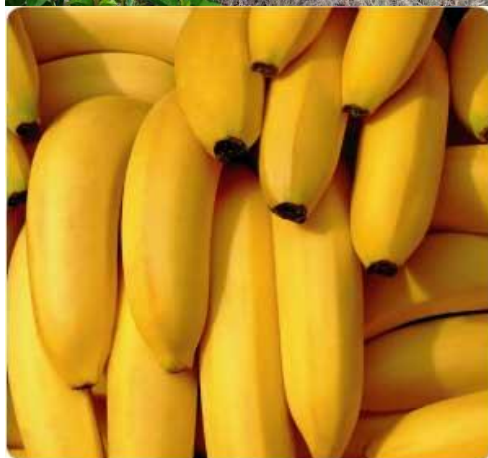


# NATIONAL AGROMET BULLETIN



Issued by

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**December 2014**

## Highlights for December 2014

- + Most stations reporting improved drought conditions for the month of December.**
- + Above normal rainfall forecast for Portland and Manchester for January through March.**
- + Above normal Temperature forecast to continue for January through March 2015.**

### Weather Summary for month of December 2014

Throughout the month of December surface troughs were the most dominant weather feature affecting the island. Most northern parishes, especially north-eastern parishes received above average rainfall. Flash flooding was reported across sections of St Ann, St Mary and Portland (December 15-18), which was due to prolonged showers associated with a lingering surface trough.

During the month, Sangster in the northwest recorded 227.7 mm of rainfall, while Norman Manley in the southeast received 18.4 mm of rainfall. There were nine rainfall days reported for Sangster while Norman Manley International airports recorded had six rainfall days. Manley received about 61% of average rainfall during the period, while Sangster received 240% above the average (1971-2000 mean).

The highest maximum temperature recorded for Sangster Airport was 32.0°C (24<sup>th</sup> December) meanwhile 33.3°C (26<sup>th</sup> December) was reported for Norman Manley Airport. The highest maximum temperature was exceeded at both airports during the month.



## Standardized Precipitation Index (SPI)

The Standardized Precipitation Index (SPI), developed by T.B. McKee, N.J. Doesken, and J. Kleist in 1993, is based only on precipitation. One unique feature is that 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.

### KEY

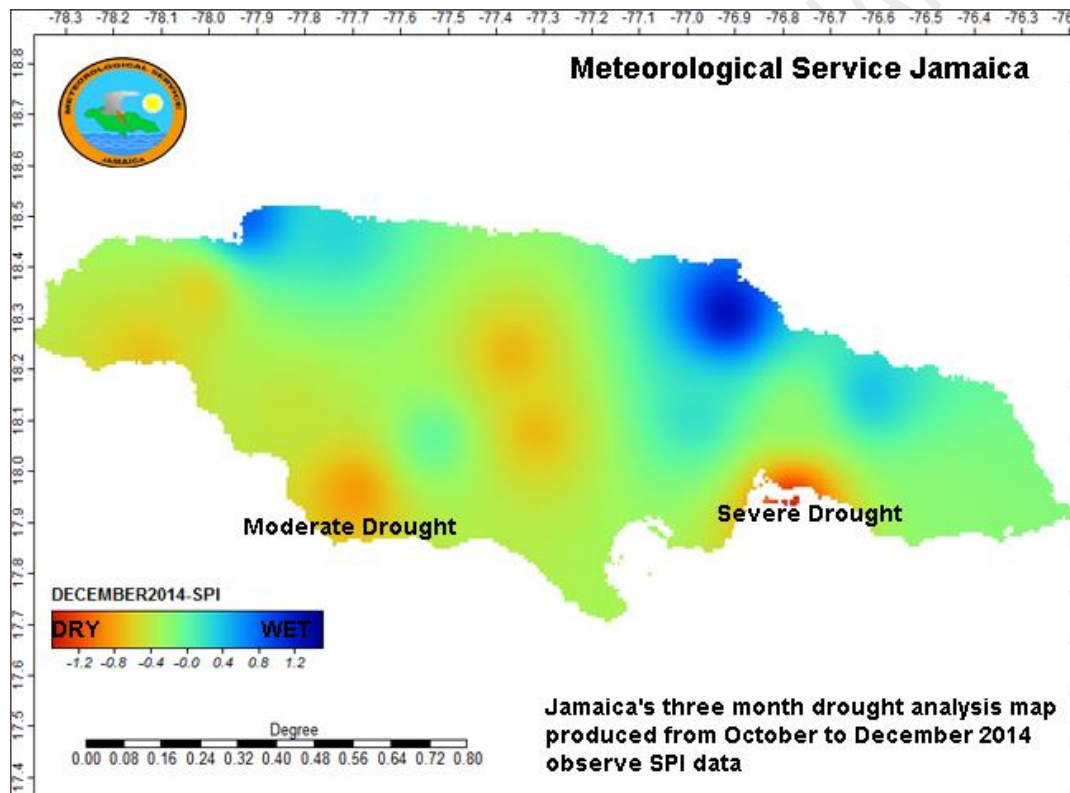
| SPI Value    | Category                        | SPI Value   | Category                         |
|--------------|---------------------------------|-------------|----------------------------------|
| 0 to -0.4    | Normal drought                  | 0 to 0.4    | Normal Wetness                   |
| -0.5 to -0.7 | Abnormally Dry<br>(30%tile)     | 0.5 to 0.7  | Abnormal Wetness<br>(70%tile)    |
| -0.8 to -1.2 | Moderate Drought<br>(20%tile)   | 0.8 to 1.2  | Moderate Wetness<br>(80%tile)    |
| -1.3 to -1.5 | Severe Drought<br>(10%tile)     | 1.3 to 1.5  | Severe Wetness<br>(90%tile)      |
| -1.6 to -1.9 | Extreme Drought<br>(5%tile)     | 1.6 to 1.9  | Extreme Wetness<br>(95%tile)     |
| -2.0 or less | Exceptional Drought<br>(2%tile) | 2.0 or more | Exceptional Wetness<br>(98%tile) |

