# AGROMET BULLETIN

Volume 4. No. 11 | November 2016

## HIGHLIGHTS

- **Western and some southern stations experienced below-normal rainfall and dry conditions.**
- **Near-normal to above-normal rainfall is forecast for some areas for December through to February.**
- **Dry conditions could continue affecting some southern and western areas in the coming dry season.**

**Weather Summary November 2016**

During the month of November, weather conditions were dominated by Troughs and Cold Fronts, with north-eastern parishes getting most rainfall.

Rainfall recorded at Norman Manley (located in the southeast of Jamaica) was 95.6 mm while Sangster (located in the northwest) recorded 44.9 mm. Manley recorded above-normal (112%) rainfall while, Sangster recorded below-normal (44%) rainfall. There were six (6) rain days reported for both Norman Manley and Sangster.

The highest maximum temperature recorded for Norman Manley was 33.2°C (10$^{th}$ November) and at Sangster, 32.5 °C (10$^{th}$ November).

**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 Figure1) and a forecast SPI (see Figure 2) using a 3-month and 6-month time interval, respectively.

**Observed September to November SPI for Selected Stations**

| Parish | Station | November Rainfall Total (mm) | Percent of 30-year Mean (%) | Observed SPI for September-October-November |
|---|---|---|---|---|
| Hanover | Mount Peto | 21 | 17 | -0.91 |
| Westmoreland | Savanna-La-Mar | 17 | 12 | -0.67 |
| Westmoreland | Frome | 2 | 2 | -0.86 |
| Manchester | Sutton | 76 | 57 | -0.06 |
| St. Elizabeth | Y.S. Estates | 103 | 65 | 0.15 |
| St. Elizabeth | Potsdam | 97 | 92 | 0.04 |
| Clarendon | Beckford Kraal | 100 | 80 | -0.95 |
| St. Catherine | Tulloch | 187 | 120 | 0.17 |
| St. Catherine | Worthy Park | 85 | 73 | -0.40 |
| Trelawny | Orange Valley | 67 | 59 | 0.63 |
| St. James | Sangster | 45 | 44 | -0.50 |
| St. Ann | Cave Valley | 52 | 43 | 0.72 |
| St. Mary | Hampstead | 438 | 183 | 2.11 |
| Portland | Shirley Castle | 1505 | 245 | 1.91 |
| St. Thomas | Serge Island | 81 | 37 | -0.47 |
| KSA | Langley | 147 | 51 | -0.99 |
| KSA | Manley Airport | 96 | 112 | -0.67 |

*Table 1: Observed SPI for Selected Stations across Jamaica during the September-October-November 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 September-October-November period, four stations recorded moderately dry conditions, namely Mount Peto, Frome, Beckford Kraal and Langley, of which Langley was the driest reported for the period (Table 1). Two (2) other stations Savanna-La-Mar and Manley experienced 'abnormally dry' conditions.

During the three month period, Hampstead had an SPI value in the 'exceptionally wet' category. This was followed by Shirley Castle in the 'extremely wet' category and Orange Valley and Cave Valley, both in the 'abnormally wet' category. The remaining seven (7) stations were considered to be within near-normal bounds. A slight majority of stations (ten of seventeen) and located mainly on the western and southern sides of the island, experienced near-normal to dry conditions for the three month period.

With dry conditions being experienced in western and some southern parishes, there are concerns for the farming sector. In contrast, the concern for the northeastern parishes was damage to crops by flooding and possible land slippage, especially in sections of Portland and St. Mary, where wet conditions prevailed. See Figure 1 below for the graphical representation of observed SPI values for the September-October-November period.

