

# Drought and Precipitation Statement for Antigua - September 2016



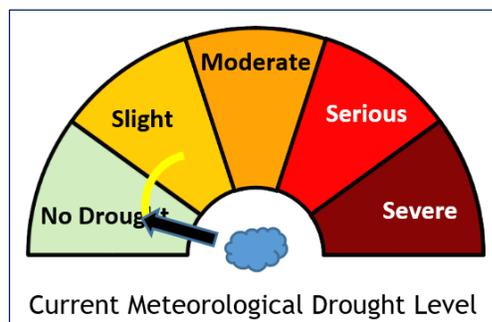
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**...Record meteorological drought ends but other droughts continue...**

## Statement

After over 38 months, the rainfall for September 2016 has brought the **meteorological** (Met) and **agrometeorological** (AgMet) droughts to an end. However, it was not enough to end the **hydrological** (Hydro) and **socioeconomic** (SE) droughts, which continue at slight levels or worse. The most memorable droughts on record dating back to at least 1928 were brought to a partial end by flooding rainfall in September. The **island-average** of 213.4 mm (8.40 in) for September 2016 is the most for a September since 1995, making it the 16<sup>th</sup> wettest of all Septembers dating back to 1928. Further, it is the wettest of any month since October 2012.



Although the Met and AgMet droughts have ended, all of the deficits built up over the past 38 months have not been erased, as can be expected. **Top 10 low rainfall** is evident over the past 16, 17, 18...39 months ending September (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 **1.08, 0.68, 0.3 and -0.51** respectively. The positive values are a good sign of improved rainfall levels over the short to medium-term. However, at the long-term, the negative value represents continued rainfall deficits ([SPI classification 2011](#)).

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. Of the **71 droughts** on record, it has the greatest rainfall deficit - **1193.8 mm** (47 in); the next highest is 889 mm (35 in), which was caused by the 1964-1967 and 1929-1931 droughts. Of the **12 droughts** lasting at least 18 months, it is the sixth worst in intensity.

Although the Met drought has ended, the past 39-month period is the third driest on record and 36<sup>th</sup> driest of any consecutive 39-month period of which there are 1027.

Based on our latest analyses, below to near normal rainfall is likely for **October-March**. Meanwhile, there is an equal chance of below, near or above normal for both **October-December** and **January-March**. Given these and **other forecasts**, there is a **moderate chance of the country going back into Met and AgMet droughts, and the Hydro and SE droughts re-intensifying in the medium to long-term.**

PERIOD	RAINFALL				RAINFALL RECORD – 1928 to 2016			
	Previous Month(s)	Actual	Normal (1981 – 2010)	Anomaly (1981 – 2010)	Description of Actual	Max	Year	Min
1(Sep)	8.40	5.67	+2.68	Above normal	14.69	1995	0.99	1978
3(Jul-Sep)	16.87	14.06	+2.81	Above normal	28.43	1995	6.17	1968
6(Apr-Sep)	25.48	24.24	+1.24	Above normal	43.06	2010	9.41	2015
9(Jan-Sep)	30.28	31.17	-0.89	Near normal	50.44	1951	12.97	2015
12(Oct-Sep)	39.95	47.24	-7.29	Below normal	67.74	1951	23.82	2000
24(Oct-Sep)	69.22	94.20	-24.98	Well below normal	133.44	1950	62.13	2013

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

## Related Products

Climate outlooks: [Oct](#), [Oct-Dec 2016](#), [Jan-Mar 2017](#), [Oct 2016-Mar 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 30<sup>th</sup> percentile to the 20<sup>th</sup> percentile
- **Moderate:** rainfall ranges from less than the 20<sup>th</sup> percentile to the 10<sup>th</sup> percentile
- **Serious:** rainfall ranges from less than the 10<sup>th</sup> percentile to the 5<sup>th</sup> percentile
- **Severe:** rainfall less than the 5<sup>th</sup> 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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