

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for June 1968—continued

| Station                        | Height of Station Above M.S.L. | Air Temperatures in Degrees (Fahrenheit) |        |                 |                        |                              |        |         |        | Rainfall in Inches |                  |                        |              | Bright Sunshine |      |
|--------------------------------|--------------------------------|--|--------|-----------------|------------------------|------------------------------|--------|---------|--------|--------------------|------------------|------------------------|--------------|-----------------|------|
|                                |                                | Means of                                 |        | Mean of A and B | Difference From Normal | Absolute Maximum and Minimum |        |         |        | Total Fall         | No. of Rain Days | Difference From Normal | Maximum Fall |                 |      |
|                                |                                | A Max.                                   | B Min. |                 |                        | Maximum                      | Date   | Minimum | Date   |                    |                  |                        | Amount       |                 | Date |
|                                | Ft.                            | °F.                                      | °F.    | °F.             |                        | °F.                          |        | °F.     |        | In.                |                  |                        | In.          |                 | Hrs. |
| Adair .. ..                    | 280                            | 49.7                                     | 36.7   | 43.2            | -0.4                   | 55.2                         | 2, 11  | 31.0    | 10     | 5.35               | 11               | +3.8                   | 3.45         | 7               | ..   |
| Timaru .. ..                   | 56                             | 49.7                                     | 34.8   | 42.3            | 0.0                    | 58.1                         | 2      | 27.2    | 20     | 4.04               | 10               | +2.4                   | 2.22         | 7               | 111  |
| Waimate .. ..                  | 200                            | 51.1                                     | 34.9   | 43.0            | -0.7                   | 58.5                         | 11     | 28.0    | 15     | 4.13               | 11               | +1.9                   | 2.50         | 7               | 116  |
| Otematata .. ..                | 920                            | 43.0                                     | 30.7   | 36.8            | -2.9                   | 48.2                         | 19     | 23.8    | 27     | 2.62               | 9                | +1.4                   | 0.94         | 7               | ..   |
| Oamaru Aerodrome .. ..         | 99                             | 49.9                                     | 35.2   | 42.6            | ..                     | 57.2                         | 11     | 30.4    | 28     | 4.81               | 10               | ..                     | 2.04         | 6               | ..   |
| Tara Hills, Oamarua .. ..      | 1,600                          | 41.8                                     | 25.5   | 33.6            | -2.5                   | 55.9                         | 2      | 18.5    | 22     | 3.59               | 9                | +2.3                   | 1.09         | 28              | 102  |
| Lake Hawea .. ..               | 1,147                          | 44.5                                     | 32.4   | 38.4            | -1.0                   | 54.9                         | 2      | 26.9    | 21     | 2.49               | 6                | +0.4                   | 0.92         | 28              | ..   |
| Naseby Forest .. ..            | 2,000                          | 44.4                                     | 27.1   | 35.8            | -0.3                   | 54.8                         | 20     | 20.4    | 10     | 1.81               | 9                | +0.2                   | 1.00         | 7               | ..   |
| Herbert Forest .. ..           | 200                            | 53.2                                     | 29.3   | 41.2            | ..                     | 59.0                         | 3      | 26.0    | 21, 28 | 5.90               | 8                | ..                     | 2.85         | 7               | ..   |
| Cherry Farm, Waikouaiti .. ..  | 21                             | 51.8                                     | 34.8   | 43.3            | +1.2                   | 60.0                         | 12     | 27.8    | 28     | 3.27               | 12               | +1.2                   | 1.58         | 7               | ..   |
| Taieri .. ..                   | 80                             | 49.8                                     | 33.5   | 41.6            | -0.6                   | 56.2                         | 11     | 23.9    | 16     | 1.40               | 10               | -1.0                   | 0.46         | 7               | ..   |
| Berwick Forest .. ..           | 60                             | 49.8                                     | 32.1   | 40.8            | -0.4                   | 55.5                         | 2      | 26.4    | 11     | 2.78               | 8                | +0.1                   | 2.09         | 7               | ..   |
| Dunedin Airport .. ..          | 4                              | 49.9                                     | 31.6   | 40.8            | -0.2                   | 58.2                         | 3      | 24.5    | 10     | 1.37               | 11               | -0.7                   | 0.95         | 7               | 103  |