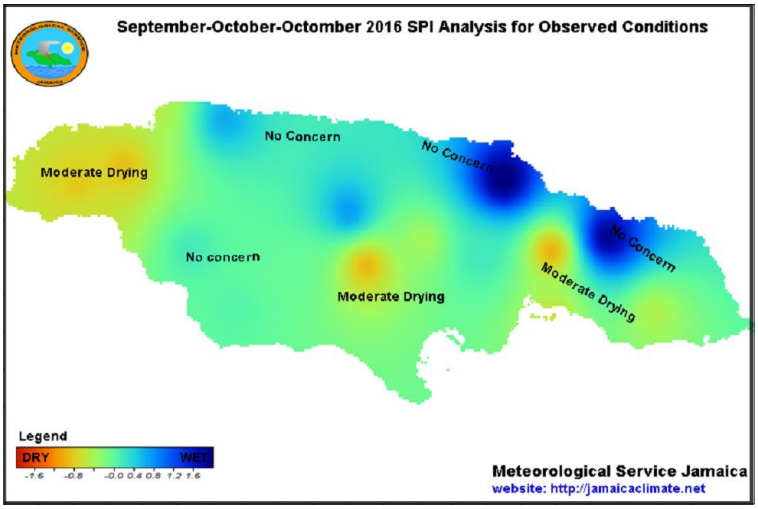


*Figure 1: September-October-November 2016 SPI Analysis for Observed Conditions*

The SPI analysis through January (see Figure 2 below) has determined that there may be some dry conditions over southern parishes going into the early part of the upcoming dry season. Therefore we will be closely monitoring conditions so that the relevant advice can be disseminated as necessary.

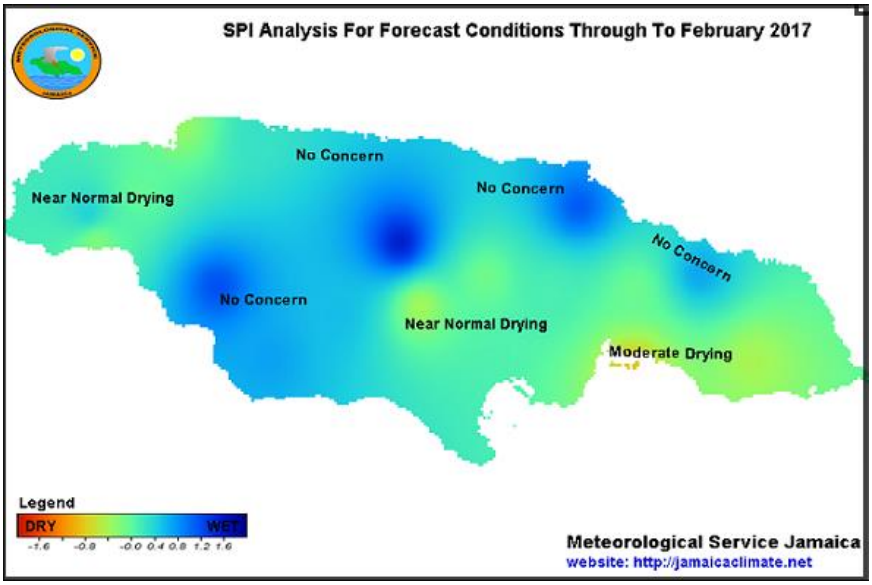


*Figure 2: Forecast Drought Conditions through to February 2017*

**Seasonal Forecast – December 2016 to February 2017**

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.

The forecast for the December to February period shows an increase in the rainfall amounts above the average with the greater chance of this occurring in December and January. This is mainly due to favourable environmental conditions at the start of the primary dry season. This however could change and therefore plans should be initiated for drought monitoring for those farming communities experiencing dry conditions at the end of the main rainfall season. We will however continue to monitor the findings from the models in order to better advise our farmers.

| | % Below (B) | % Normal (N) | % Above (A) |
|---|---|---|---|
| **Jamaica Rainfall Outlook** | 25 | 35 | 40 |
| **Jamaica Temperature Outlook** | 20 | 35 | 45 |

**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 December 2016 to February 2017.*

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 above-normal rainfall for the December 2016 to February 2017 period while, Manley is indicating below normal activity and Frome normal activity.

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

**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 December 2016 to February 2017.*

**Summary and Expected Agricultural Impacts**

The SPI analysis tool is indicating that Jamaica is generally expected to experience near to above-normal rainfall during the early part of the dry season, with a decline likely as the island transitions the remainder of the dry season.

With this forecast there should be no immediate drought concerns for the Jamaica, but this could change for the island later on in the dry season. Farming communities should therefore be aware of this possibility and initiate plans for drought monitoring especially for western and southern parishes which are currently experiencing dry conditions. The Meteorological Service will continue to monitor the findings from the models in order to advise accordingly.

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