

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 119

Country Name: Tonga

TABLE 1: Monthly Rainfall

| Station (include data period) | July 2017 | | | | | | |
|-------------------------------|----------------|-----------------|-----------------|-----------------------|-----------------------|----------------------|---------|
| | May 2017 Total | June 2017 Total | July 2017 Total | 33%tile Rainfall (mm) | 67%tile Rainfall (mm) | Median Rainfall (mm) | Ranking |
| Northern Division | | | | | | | |
| Niuafou'ou | 217.0 | 113.8 | 143.6 | 53.3 | 147.0 | 106.0 | 30/45 |
| Niutoputapu | 622.2 | 233.5 | 75.3 | 59.0 | 131.0 | 90.0 | 34/71 |
| Vava'u | 342.8 | 126.1 | 161.6 | 61.0 | 119.0 | 79.5 | 61/71 |
| Ha'apai | 356.9 | 67.6 | 69.5 | 55.0 | 102.0 | 72.2 | 35/71 |
| Fua'amotu | 253.0 | 51.9 | 66.2 | 71.8 | 137.0 | 105.0 | 12/38 |
| Nuku'alofa | 232.2 | 35.5 | 75.8 | 63.3 | 114.3 | 83.0 | 35/73 |

**TABLE 2: Three-monthly Rainfall
May to July 2017**

[Please note that the data used in this verification should be sourced from table 3 of OCOF #115]

Predictors and Period used for May to July 2017 Outlooks (refer to OCOF #115): NINO3.4 Feb-Mar

| 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 | 474.4 | 362.5 | 458.3 | 427.4 | 30/43 | (33,34,33) 1.5 | Near Consistent |
| Niutoputapu | 931.0 | 321.3 | 411.7 | 360.6 | 67/67 | (33,35,32) 3.2 | Near Consistent |
| Central Division | | | | | | | |
| Vava'u | 630.5 | 298.0 | 401.0 | 352.5 | 64/71 | (32,35,33) 3.7 | Near Consistent |
| Ha'apai | 494.0 | 209.7 | 303.3 | 237.0 | 64/70 | (33,34,33) 2.3 | Near Consistent |
| Southern Division | | | | | | | |
| Fua'amotu | 371.1 | 255.7 | 430.2 | 343.5 | 21/38 | (26,36,38) 6.6 | Near Consistent |
| Nuku'alofa | 343.5 | 234.7 | 343.0 | 295.8 | 50/73 | (31,35,34) 6.5 | Near Consistent |

Period: *below normal/normal/above normal

* 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).

**TABLE 3: Seasonal Climate Outlooks using SCOPIC for
September to November 2017-Tercile Method**

Predictors and Period used: NINO 3.4 (June - July 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) | 38 | 451 | 35 | 636 | 27 | 8.9 | 44.2 |
| Niutopotapu (1947-2016) | 41 | 389 | 38 | 560 | 21 | 10.4 | 46.9 |
| Central Division | | | | | | | |
| Vava'u (1947-2016) | 41 | 364 | 40 | 525 | 19 | 14.0 | 47.8 |
| Ha'apai (1947-2016) | 40 | 225 | 36 | 402 | 24 | 6.5 | 43.3 |
| Southern Division | | | | | | | |
| Fuaámotu(1980-2016) | 36 | 246 | 36 | 352 | 28 | 9.9 | 37.8 |
| Nukuálofa(1944-2016) | 40 | 238 | 36 | 428 | 24 | 22.8 | 47.8 |

| Station | Below Median (prob) | Median Rainfall (mm) | Above Median (prob) | LEPS | Hit-rate |
|--------------------------|---------------------------|----------------------------|------------------------|------|----------|
| Northern Division | | | | | |
| Niuafo'ou (1971-2016) | 56 | 556 | 44 | 5.8 | 51.2 |
| Nlutopotapu (1947-216) | 62 | 482 | 38 | 15.0 | 67.2 |
| Central Division | | | | | |
| Vava'u (1947-2016) | 65 | 413 | 35 | 21.8 | 70.1 |
| Ha'apai(1947-2016) | 58 | 298 | 42 | 6.7 | 58.2 |
| Southern Division | | | | | |
| Fua'amotu (1980-2016) | 54 | 314 | 46 | 9.4 | 56.8 |
| Nuku'alofa(1944-2016) | 64 | 341 | 36 | 19.5 | 70.1 |

**TABLE 4: Seasonal Climate Outlooks using POAMA2 for
September to November 2017**

| Station | Lower Tercile (prob) | 33%ile rainfall (mm) | Middle Tercile (prob) | 66%ile rainfall (mm) | Upper Tercile (prob) |
|--------------------------|----------------------|----------------------|-----------------------|----------------------|----------------------|
| Northern Division | | | | | |
| Niuafou'ou | 30 | 360 | 5 | 567 | 65 |
| Nlutopotapu | 30 | 320 | 5 | 458 | 65 |
| | | | | | |
| Vava'u | 39 | 276 | 13 | 418 | 48 |
| Ha'apai | 39 | 204 | 13 | 304 | 48 |
| | | | | | |
| Nuku'alofa | 55 | 189 | 24 | 309 | 21 |
| | | | | | |

Summary Statements Niua fo'ou and above normal

Rainfall for July 2017:

Northern division: Normal.

Central division: Above normal in Vava'u and normal in Ha'apai.

Southern division: Below Normal in Fua'amotu and normal in Nuku'alofa.

Accumulated rainfall for May to July 2017, including outlook verification:

Northern division: Above Normal. Forecast was near consistent

Central division: Above Normal. Forecast was near consistent.

Southern division: Normal in Fua'amotu and Above normal in Nuku'alofa. Forecast was near consistent.

Outlooks for September to November 2017:

1. SCOPIC:

Northern division: At Niuafou'ou there is a little guidance as a chances of below normal, normal and above normal rainfall are similar. At Niuatopotapu the most likely outcome is below-normal, with normal the next most likely. Confidence is moderate to good.

Central division: At Vava'u the chances of below normal and normal are similar, with above normal the least likely outcome, while at Ha'apai the most likely outcome is below normal, with normal the next most likely. Confidence is moderate to good.

Southern division: At Fua'amotu the chances of below normal and normal are similar, with above normal the least likely outcome. At Nuku'alofa, the most likely outcome is below normal with normal the next most likely. Confidence is moderate to high

2. POAMA: POAMA seasonal outlook for all stations for September to November shows above normal rainfall except Nuku'alofa was 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: $X \geq 35$