| Musselburgh, Dunedin .. ..     | 5                              | 50.3                                     | 38.9   | 44.6            | +0.4                   | 56.2                         | 12     | 30.1    | 28     | 3.23               | 12               | +0.3                   | 0.71         | 4, 7            | 111  |
| Oamaru .. ..                   | 99                             | 51.9                                     | 36.6   | 44.2            | ..                     | 58.2                         | 12, 20 | 31.0    | 20     | 3.61               | 9                | ..                     | 1.57         | 7               | 132  |
| West Arm, Lake Manapouri .. .. | 590                            | 42.5                                     | 34.1   | 38.3            | -1.3                   | 51.7                         | 11     | 27.5    | 10     | 7.69               | 16               | -3.0                   | 1.44         | 28              | ..   |
| Queenstown .. ..               | 1,080                          | 46.0                                     | 31.9   | 39.0            | -0.8                   | 56.3                         | 2      | 27.5    | 15     | 2.72               | ..               | +0.5                   | 0.92         | 28              | 64   |
| Mid Dome .. ..                 | 1,252                          | 46.4                                     | 29.3   | 37.8            | -1.1                   | 55.3                         | 2      | 20.6    | 10     | 2.64               | 9                | -0.4                   | 1.58         | 26              | ..   |
| Cromwell .. ..                 | 698                            | 43.9                                     | 28.9   | 36.4            | -2.1                   | 54.2                         | 2      | 21.0    | 21     | 1.70               | 11               | +0.7                   | 0.56         | 28              | ..   |
| Ophir .. ..                    | 1,000                          | 43.5                                     | 24.8   | 34.2            | -1.6                   | 55.5                         | 2      | 17.7    | 22     | 1.72               | 6                | +0.7                   | 0.92         | 7               | ..   |
| Moa Creek .. ..                | 1,400                          | ..                                       | ..     | ..              | ..                     | ..                           | ..     | ..      | ..     | ..                 | ..               | ..                     | ..           | ..              | ..   |
| Earnsclough .. ..              | 500                            | 43.6                                     | 24.6   | 34.1            | -3.1                   | 56.2                         | 2      | 17.5    | 22, 23 | 2.12               | 7                | +1.3                   | 1.21         | 7               | ..   |
| Alexandra .. ..                | 461                            | 43.6                                     | 28.7   | 36.2            | -1.8                   | 55.3                         | 5      | 22.8    | 14, 21 | 1.85               | 8                | +1.1                   | 1.09         | 7               | 93   |
| Roxburgh Hydro .. ..           | 350                            | 45.5                                     | 31.3   | 38.4            | -2.5                   | 54.0                         | 2      | 25.0    | 10     | 1.61               | 8                | +0.1                   | 1.18         | 7               | ..   |
| Moa Flat, West Otago .. ..     | 1,345                          | 44.6                                     | 31.8   | 38.2            | 0.0                    | 52.2                         | 11     | 23.6    | 15     | 1.88               | 13               | -0.9                   | 0.97         | 7               | ..   |
| Lake Mahinerangi .. ..         | 1,300                          | 47.1                                     | 31.1   | 39.1            | ..                     | 55.0                         | 3      | 24.1    | 10     | 2.16               | 11               | -1.2                   | 0.60         | 7               | ..   |
| Tapanui .. ..                  | 740                            | 48.0                                     | 33.2   | 40.6            | +0.1                   | 55.7                         | 11     | 23.0    | 17     | 3.35               | 13               | -0.4                   | 1.30         | 7               | ..   |
| Rankleburn Forest .. ..        | 835                            | 47.2                                     | 33.6   | 40.4            | +1.1                   | 54.8                         | 12     | 28.6    | 22     | 2.50               | 12               | ..                     | 1.08         | 7               | ..   |
| Taieri Mouth .. ..             | 50                             | 50.6                                     | 36.5   | 43.6            | ..                     | 58.0                         | 20     | 28.4    | 28     | 0.96               | 12               | ..                     | 0.47         | 7               | ..   |
| Otautau .. ..                  | 180                            | 47.4                                     | 31.0   | 39.2            | -2.3                   | 58.0                         | 11     | 21.0    | 10     | 2.98               | 12               | -0.8                   | 1.18         | 7               | 89   |
| Winton .. ..                   | 145                            | 47.9                                     | 32.6   | 40.2            | ..                     | 56.9                         | 12     | 25.9    | 22     | 2.70               | 11               | ..                     | 1.03         | 7               | 99   |
