

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 116

Country Name: Tonga

TABLE 1: Monthly Rainfall

| Station (include data period) | April 2017 | | | | | | |
|-------------------------------|----------------|----------------|----------------|-----------------------|-----------------------|----------------------|---------|
| | Feb 2017 Total | Mar 2017 Total | Apr 2017 Total | 33%tile Rainfall (mm) | 67%tile Rainfall (mm) | Median Rainfall (mm) | Ranking |
| Northern Division | | | | | | | |
| Niuafou'ou | 528.1 | 287.5 | 181.4 | 170.3 | 315.0 | 219.0 | 18/46 |
| Niuatoputapu | 693.9 | 154.4 | 445.9 | 165.3 | 291.0 | 222.5 | 62/67 |
| Central Division | | | | | | | |
| Vava'u | 925.6 | 305.2 | 114.3 | 155.0 | 259.0 | 209.0 | 11/71 |
| Ha'apai | 498.0 | 285.3 | 41.6 | 113.0 | 234.0 | 167.5 | 6/71 |
| Southern Division | | | | | | | |
| Fua'amotu | 473.9 | 257.7 | 36.8 | 97.0 | 238.1 | 172.0 | 6/38 |
| Nuku'alofa | 416.9 | 268.7 | n.a | 109.0 | 205.0 | 136.5 | - |

**TABLE 2: Three-monthly Rainfall
February to April 2017**

[Please note that the data used in this verification should be sourced from table 3 of OCOF #112]

| Station | Three-month Total | 33%tile Rainfall (mm) | 67%tile Rainfall (mm) | Median Rainfall (mm) | Ranking | Forecast probs.* (include LEPS) | Verification* (Consistent, Near-consistent Inconsistent?) |
|--------------------------|-------------------|-----------------------|-----------------------|----------------------|---------|---------------------------------|---|
| Northern Division | | | | | | | |
| Niuafou'ou | 997.0 | 728.5 | 936.0 | 885.7 | 33/42 | 31,31,38(-0.1) | Consistent |
| Niuatoputapu | 1294.2 | 686.4 | 840.0 | 755.0 | 64/65 | 28,39,33(0.5) | Near Consistent |
| Central Division | | | | | | | |
| Vava'u | 1345.1 | 692.0 | 890.0 | 820.6 | 70/71 | 28,34,38(3.1) | Consistent |
| Ha'apai | 824.9 | 543.0 | 705.0 | 649.0 | 53/71 | 25,33,42(8.9) | Consistent |
| Southern Division | | | | | | | |
| Fua'amotu | 768.4 | 456.0 | 672.0 | 510.0 | 28/38 | 20,35,45(10.9) | Consistent |
| Nuku'alofa | | | | | | | |

* Forecast is consistent when observed and predicted (tercile with the highest probability) categories coincide (are in the same tercile).

Forecast is near-consistent when observed and predicted (tercile with the highest probability) differ by only one category (i.e. terciles 1 and 2 or terciles 2 and 3).

Forecast is inconsistent when observed and predicted (tercile with the highest probability) differ by two categories (i.e. terciles 1 and 3).

Predictors and Period used for February 2017 to April 2017 Outlooks ([refer to OCOF #112](#)):

Period: *below normal/normal/above normal

TABLE 3: Seasonal Climate Outlooks using SCOPIC for June to August 2017-Tercile Method

Predictors and Period used: NINO 3.4 (March - April 2017)

