

Drought and Precipitation Statement for Antigua - December 2016



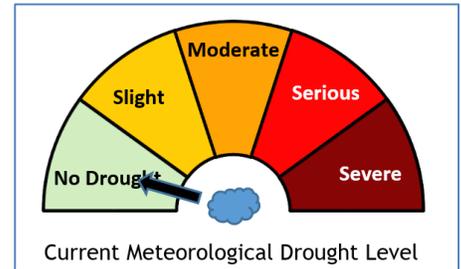
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 February 15, 2017

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...Near normal rainfall for December...some droughts continue...

Statement

December 2016 had near normal rainfall. The rainfall for the month totalled 97.5 mm (3.84 in) – the most since 2013. The rainfall contributed to preventing the worsening of the protracted **hydrological** (Hydro) and **socioeconomic** (SE) droughts being experienced for over three years now. These droughts continue, at least, at slight levels. The **meteorological** (Met), **agrometeorological** (AgMet) and **ecological** (EC) droughts ended in September and remained so through December.



The past three-month rainfall sum has been near normal, yet it is the wettest such period since 2008. The total rainfall accumulation is 518.7 mm (20.42 in) – almost equalling all of the rainfall for 2015, when only 574.5 mm (22.62 in) fell. No other three-month-period has had more rainfall since 2011.

Notwithstanding the ending and easing of droughts, there exist significant rainfall deficits over the past 39 months that have not been erased, as can be expected. **Top 10 low rainfall** is evident over the past 19-41 months ending November (see table 1).

The intensities of the droughts are based on the rainfall deficits of the previous one, three, six and twelve months, using the deciles approach. Another indicator of the intensity of the droughts is the **Standardized Precipitation Index** or **SPI**. For the past one, three, six and twelve months, the island-average SPIs were **0.16**, **0.17**, **0.5** and **0.08** respectively. The positive to weakly negative values are indicative of the droughts ending or easing ([SPI classification 2011](#)). The index is positive for the twelve-month period for the first time in two years.

The ended Met drought started in **July 2013**, with the Hydro drought commencing three to six months later. The Met drought was the worst dating back to 1928 and perhaps the worst dating back to 1902. It is the longest Met drought on record, surpassing that of 1964-1967.

Based on our latest analyses, there is equal chance of below, near or above normal rainfall for the upcoming **six months**. Meanwhile, warmer than normal temperature is likely for the same period. Given these and, more so, other **forecasts**, moderate or worse Met, AgMet and EC droughts are **unlikely** for the short to long term. Meanwhile, **gradual improvements** of the Hydro and SE droughts are likely.

PERIOD	RAINFALL				RAINFALL RECORD – 1928 to 2016			
	Previous Month(s)	Actual	Normal (1981 – 2010)	Anomaly (1981 – 2010)	Description of Actual	Max	Year	Min
1(Dec)	3.84	3.98	-0.14	Near normal	11.02	1971	0.96	1947
3(Oct-Dec)	15.86	16.19	-0.33	Near normal	31.18	1999	5.63	1983
6(Jul-Dec)	32.73	30.26	+2.47	Near normal	44.26	1951	15.97	1983
9(Apr-Dec)	41.34	40.43	+0.91	Near normal	62.60	1979	19.02	2015
12(Jan-Dec)	46.14	47.37	-1.23	Near normal	69.45	1951	22.62	2015
24(Jan-Dec)	68.76	93.86	-25.10	Well below normal	133.02	1951	58.87	2014

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

Related Products

Climate outlooks: [December](#), [January-March 2017](#), [April-June 2017](#), [January-June 2017](#), [Drought](#)

Other statements: [Temperature](#), [Wet Season](#), [Dry Season](#)

Definition

[Drought in general means](#) water shortage and rainfall deficiency. [Meteorological \(climatological\) drought](#) is defined in terms of the magnitude of a precipitation shortfall/deficit 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 or below the 3 decile). 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 consecutive three-month 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

The level of a drought period/episode (drought lasting three or more months) is described based on the maximum consecutive three-month rainfall deficit.

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 used on the 1981 to 2010 rainfall dataset:

- **Well below normal:** Rainfall totals in the lowest 10% of the dataset
- **Below normal** (lower or less than usual): Rainfall totals in the lowest 33.3% of the dataset
- **Near normal** (normal or usual): Rainfall totals in the middle 33.3% of the data
- **Above normal** (more or higher than usual): 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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