



METEOROLOGY DIVISION
MINISTRY OF INFRASTRUCTURE, KINGDOM OF TONGA
 P.O. Box 845, Domestic Terminal, Fua'amotu Airport, TONGA
 Tel: (676) 35355/35008 Fax: (676) 35123 Email: metstaff@met.gov.to

MEDIA RELEASE

Update on the Drought that is affecting the Ha'apai Group

The Drought

Very dry conditions have affected the Ha'apai Group since September 2013. Although the Ha'apai group on average is the driest place in Tonga with an average annual rainfall of 1600mm and is expected to experience 2 dry periods every year in around April to May and from September to November, the rainfall recorded at Salote Pilolevu Meteorological Station (Lifuka) during those periods has seen lower than normal rainfall with deficits of about 150mm and 200mm respectively. (refer to Figure 1). Lifuka is the only station in Tonga that has recorded below average rainfall over the 3 months period from September to November 2013.

**Rainfall recorded at Salote Pilolevu
 Meteorological Station (Lifuka) in 2013**

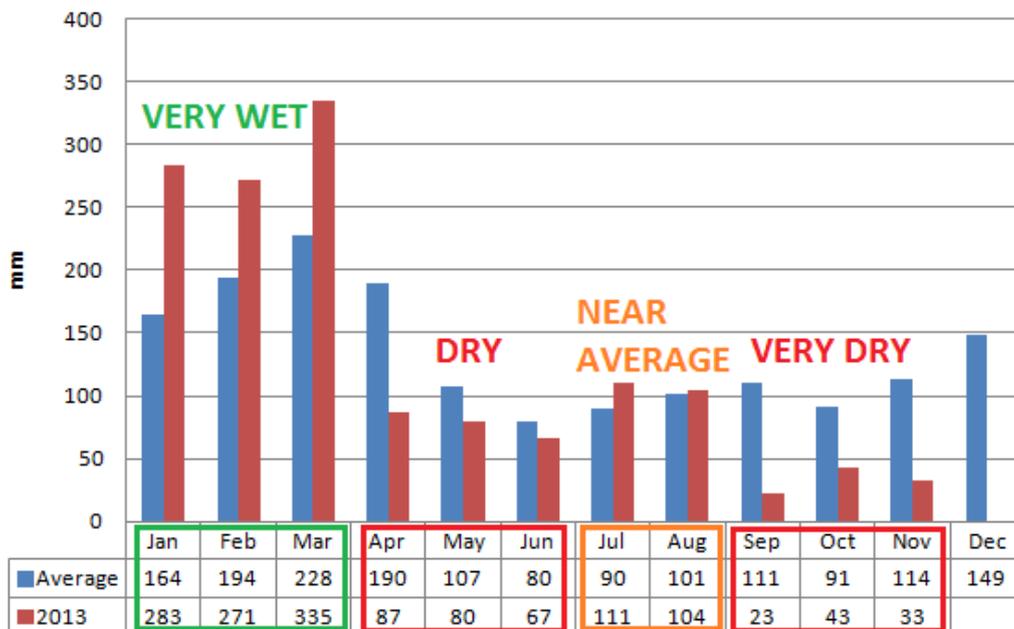


Figure 1: The monthly rainfall totals recorded at Salote Pilolevu Airport vs the long term average.

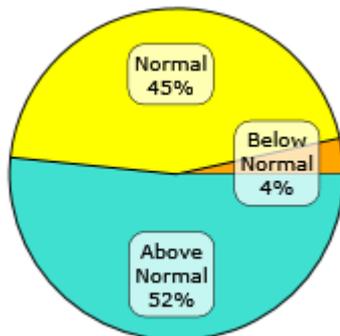
Figure 1 Shows that during the first 3 months of 2013, the rainfall regime for Ha'apai was way above the average with a rainfall surplus of about 300mm from January to March. It was then followed by a 3 month dry period from April to June (150mm deficit) followed by a near average period in July and August and then a very dry 3 months followed again from September to date (200mm deficit) which is currently affecting the Central Island Group. Looking at the figures, it is a fair assessment that Ha'apai has not had any decent rain since March.

Cause of the dry conditions in Ha'apai

Geographically, the Ha'apai Islands lie in a dry belt between the influences of the South Pacific Convergence Zone [SPCZ] (an area of cloud which brings most of Vava'u and the Niua's rainfall) to the north and Cold fronts (clouds associated with Subtropical lows that move from the west to east which bring rains to mostly Tongatapu and 'Eua). Ha'apai rainfall is a collective of leftover SPCZ rainfall that sometimes makes it way down south and Cold Front rains which sometimes reaches as far north as Ha'apai. Therefore Ha'apai receives less rainfall than any other Island Group in Tonga. Apart from the La Nina conditions at the beginning of the year which resulted in above average precipitation in Lifuka, the sea surface temperature distribution through the Equatorial Pacific has been very uniform resulting in the weakening of an equatorial area of cloudiness (called the Madden Julian Oscillation or MJO) which migrates around globe in the Tropics every 30 to 60 days. This weakening in the MJO coupled with a stationary subtropical high pressure area (area of sinking air) just south of the Tonga group is the likely explanation for the drier than normal conditions. 2013 has seen neutral ENSO conditions (meaning neither El Nino nor La Nina conditions are dominant) prevail throughout the Pacific Basin. During neutral ENSO years, although not common, droughts have been recorded in Ha'apai in such years as was the case in Ha'apai in 1981 where only 1154mm of annual rainfall was recorded. The annual rainfall to date for 2013 recorded in Ha'apai is 1437mm.

Rainfall Prediction for Ha'apai the next 3-months

The Rainfall Outlook for the next 3 months (December 2013 to February 2014) for Ha'apai is for normal to above normal rainfall as for the rest of Tonga. As we are now into the wet season, the next active phase of the MJO in the Southwest Pacific is towards the end of December 2013 and into early January 2014, which should bring more consistently rain to Ha'apai and the rest of Tonga.



Ha'apai rainfall prediction for December 2013 to February 2014

Above Normal >678.4mm
Normal 433.0mm–678.4mm
Below Normal <433.0mm

Assumptions

In this analysis, the Tonga Meteorological Service has only one Meteorological Station in Ha'apai. It is therefore difficult to make an overall indepth assessment of the drought conditions throughout Ha'apai but for this paper, it is assumed that records collected at Salote Pilolevu Station is representative of the Meteorological conditions prevailing in the Ha'apai Group.

For further information, please contact the MET OFFICE at 35355.

'Ofa Fa'anunu
Director for Meteorological Services and Acting CEO for Infrastructure

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