Drought and Precipitation Statement for Antigua – Oct 2013

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Meteorological drought

The island is experiencing a meteorological drought which started in September largely due to well below normal rainfall for July. Although the rainfall for August and September were near normal, the deficit experienced in July resulted in well below normal rainfall for the period Jul – Sep; thus, resulting in an initially serious rainfall deficit. The rainfall for October of 2.75 inches and recent rainfall in November has eased the initial intensity of the drought to moderate levels. However, this is the driest October since 2000 with the total being 3.59 inches below normal. Meanwhile, the period Aug – Sep tied with 2009 for the driest such period since 1993 with a deficit of 5.63 inches. See table 1 for more.

Based on various models, trends, climatology and subjective input, there is an equal chance of rainfall being below, near or above normal for Dec; for DJF, below normal rainfall is most likely i.e. less than 7.33 inches. Given the outlooks, there is a chance of the meteorological drought continuing into early next year.

Period	Rainfall (inches)				Rainfall Record – 1928 to 2013			
Previous Month(s)	Actual	Normal (1981 – 2010)	Anomaly (1981 – 2010)	Description of Actual (1981 – 2010)	Max	Year	Min	Year
1(Oct)	2.75	6.34	- 3.59	Below normal	15.13	2008	1.13	1953
3(Aug – Oct)	10.82	16.45	- 5.63	Below normal	32.63	1995	6.43	'68&'94
6(May –Oct)	22.92	27.21	- 4.29	Below normal	45.01	1951	13.10	'30&'53
9(Feb – Oct)	33.11	34.81	- 1.70	Near normal	55.88	2010	16.25	1930
12(Nov – Oct)	40.66	47.37	- 6.71	Below normal	67.70	1986	24.88	1967
24(Nov – Oct)	89.78	94.23	- 4.45	Near normal	132.45	1950	65.06	1966

Table 1: Rainfall (inches) over the past 24 months. (For records, the year given marks the start of the period)

Drought

Drought in general means water shortage and rainfall deficiency. Meteorological (climatological) drought is defined in terms of the magnitude of a precipitation shortfall and the duration of this shortfall event. This is assessed by first examining the rainfall periods of three months or more for selected places to see whether they lie below the 30th percentile (lowest 30% of the historical records). The approach used to determine the rainfall deficit is an adjusted version of the decile method developed by Gibbs and Maher (1967). An adjusted version of this method is used as the measurement of droughts within the Australian Drought Watch System. The drought levels, based on historical data, are defined as follow:

- **Slight:** rainfall ranges from less than 30th percentile to the 20th percentile
- **Moderate:** rainfall ranges from less than the 20th percentile to the 10th percentile
- **Serious:** rainfall ranges from less than the 10th percentile to the 5th percentile
- **Severe:** rainfall less than the 5th percentile

Probability of drought:

- **Slight Chance:** 5 to 25% chance of occurring
- **Chance:** 30 to 55% chance of occurring
- **Likely:** 60 to 75% chance of occurring
- **Highly Likely/Expected:** Greater than or equal to 80% chance of occurring

Rainfall Description

The following definitions are being used on the 1981 to 2010 rainfall dataset:

- **Well Below normal:** Rainfall totals in the lowest 10% of the dataset
- **Below Normal:** Rainfall totals in the lowest 33.3% of the dataset
- **Near Normal:** Rainfall totals in the middle 33.3% of the data
- **Above Normal:** Rainfall totals in the highest 33.3% of the dataset
- **Well Above Normal:** Rainfall totals in the highest 10% of the dataset
- **Rainfall:** Island average, based on rainfall at the airport and Green Castle

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