**Table 1. Rainfall and Drought Analysis for Selected Stations**

| Parish        | Station        | December Monthly Total (mm) | Percent of 30 year Mean (%) | SPI for December |
|---------------|----------------|-----------------------------|-----------------------------|------------------|
| Hanover       | Mount Peto     | 98                          | 105                         | -0.6             |
| Westmoreland  | Sav-la-mar     | 65                          | 82                          | -0.7             |
| Manchester    | Sutton         | 153                         | 269                         | -0.1             |
| St. Elizabeth | Y.S Estates    | 79                          | 105                         | -0.5             |
| St. Elizabeth | Potsdam        | 11                          | 18                          | -0.9             |
| Clarendon     | Beckford Kraal | 77                          | 106                         | -0.7             |
| St. Catherine | Tulloch        | 72                          | 81                          | 0.2              |
| Trelawny      | Orange Valley  | 154                         | 136                         | 0.3              |
| St. James     | Sangster       | 228                         | 239                         | 0.8              |
| St. Ann       | Cave Valley    | 105                         | 154                         | -0.7             |
| St. Mary      | Hampstead      | 425                         | 224                         | 1.3              |
| Portland      | Shirley Castle | 857                         | 168                         | 0.4              |
| St. Thomas    | Serge Island   | 142                         | 138                         | -0.2             |
| KSA           | Langley        | 155                         | 92                          | -0.2             |
| KSA           | Manley Airport | 18                          | 61                          | -1.4             |

### **Standardized Precipitation Index Discussion**

Ten of fifteen stations were showing various levels of drought however the worst cases are Norman Manley which is reporting severe drought and Potsdam reporting moderate drought conditions. Significant rainfall amounts were reported for December across most sections of the island however due to the large deficits in some areas some level of drought was expected. The dry season has therefore begun with a deficit for sections of some parishes and therefore water use should be carefully managed in this period.



**Fig.1 Station observed drought conditions for December 2014**



### **Precipitation Forecast – December 2014 to February 2015**

During the period, both the forecasts from the Global Dynamic Models as well as Climate Predictability Tool (CPT) indicate that near normal to below normal rainfall is likely to continue across the most of the Caribbean including Jamaica.

The findings from the CPT indicates that most areas are likely to experience near-normal to below-normal rainfall, however sections of Manchester and Portland are likely to continue receiving normal to above normal rainfall. Fifteen rainfall stations were examined across the island, of which nine are likely to receive near-normal to below-normal rainfall, while six stations are likely to have above normal rainfall during the period. Stations within the parish of St. Thomas are likely to experience the greatest deficit in rainfall during the period.

