

## Pacific Islands - Online Climate Outlook Forum (OCOF) No. 73

**Country Name: TONGA**

**TABLE 1: Monthly Rainfall**

| Station (include data period) |                 |                   | September 2013 |                       |                       |                      |         |
|-------------------------------|-----------------|-------------------|----------------|-----------------------|-----------------------|----------------------|---------|
|                               | July 2013 Total | August 2013 Total | Total          | 33%tile Rainfall (mm) | 67%tile Rainfall (mm) | Median Rainfall (mm) | Ranking |
| <b>Northern Division</b>      |                 |                   |                |                       |                       |                      |         |
| Niuafoóu                      | 204.5           | 205.4             | 227.1          | 81.0                  | 155.0                 | 130.0                | 37/43   |
| Niutatoputapu                 | 236.9           | 194.3             | 138.0          | 53.0                  | 129.1                 | 100.0                | 46/67   |
| <b>Central Division</b>       |                 |                   |                |                       |                       |                      |         |
| Vavaú                         | 221.9           | 360.9             | 57.0           | 81.0                  | 169.0                 | 109.8                | 10/67   |
| Haápai                        | 110.6           | 104.2             | 22.7           | 57.7                  | 148.0                 | 92.0                 | 6/67    |
| <b>Southern Division</b>      |                 |                   |                |                       |                       |                      |         |
| Nukuálofa                     | 80.0            | 127.6             | 116.1          | 75.3                  | 146.3                 | 103.0                | 39/69   |
| Fuaámotu                      | 112.5           | 140.7             | 123.7          | 80.7                  | 154.7                 | 102.0                | 20/34   |

**TABLE 2: Three-monthly Rainfall**

July 2013 to September 2013

[Please note that the data used in this verification should be sourced from table 3 of OCOF #69]

| 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?) |
|--------------------------|-------------------|-----------------------|-----------------------|----------------------|---------|---------------------------------|------------------------------------------------------------|
| <b>Northern Division</b> |                   |                       |                       |                      |         |                                 |                                                            |
| Niuafoóu                 | 637.0             | 264.3                 | 416.9                 | 337.1                | 36/43   | 32 31 37 (-5.1)                 | Consistent                                                 |
| Niutatoputapu            | 569.2             | 203.3                 | 354.3                 | 262.0                | 60/67   | 34 28 38 (-2.5)                 | Consistent                                                 |
| <b>Central Division</b>  |                   |                       |                       |                      |         |                                 |                                                            |
| Vavaú                    | 639.8             | 254.0                 | 396.3                 | 328.5                | 65/67   | 29 37 34 (-2.3)                 | Near Consistent                                            |
| Haápai                   | 237.5             | 232.0                 | 362.3                 | 295.0                | 23/67   | 35 31 34 (-1.3)                 | Near Consistent                                            |
| <b>Southern Division</b> |                   |                       |                       |                      |         |                                 |                                                            |
| Nukuálofa                | 323.7             | 275.7                 | 388.7                 | 323.5                | 35/69   | 38 22 40 (-2.1)                 | Near Consistent                                            |
| Fuaámotu                 | 376.9             | 286.0                 | 439.3                 | 371.0                | 18/34   | 39, 22, 39 (-5.1)               | 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 November 2013 to January 2014**

**Predictors and Period used: SSTa's 1@9 – July 2013 to September 2013**

| Station                  | Below Median (prob) | Median Rainfall (mm) | Above Median (prob) |  | LEPS | Hit-rate |
|--------------------------|---------------------|----------------------|---------------------|--|------|----------|
| <b>Northern Division</b> |                     |                      |                     |  |      |          |
| Niuafoóu                 | 22                  | 820.0                | <b>78</b>           |  | 11.5 | 71.4     |
| Niuaotoputapu            | 29                  | 754.0                | <b>71</b>           |  | 7.8  | 54.2     |
| <b>Central Division</b>  |                     |                      |                     |  |      |          |
| Vavaú                    | 17                  | 650.0                | <b>83</b>           |  | 28.3 | 71.4     |
| Haápai                   | 6                   | 457.5                | <b>94</b>           |  | 40.3 | 76.6     |
| <b>Southern Division</b> |                     |                      |                     |  |      |          |
| Nukuálofa                | 14                  | 439.5                | <b>86</b>           |  | 31.3 | 74.6     |
| Fuaámotu                 | 26                  | 456.0                | <b>74</b>           |  | 10.1 | 60.6     |

| Station                  | Below Normal (prob) | 33%ile rainfall (mm) | Normal (prob) | 66%ile rainfall (mm) | Above Normal (prob) | LEPS | Hit-rate |
|--------------------------|---------------------|----------------------|---------------|----------------------|---------------------|------|----------|
| <b>Northern Division</b> |                     |                      |               |                      |                     |      |          |
| Niuafoóu                 | 18                  | 708.0                | 27            | 1001.5               | <b>55</b>           | 4.5  | 42.9     |
| Niuaotoputapu            | 14                  | 613.0                | 22            | 864.0                | <b>64</b>           | 12.2 | 47.5     |
| <b>Central Division</b>  |                     |                      |               |                      |                     |      |          |
| Vavaú                    | 6                   | 491.7                | 30            | 813.0                | <b>64</b>           | 29.7 | 57.1     |
| Haápai                   | 5                   | 317.8                | 25            | 580.5                | <b>70</b>           | 26.0 | 54.7     |
| <b>Southern Division</b> |                     |                      |               |                      |                     |      |          |
| Nukuálofa                | 7                   | 346.0                | 23            | 565.0                | <b>70</b>           | 29.1 | 54.0     |
| Fuaámotu                 | 3                   | 383.3                | 19            | 593.9                | <b>78</b>           | 29.4 | 51.5     |

**TABLE 4: Seasonal Climate Outlooks using POAMA2 for November 2013 to January 2014**

| Station   | Lower Tercile (prob) | 33%ile rainfall (mm) | Middle Tercile (prob) | 66%ile rainfall (mm) | Upper Tercile (prob) |  |  |
|-----------|----------------------|----------------------|-----------------------|----------------------|----------------------|--|--|
| Nukuálofa | 16.67                | 305.0                | 26.67                 | 487.0                | <b>56.66</b>         |  |  |

## **Summary Statements**

### **Rainfall for September 2013:**

**Northern Division:** Above Normal.

**Central Division:** Below Normal.

**Southern Division:** Normal

### **Accumulated rainfall for July – September 2013, including outlook verification:**

**Northern Division:** Above Normal, forecast was Consistent

**Central Division:** Normal to Above normal, forecast was Near Consistent

**Southern Division:** Normal, forecast was Near Consistent

### **Outlooks for November 2013-January 2014:**

#### **1. SCOPIC:**

**Northern Division:** Niuafu'ou: Above Normal with a low skill level

Niuatoputapu: Above normal with a good skill

**Central Division:** Above Normal, very high skill.

**Southern Division:** Above Normal, very high skill.

#### **2. POAMA:** Outlook Above Normal for Nuku'alofa

**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:  $X \geq 35$