| Gore .. ..                     | 235                            | 48.6                                     | 34.0   | 41.3            | +0.3                   | 58.8                         | 5      | 27.6    | 22     | 2.06               | 12               | -1.4                   | 0.85         | 7               | 92   |
| Pebbley Hills .. ..            | 150                            | 49.6                                     | 33.5   | 41.6            | +0.3                   | 57.0                         | 2, 11  | 26.0    | 14     | 2.57               | 12               | -0.9                   | 0.72         | 7               | ..   |
| Invercargill Airport .. ..     | 1                              | 48.3                                     | 32.3   | 40.3            | -1.3                   | 55.0                         | 4      | 24.4    | 22     | 3.22               | 14               | -0.7                   | 1.02         | 1               | 71   |
| Milton .. ..                   | 60                             | 48.7                                     | 32.4   | 40.6            | ..                     | 56.1                         | 3      | 24.2    | 14     | 1.56               | 12               | -0.9                   | 0.50         | 6               | ..   |
| Balclutha .. ..                | 20                             | 48.3                                     | 34.2   | 41.2            | ..                     | 55.2                         | 5      | 27.0    | 28     | 1.67               | 11               | ..                     | 0.70         | 7               | 90   |
| Rarotonga .. ..                | 15                             | 78.2                                     | 65.9   | 72.0            | -0.4                   | 82.5                         | 3      | 58.1    | 22     | 1.54               | 12               | -2.4                   | 0.68         | 1               | 197  |
| Raoul Island .. ..             | 126                            | 69.2                                     | 54.2   | 63.6            | +0.7                   | 72.0                         | 9      | 54.2    | 29     | 7.20               | 21               | +1.0                   | 2.10         | 16              | 97   |
| Chatham Islands .. ..          | 157                            | 53.9                                     | 45.4   | 49.6            | +2.9                   | 57.7                         | 25     | 45.4    | 9      | 5.21               | 22               | +1.3                   | 0.91         | 29              | 64   |
| Campbell Island .. ..          | 49                             | 45.0                                     | 38.4   | 41.7            | ..                     | 49.2                         | 14     | 20.0    | 30     | 3.05               | 26               | ..                     | 0.30         | 19              | 2    |
| Scott Base, Antarctica .. ..   | 45                             | ..                                       | ..     | 17.1            | ..                     | 9.0                          | ..     | -46.3   | ..     | ..                 | ..               | ..                     | ..           | ..              | ..   |
| LATE RETURNS                   |                                |  |        |                 |                        |                              |        |         |        |                    |                  |                        |              |                 |      |
| Retaruke, Nov. 1967 .. ..      | 680                            | 65.4                                     | 48.4   | 56.9            | ..                     | 75.9                         | 28     | 31.1    | 5      | 8.77               | 20               | ..                     | 1.48         | 17              | ..   |
| "  Dec. 1967 .. ..             | 680                            | 71.1                                     | 52.7   | 61.9            | ..                     | 80.0                         | 18     | 35.0    | 11     | 7.56               | 18               | ..                     | 2.97         | 15              | ..   |
| "  Jan. 1968 .. ..             | 680                            | 73.6                                     | 49.1   | 61.4            | ..                     | 86.3                         | 11     | 41.4    | 7      | 2.53               | 18               | ..                     | 1.69         | 18              | ..   |
| "  Feb. 1968 .. ..             | 680                            | 75.3                                     | 48.8   | 62.0            | ..                     | 87.7                         | 21     | 38.9    | 5      | 1.12               | 7                | ..                     | 0.57         | 3               | ..   |
| "  Mar. 1968 .. ..             | 680                            | 78.1                                     | 53.5   | 65.8            | ..                     | 84.9                         | 2      | 40.0    | 26, 27 | 1.79               | 7                | ..                     | 0.57         | 11              | ..   |
| "  Apr. 1968 .. ..             | 680                            | 64.4                                     | 45.4   | 53.7            | ..                     | 78.0                         | 6      | 33.1    | 29     | 6.72               | 17               | ..                     | 1.77         | 9               | ..   |
| Te Kuiti, May 1968 .. ..       | 201                            | ..                                       | ..     | ..              | ..                     | ..                           | ..     | ..      | ..     | ..                 | ..               | ..                     | ..           | ..              | 129  |

