

# *NATIONAL AGROMET BULLETIN*



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**October 2012**

## Weather Summary for month of October 2012

Jamaica continues to see a significant increase in the levels of rainfall activities across the island during the month of October. Throughout the month, the island was affected mainly by **Low Level Troughs** however there was also one hurricane which brought significant damage to mainly eastern parishes (see Figure 1). Hurricane Sandy developed across the southern Caribbean on the 22<sup>nd</sup> and the eye of the system moved across the eastern sections of the island with wind speeds in excess of 64 knots on the 24<sup>th</sup>. Extensive damage was reported across the island with more than 70% of the population left without piped water and electrical power. During the month, Donald Sangster Int'l airport (Sangster) in the northwest recorded 187.4 mm of rainfall, while Norman Manley Int'l airport (Norman Manley) in the southeast recorded 232.2 mm. There were fifteen rainfall days reported for Sangster, while Norman Manley recorded eight rainfall days. Both Sangster and Norman Manley recorded above average rainfall, Sangster was approximately 117% (or 17% above) 1971-2000 mean while Norman Manley recorded 149% (or 49% above) 1971-2000 mean. The highest maximum temperature recorded for Sangster was 33.8°C (2<sup>nd</sup> October) while 34.3°C (21<sup>st</sup> October) was reported for Norman Manley.

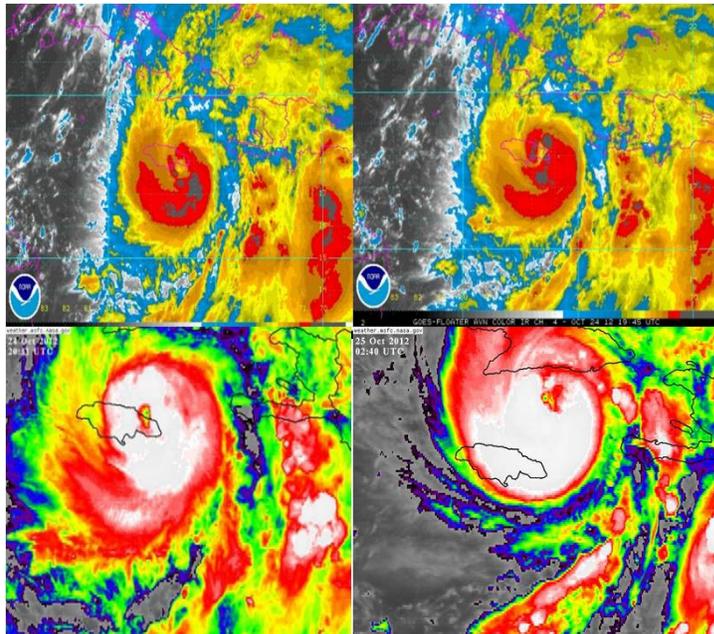


Fig 1: Satellite imageries of Hurricane Sandy before, during and after making landfall on Jamaica's south-eastern coast.



### *Agricultural Damage Resulting from the Passage of Hurricane Sandy*

Preliminary estimates of crop and livestock damage from Hurricane Sandy stands at approximately J\$1.4 billion dollars for the island. St. Thomas reported the highest total in damage of J\$320 million followed by Portland which recorded J\$300 million. Of the crops damaged, the largest acreage was recorded for banana (725ha) while 570ha was reported for vegetables and 535ha for plantain. For livestock the greatest loss was for poultry and this figure exceeded 40, 000. There were 31,000 farmers reporting crop losses while 1,580 reported losses for livestock.

### 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. SPI also allows monitoring of both extremes that is extreme dry and extreme wet conditions.