**Table 2. Climate Predictability Tool (CPT) Outlook DJF 2014/15.**

| Stations                    | Below (B) % | Normal (N) % | Above (A) % |
|-----------------------------|-------------|--------------|-------------|
| Manley (Kingston)           | 42          | 30           | 28          |
| Sangster (St. James)        | 54          | 23           | 23          |
| Sav. (Westmoreland)         | 32          | 38           | 30          |
| Beckford (Clarendon)        | 44          | 26           | 30          |
| Serge Island (St. Thomas)   | 46          | 31           | 23          |
| Cave Valley (St. Ann)       | 50          | 26           | 24          |
| Tulloch Estate (St. Cath.)  | 52          | 25           | 23          |
| Y.S. Estate (St. Elizabeth) | 25          | 13           | 62          |
| Hampstead (St. Mary)        | 32          | 33           | 35          |
| Orange Valley (Trelawny)    | 49          | 26           | 25          |
| Langley (Kingston)          | 29          | 31           | 40          |

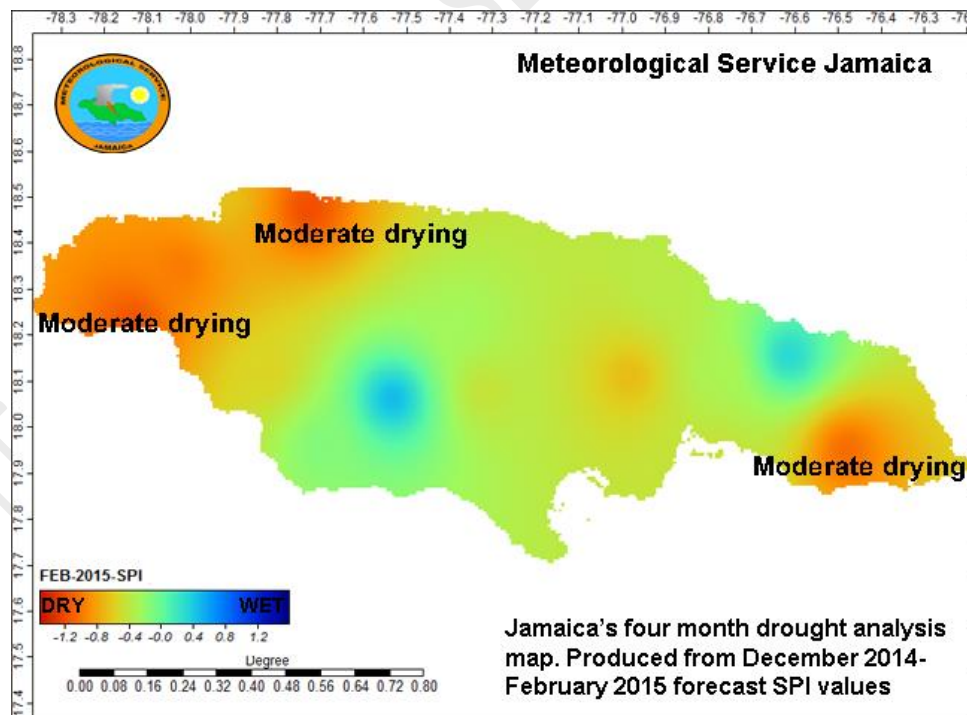


|                           |           |           |           |
|---------------------------|-----------|-----------|-----------|
| Mount Peto (Hanover)      | 45        | 29        | 26        |
| Shirley Castle (Portland) | 28        | 27        | 45        |
| Suttons (Manchester)      | 27        | 10        | 63        |
| Potsdam (St. Elizabeth)   | 28        | 29        | 43        |
| <b>Jamaica</b>            | <b>35</b> | <b>32</b> | <b>33</b> |

**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

**Drought Forecast – February 2015 (looking back three months)**



**Fig.2 Expected drought conditions by end of February 2015**





| Location                           | Below (B) % | Normal (N) % | Above (A) % |
|------------------------------------|-------------|--------------|-------------|
| <b>Jamaica Temperature Outlook</b> | 20          | 25           | 55          |

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

There has been improvement in drought conditions for the month of December across most areas. The models are predicting normal to below normal activity for the most parishes but the greatest deficit in rainfall is expected in St. Thomas. Close monitoring is therefore recommended to ensure the availability of water throughout the dry season.