| Station | Below Normal (prob) | 33%ile rainfall (mm) | Normal (prob) | 66%ile rainfall (mm) | Above Normal (prob) | LEPS (%) | Hit-rate (%) |
|---------------------------|---------------------|----------------------|---------------|----------------------|---------------------|----------|--------------|
| Northern Division | | | | | | | |
| Niuafo'ou (1971-2016) | 36 | 270.5 | 28 | 415.0 | 36 | -2.1 | 36.6 |
| Niuaotoputapu (1947-2016) | 39 | 236.3 | 28 | 352.1 | 33 | 0.2 | 45.5 |
| Central Division | | | | | | | |
| Vava'u (1947-2016) | 37 | 251.0 | 30 | 353.0 | 33 | -1.0 | 31.3 |
| Ha'apai (1947-2016) | 33 | 191.0 | 37 | 314.0 | 30 | -1.0 | 32.8 |
| Southern Division | | | | | | | |
| Fua'amotu(1980-2016) | 32 | 271.1 | 34 | 401.0 | 34 | -2.8 | 32.4 |
| Nuku'alofa(1944-2016) | 34 | 249.0 | 31 | 368.0 | 35 | -1.6 | 44.8 |

| Station | Below Median (prob) | Median Rainfall (mm) | Above Median (prob) | LEPS | Hit-rate |
|---------------------------|---------------------|----------------------|---------------------|------|----------|
| Northern Division | | | | | |
| Niuafo'ou (1971-2016) | 54 | 335.9 | 46 | -1.4 | 58.5 |
| Niuaotoputapu (1947-2016) | 49 | 312.0 | 51 | -1.6 | 36.4 |
| Central Division | | | | | |
| Vava'u (1947-2016) | 53 | 307.5 | 47 | -1.0 | 50.7 |
| Ha'apai(1947-2016) | 56 | 276.5 | 44 | 1.3 | 58.2 |
| Southern Division | | | | | |
| Fua'amotu (1980-2016) | 49 | 353.0 | 57 | -2.7 | 43.2 |
| Nuku'alofa(1944-2016) | 50 | 298.0 | 50 | -1.5 | 16.4 |

TABLE 4: Seasonal Climate Outlooks using POAMA2 for

June to August 2017

| Station | Lower Tercile (prob) | 33%ile rainfall (mm) | Middle Tercile (prob) | 66%ile rainfall (mm) | Upper Tercile (prob) |
|--------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|-------------------------|
| Northern Division | | | | | |
| Niuafo'ou | 39 | 249 | 25 | 417 | 36 |
| Niutopotapu | 39 | 248 | 25 | 363 | 36 |
| | | | | | |
| Vava'u | 36 | 272 | 37 | 344 | 27 |
| Ha'apai | 36 | 207 | 37 | 324 | 27 |
| | | | | | |
| Nuku'alofa | 15 | 261 | 49 | 402 | 36 |

Summary Statements

Rainfall for April 2017:

Northern division: Normal in Niuafo'ou and Above Normal in Niutopotapu.

Central division: Below Normal.

Southern division: Below Normal

Accumulated rainfall for February to April 2017, including outlook verification:

Northern division: Above Normal. Forecast was consistent in Niuafo'ou and near consistent in Niutopotapu.

Central division: Above Normal. Forecast was consistent.

Southern division: Below Normal. Forecast was consistent.

Outlooks for June to August 2017:

1. SCOPIC:

Northern division: The seasonal rainfall outlook offers little guidance for the coming season as the chances of normal, below-normal and above-normal rainfall are similar for Niuafo'ou and below normal for Niutopotapu. Confidence is very low.

Central division: The seasonal rainfall outlook offers little guidance for the coming season as the chances of normal, below-normal and above-normal rainfall are similar. Confidence is very low.

Southern division: Again there is little indication of bias towards either above normal, normal, or below normal. Confidence is very low.

2. POAMA:

Northern division: A mixed outlook, with similar chances for below-normal and above-normal totals; near-normal is the least likely outcome.

Central division: A near equal likelihood of below-normal and normal rainfall. Above normal rainfall is the least likely.

Southern division: The most likely outcome is normal, with above normal the next most likely. The least likely category is below-normal.

NB: The X LEPS % score has been categorised as follows:

Very Low: $X < 0.0$

Low: $0 \leq X < 5$

Moderate $5 \leq X < 10$

Good: $10 \leq X < 15$

High: $15 \leq X < 25$

Very High: $25 \leq X < 35$

Exceptional: $X \geq 35$