



AGROMET BULLETIN



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HIGHLIGHTS

- ✚ **Ten of thirteen parishes received below-normal rainfall in August.**
- ✚ **Six parishes recorded meteorological drought conditions.**
- ✚ **Near-normal rainfall is forecast for Jamaica for September through November.**
- ✚ **Near-normal temperatures are forecast for the next 3 months.**

Weather Summary August 2018

Troughs dominated the daily weather for most days in August. There was a report of violent winds lifting the roofs from three buildings, in communities in St. Elizabeth on the afternoon of August 6, as a Tropical Wave moved across the island.

During the month, Sangster International Airport (SIA) in the northwest recorded 21.7 mm of rainfall, while Norman Manley International Airport (NMIA) in the southeast recorded 1.4 mm of rainfall. SIA received 24% of its 30-year mean rainfall, while NMIA received about 2% of its 30-year mean rainfall. There were two (2) rain days recorded for SIA and one (1) rain day for NMIA. The monthly means are fourteen (14) and seven (7) rain days respectively.

The highest maximum temperature recorded for SIA was 36.1°C on August 12, which makes it the highest temperature recorded at the station in August since 1992. Meanwhile, NMIA recorded a highest maximum temperature of 34.3°C on August 8. This year's value, along with that of 2015 are both ranked 15th, in the list of highest maximum temperatures recorded at the station since August 1992. The post-1992 record of 36.9°C was set in 2017.



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	August Rainfall Total (mm)	Percent of 30-year Mean (%)	Observed SPI for May-Jun-Jul	Observed SPI for Jun-Jul-Aug
Hanover	Mount Peto	301	97	-1.35	-0.97
Westmoreland	Savanna-La-Mar	393	158	-0.28	-0.20
Westmoreland	Frome	239	85	0.31	-1.11
Manchester	Sutton	116	72	No SPI value due to unavailability of rainfall data for 3 months.	No SPI value due to unavailability of rainfall data for 2 months.
St. Elizabeth	Y.S. Estates	306	112	-1.76	-0.36
St. Elizabeth	Potsdam	35	26	-0.12	-1.56
Clarendon	Beckford Kraal	N/A	N/A	-0.76	No SPI value due to unavailability of rainfall data for August
St. Catherine	Tulloch	274	129	-0.91	-0.27
St. Catherine	Worthy Park	233	159	-0.32	0.07
Trelawny	Orange Valley	3	4	-0.29	-2.69
St. James	Sangster Airport	22	24	-1.11	-2.93
St. Ann	Cave Valley	173	122	-0.60	-0.33
St. Mary	Hampstead	41	44	0.41	-1.74
Portland	Shirley Castle	27	14	-1.16	-2.39
St. Thomas	Serge Island	62	28	0.03	-1.20
KSA	Lawrence Tavern	53	35	-0.48	-1.74
KSA	Palisadoes	1	2	0.61	-2.61

Table 1: Observed SPI for Selected Stations across Jamaica during the June-August 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 June-August period, fourteen (14) of seventeen (17) selected stations across the island had rankings ranging from exceptionally dry to near-normal (dry); one (1) station had a ranking of near-normal (wet) while, two (2) stations had no rankings due to the unavailability of rainfall data. There were nine (9) stations that recorded decreases in their SPI figures, while, another six (6) stations recorded increases in their SPI values, for the June-August period when compared to the May-July period.

A comparison of the SPI figures for Jun-Aug with those for May-Jul shows the following:

- Conditions at Palisadoes deteriorated, as indicated by the station’s exceptionally dry ranking, which represents a change of 7 severity classes.
- Conditions also deteriorated at Orange Valley, Sangster and Shirley Castle, where all 3 stations had rankings at exceptionally dry.
- Conditions at Hampstead were drier at the end of August compared to the end of July, with rankings moving from near-normal (wet) to extremely dry. Also experiencing extremely dry conditions was Lawrence Tavern.
- There were changes in the rankings at Frome and Serge Island, both moving from near-normal (wet) to moderately dry conditions.

The following stations showed increases in their SPI values at the end of August:



- Y.S. Estates, moving from extremely dry to near-normal (dry); Tulloch, moving from moderately dry to near-normal (dry) and Mount Peto, moving from severely dry to moderately dry.

In August, ten parishes received below-normal rainfall and this resulted in Jamaica also recording below-normal rainfall. From analyses drier conditions were experienced over most areas of the island; however, extremely dry conditions were observed over western Portland into western St. Thomas and most of Kingston & St. Andrew, as well as, over St. James and into northwestern Trelawny. On the parish level, meteorological drought conditions were recorded for six (6) of thirteen (13) parishes with another two (2) parishes just above drought conditions.