#### KEY

<b>SPI Value</b>	<b>Category</b>
<b>-0.50 to 0.50</b>	Normal
<b>0.80 to 0.51</b>	Abnormally wet
<b>1.30 to 0.81</b>	Moderately wet
<b>1.60 to 1.31</b>	Very wet
<b>2.00 to 1.61</b>	Extremely wet
<b>≥ 2.01</b>	Exceptionally wet
<b>-0.80 to -0.51</b>	Abnormally dry
<b>-1.30 to -0.81</b>	Moderately dry
<b>-1.60 to -1.31</b>	Severely dry
<b>-2.00 to -1.61</b>	Extremely dry
<b>≤ -2.01</b>	Exceptionally dry



Parish	Station	October Monthly Total (mm)	Percent of 30 year Mean (%)	SPI for October
St. Thomas	Serge Island	n/a	n/a	n/a
*KSA	Langley	n/a	n/a	n/a
St. Catherine	Tulloch	163	68	1.05
Clarendon	Beckford Kraal	209	78	0.64
Manchester	Sutton	458	181	1.27
St. Elizabeth	Y.S Estates	251	84	-0.52
Westmoreland	Sav-la-mar	107	45	-0.92
Hanover	Mount Peto	218	62	-0.66
St. James	Sangster	187	116	-0.04
*Trelawny	Orange Valley	n/a	n/a	n/a
St. Ann	Cave Valley	219	110	0.78
St. Mary	Hampstead	89	64	0.05
Portland	Shirley Castle	106	27	-0.13

**\*Station or data was lost during passage of Hurricane Sandy**

### **Standardized Precipitation Index Discussion**

SPI indices ranged from a low of -0.92 to a high of 1.37 which corresponds with moderately dry to moderately wet. Savanna-la-mar will be closely monitored since it is currently showing signs of possible drought conditions in another two months depending on rainfall activity in that area which is coupled with a forecast for below normal rainfall for December 2012 through February 2013 for that station (Table 2.).

### **Precipitation Outlook – December 2012 to February 2013**

Of a total of five stations that were examined, three of these stations indicated above normal rainfall while two stations below normal rainfall. The forecast shows no clear signal for stations with the exception of Sangster and Serge Island which show a strong signal for below normal rainfall. The overall average for Jamaica therefore, reflects a near normal to below normal rainfall pattern for the period December 2012 through to February 2013 with weak signals and very little forecast confidence.

**Table 2. Climate Predictability Tool (CPT) Outlook.**

Stations	Below (B) %	Normal (N) %	Above (A) %
Manley	25	29	46
Sangster	35	29	36
Savanna-la-Mar	52	27	21
Beckford Kraal	31	31	38
Serge Island	58	26	16
<b>Jamaica</b>	<b>40</b>	<b>29</b>	<b>31</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

**Expected Agricultural Impacts**

There is no sign of drought being indicated for the selected stations at this time. The precipitation outlook is forecasting below normal to normal conditions over the next three months although there is little confidence in the forecast, however with the current prediction for El Nino to remain weak into the winter time the likelihood of normal rainfall is greater.



**Research Project: *Assessing Drought Tolerance in Root Crops through climate and crop modeling-The Case of Sweet Potato, Ipomoea batatas.***

**Brief Justification:** Yields of sweet potato like other root crops are mostly estimated aggregates that are not differentiated for varieties. Crop production is mostly rainfed (up to 94%) and open field making it very vulnerable to vagaries of rainfall variability especially drought.

**Project Aim and brief description**

The aim of this research is to investigate whether Sweet potato yields that are affected by differential tolerance of varieties to water availability, can be accurately simulated by the FAO AquaCrop model. The research has established field three trials in three agro ecological zones in Jamaica. The locations are namely South-eastern Jamaica (Bodles Research Centre, St. Catherine), North-eastern Jamaica (College of Agriculture Science and Education, Portland) and South-central Jamaica (Devon, Manchester). The experiment includes five local sweet potato varieties (namely Clarendon, Fire on Land, Ganja, Uplifta and Yellow belly) and the two water systems (irrigation and rain-fed). Treatments are allocated in a Randomised Complete block (RCB) design with 5 replications. Parameters measured in the trials include canopy cover, rooting depth, biomass (above and below ground), yield and (dry) harvest index.

**In our next issue in Nov 2012.... Look out for:**

- Findings, Results and achievements of this Research project so far.