods. This temporal flexibility allows the SPI to be useful in both short-term 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 (see Table 1 and Figure 1) and a forecast SPI (see Figure 2) using a 3-month and 6-month time interval, respectively.

Parish	Station	June Rainfall Total (mm)	Percent of 30-year Mean (%)	Observed SPI for April-May-June
Hanover	Mount Peto	218	72	-0.45
Westmoreland	Savanna-La-Mar	45	23	0.91
Westmoreland	Frome	116	52	0.92
Manchester	Sutton	N/A	N/A	No SPI value due to unavailability of rainfall data for 3 months.
St. Elizabeth	Y.S. Estates	118	74	0.10
St. Elizabeth	Potsdam	13	13	0.23
Clarendon	Beckford Kraal	50	39	-0.55
St. Catherine	Tulloch	140	89	-0.75
St. Catherine	Worthy Park	20	13	-1.29
Trelawny	Orange Valley	N/A	N/A	No SPI value due to unavailability of rainfall data for June.
St. James	Sangster Airport	6	6	-0.65
St. Ann	Cave Valley	80	60	-0.48
St. Mary	Hampstead	1	1	-0.10
Portland	Shirley Castle	12	8	-1.56
St. Thomas	Serge Island	55	27	0.15
KSA	Lawrence Tavern	49	45	-0.26
KSA	Palisadoes	2	2	0.77

**Table 1: Observed SPI for Selected Stations across Jamaica during the April-June Period.**



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 2: Severity Classes of the SPI

### Standardized Precipitation Index Discussion

Based on the SPI figures for the April-June period, nine (9) of seventeen (17) stations across the island had rankings ranging from severely dry to near-normal (dry). Another six (6) stations had rankings ranging from moderately wet to near-normal (wet), while two (2) stations had no rankings due to the unavailability of rainfall data. There were twelve (12) stations that recorded decreases in their SPI figures, while, another three (3) stations recorded increases in their SPI values, for the April-June period when compared to the March-May period.

A comparison of the SPI figures for Apr-Jun with those for Mar-May shows that:

- There was a reversal in conditions at Sangster, with the rankings moving from abnormally wet to abnormally dry.
- Conditions at Shirley Castle became drier as indicated by the ‘severely dry’ ranking.
- Conditions were still dry at Beckford Kraal, Tulloch and Worthy Park, with rankings ranging between abnormally dry and moderately dry.
- There were changes in the rankings for the following stations:- Mount Peto, Potsdam and Hampstead, all moving from abnormally wet to near normal (dry).
- Despite decreases in their SPI values, conditions were still wet at Savanna-La-Mar, Frome and Palisadoes, with rankings ranging between abnormally wet and moderately wet.

In June, all thirteen (13) parishes received below-normal rainfall. Observed conditions indicate that drier conditions were experienced over most areas of the island but, in particular over western Portland and northern areas of St. Catherine and Clarendon into southern areas of St. Ann. Extreme western sections of Westmoreland



and Hanover were still experiencing wet conditions. On the parish level, normal drought conditions were recorded for St. Elizabeth, while drought conditions continued to affect sections of mainly western Portland. Dry/drought conditions were experienced in several discrete communities of other parishes, however, none of these parishes recorded overall drought conditions.

See Figure 1 below for the graphic representation of observed SPI values for the April-May-June period.

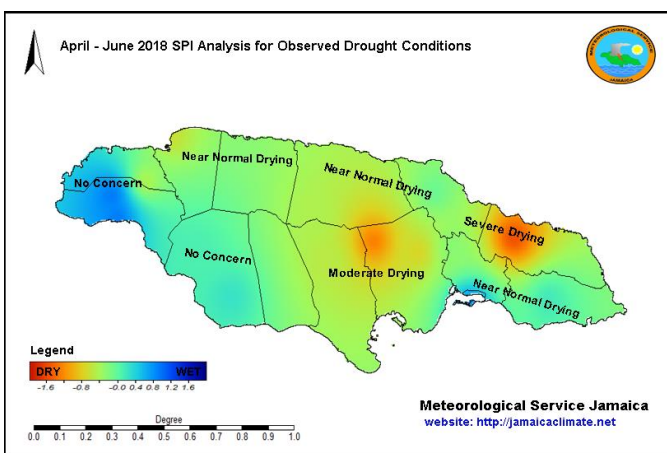


Figure 1: April – June 2018 SPI Analysis for Observed Conditions

The forecast through September, has indicated that the island should receive less than expected rainfall, with the possibility of dryness spreading to more areas across all parishes.