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

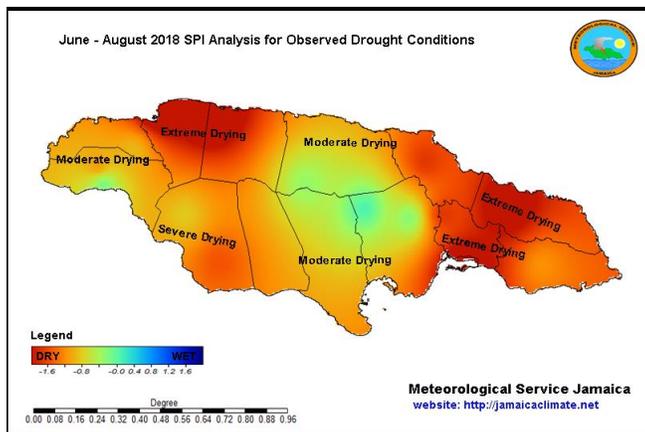


Figure 1: June – August 2018 SPI Analysis for Observed Conditions

The forecast through November, indicates that the island should receive near-normal rainfall, with the possibility of less dryness, especially in farming communities across several parishes.

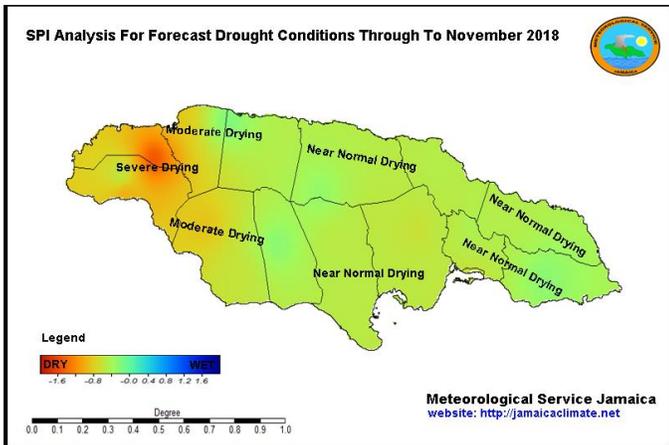


Figure 2: Forecast Drought Conditions through to November 2018

Seasonal Forecast – September to November 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.

For the next three months (September/October/November), which is the traditional primary wet season, the forecast models are indicating that Jamaica should receive near-normal rainfall. The forecast is for near-normal temperatures over the next three months.

	% Below (B)	% Normal (N)	% Above (A)
Jamaica Rainfall Outlook	33	34	33
Jamaica Temperature Outlook	25	45	30
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 3: Jamaica Rainfall and Temperature Probability for September to November 2018.

Table 4 below, shows the precipitation outlook for selected stations across Jamaica as analysed by the Climate



Predictability Tool. For the September-November 2018 period, three (3) of seventeen (17) stations are indicating higher probabilities for below-normal rainfall; ten (10) stations showing higher probabilities of normal rainfall and the other four (4) station higher probabilities of above-normal rainfall.

Stations	Parishes	Below (B) %	Normal (N) %	Above (A)%
Beckford Kraal	Clarendon	40	35	25
Mount Peto	Hanover	33	34	33
Palisadoes	Kingston	30	40	30
Lawrence Tavern	Kingston	35	35	30
Suttons	Manchester	30	40	30
Shirley Castle	Portland	35	20	45
Cave Valley	St. Ann	30	40	30
Tulloch Estate	St. Catherine	33	34	33
Worthy Park	St. Catherine	35	35	30
Y.S. Estate	St. Elizabeth	33	34	33
Potsdam	St. Elizabeth	40	35	25
Sangster Airport	St. James	30	40	30
Serge Island	St. Thomas	30	20	50
Hampstead	St. Mary	35	20	45
Orange Valley	Trelawny	35	20	45
Savanna-La-Mar	Westmoreland	40	35	25
Frome	Westmoreland	33	34	33

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 September to November 2018.



Summary and Expected Agricultural Impacts

With ten parishes receiving below-normal rainfall in August, dryness continued in and also expanded to more areas across the island, with meteorological drought conditions being recorded in six parishes. Two other parishes were just above the drought threshold. Farming communities in those two parishes, however, continue to record dry/drought conditions.

Should the forecast of near-normal rainfall over the primary wet season (September-November) materializes, this could bring some relief from the very dry conditions being experienced, particularly in farming communities depending on rains for crop irrigation across the island.

Despite the forecasts, irrigation for farming communities, as well as, provision of water for other users, should, be continued to lessen the impacts on crops and livestock until, the arrival of the expected rains dictates otherwise.

The forecast for near-normal temperatures would be welcomed, as, this could bring cooler temperatures and some relief from the heat stress being experienced, especially during the night-time hours.

Of note, is the Meteorological Service's inability to determine the true impact of the drought conditions in some farming communities across the island due to the inadequacy of data collection instruments in some areas. Conditions could, therefore, be more severe in some farming communities, which could have resulted not only from deficits in rainfall amounts (meteorological drought) but other factors as well.

Close monitoring of conditions and dissemination of advisories will continue as necessary.

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