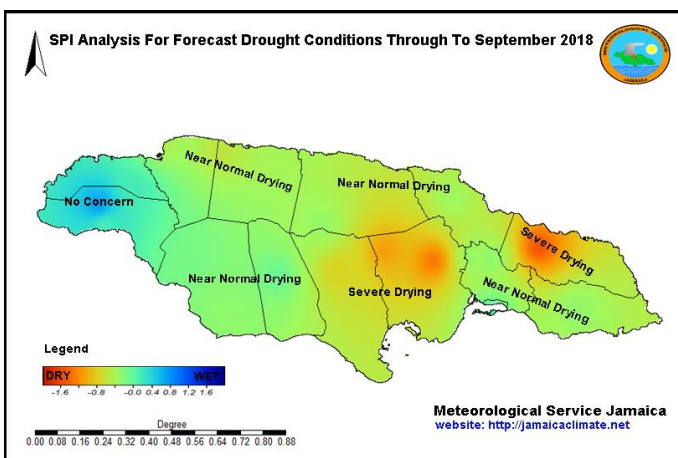


Figure 2: Forecast Drought Conditions through to September 2018



### Seasonal Forecast – July to September 2018

The MSJ makes seasonal climate forecasts using the Climate Predictability Tool (CPT). The CPT was developed by the International Research Institute for Climate and Society (IRI) in order to create and communicate seasonal forecasts that address the needs of different user groups.

During the next three months (July-September), the forecast models are indicating that Jamaica should receive below-normal rainfall; this period includes the peak period (August/September) for the hurricane season. The forecast for above-normal temperatures remains consistent for the July-September 2018 period.

	<b>% Below (B)</b>	<b>% Normal (N)</b>	<b>% Above (A)</b>
<b>Jamaica Rainfall Outlook</b>	50	25	25
<b>Jamaica Temperature Outlook</b>	20	25	55
<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			

Table 3: Jamaica Rainfall and Temperature Probability for July to September 2018.

Table 4 below, shows the precipitation outlook for selected stations across Jamaica as analysed by the Climate Predictability Tool. For the July to September 2018 period, fifteen (15) of seventeen (17) stations are indicating higher probabilities for below-normal rainfall and the remaining two (2) stations, showing higher probabilities for above-normal rainfall.



Stations	Parishes	Below (B) %	Normal (N) %	Above (A)%
Beckford Kraal	Clarendon	60	25	15
Mount Peto	Hanover	45	25	30
Palisadoes	Kingston	55	25	20
Lawrence Tavern	Kingston	60	20	20
Suttons	Manchester	25	35	40
Shirley Castle	Portland	60	20	20
Cave Valley	St. Ann	25	30	45
Tulloch Estate	St. Catherine	60	25	15
Worthy Park	St. Catherine	50	25	25
Y.S. Estate	St. Elizabeth	60	20	20
Potsdam	St. Elizabeth	55	25	20
Sangster Airport	St. James	45	30	25
Serge Island	St. Thomas	70	15	15
Hampstead	St. Mary	60	20	20
Orange Valley	Trelawny	60	20	20
Savanna-La-Mar	Westmoreland	60	20	20
Frome	Westmoreland	45	25	35

**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 July to September 2018.*



### **Summary and Expected Agricultural Impacts**

The below-normal rainfall received in June has resulted in drier conditions across several parishes, with St Elizabeth recording normal drought conditions. Farming communities, particularly in sections of western Portland, northern St. Catherine and Clarendon into southern St. Ann and central and southern Manchester continue to record dry/drought conditions.

Should the forecast of below-normal rainfall over the July-September period materializes, then there is the possibility of the expansion of dry or drought conditions in more farming communities across the island.

Therefore, drought alleviation and water management plans for farming communities, as well as other water users, should be continued to lessen the impacts on crops and livestock due to the likely deficits in rainfall amounts.

The forecast for continued above-normal temperatures could cause heat stress for other animals, therefore, cooling solutions are still being recommended.

Of note, is the Service's inability to determine the true extent of the dry/drought conditions in farming communities in the extreme southern sections of St. Elizabeth and Manchester and therefore, conditions may be more severe than those indicated in the overall analyses for these parishes.

The Met Office will however, continue to closely monitor conditions and disseminate advisories as necessary.

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