## LATE RETURNS

|                           |     |      |      |      |    |      |    |      |        |      |    |    |      |    |     |
|---------------------------|-----|------|------|------|----|------|----|------|--------|------|----|----|------|----|-----|
| Retaruke, Nov. 1967 .. .. | 680 | 65.4 | 48.4 | 56.9 | .. | 75.9 | 28 | 31.1 | 5      | 8.77 | 20 | .. | 1.48 | 17 | ..  |
| " Dec. 1967 .. ..         | 680 | 71.1 | 52.7 | 61.9 | .. | 80.0 | 18 | 35.0 | 11     | 7.56 | 18 | .. | 2.97 | 15 | ..  |
| " Jan. 1968 .. ..         | 680 | 73.6 | 49.1 | 61.4 | .. | 86.3 | 11 | 41.4 | 7      | 2.53 | 18 | .. | 1.69 | 18 | ..  |
| " Feb. 1968 .. ..         | 680 | 75.3 | 48.8 | 62.0 | .. | 87.7 | 21 | 38.9 | 5      | 1.12 | 7  | .. | 0.57 | 3  | ..  |
| " Mar. 1968 .. ..         | 680 | 78.1 | 53.5 | 65.8 | .. | 84.9 | 2  | 40.0 | 26, 27 | 1.79 | 7  | .. | 0.57 | 11 | ..  |
| " April 1968 .. ..        | 680 | 64.4 | 45.4 | 53.7 | .. | 78.0 | 6  | 33.1 | 29     | 6.72 | 17 | .. | 1.77 | 9  | ..  |
| Te Kuiti, May 1968 .. ..  | 201 | ..   | ..   | ..   | .. | ..   | .. | ..   | ..     | ..   | .. | .. | ..   | .. | 129 |

The "normal" refers to the present site of the instruments. The standard periods for normals are: for temperature 1931-60, for rainfall 1921-59, and for sunshine 1935-60. No normals are available for stations with only short records.

\*Sunshine recorder is not located at the station but is in the near vicinity.

## NOTES ON THE WEATHER FOR JUNE 1968

**General:** Barometers were low over New Zealand in June, and several depressions crossed the country. It was an exceptionally cloudy month over the North Island. It was also very wet in both islands—too wet for many farmers. However, there was still some growth in places, and in the less muddy areas stock were reported to be wintering well.

Coromandel and the nearby islands were buffeted by very severe gales on 13 June as a deep depression passed to the north-east of Auckland. The coaster *Maranui* was lost off Coromandel in this storm.

Several local tornadoes were reported. The worst damage was done by one at Te Horo Beach, Manawatu, on the 7th, and one at Opuia, Bay of Islands, on the 29th.

**Rainfall:** Rainfall was above normal, except in Westland, Southland, and parts of Otago. In Coromandel, Gisborne, and Hawke's Bay, central Marlborough, South Canterbury, and North Otago it was mainly at least double the average value. Greatest excesses were recorded in parts of central Hawke's Bay and North Otago. In North Otago and Dunedin flooding was reported on the 8th following heavy rain on the 6th and 7th; parts of Canterbury were also affected at this time. In Hawke's Bay flooding occurred on the 22nd around and to the north of Napier following heavy rain on the 21st.

**Temperatures:** Temperatures were 1-2 degrees warmer than normal in the North Island and in Nelson, Buller, and parts of Marlborough. Over the remainder of the South Island temperatures were mainly cooler than normal by about a degree.

Snow was reported in the Mackenzie Country on the 8th. However, the main period of snowfall was the last four days of the month, during a period of winds from a westerly quarter, when

there were considerable falls on the high country of both islands and down to low levels in parts of Otago and Southland. The Queenstown district was badly affected. These falls of snows continued into the first week of July.

**Sunshine:** Over the North Island and in Nelson sunshine was the lowest of any month on record, and many stations received 50-70 hours below the average value. Some record low values were: Kaitaia, 76 hours; Auckland, 79 hours; New Plymouth, 69 hours; Nelson, 84 hours.

Over most remaining South Island districts sunshine was also somewhat below average; but coastal districts of Otago and Southland were favoured with 15 hours above average.

**Weather Sequence:** For the first two days a depression was centred to the south-east of Southland, while an anticyclone was centred far to the north. Rain was reported in western areas of both islands and in Northland. On the next day rain became fairly general with the passage of a depression from the Tasman Sea across the country near Cook Strait. There was a temporary improvement in many districts on the 4th and 5th as the depression moved away. However, rain became general again on the following day with the passage of another depression on to the Cook Strait area from the west. Two centres soon developed, the main one to the east of the South Island, while pressures rose rapidly at Campbell Island. Easterlies set in over the South Island, with heavy rain on the 7th and 8th in coastal Otago and Canterbury causing serious flooding, especially in North Otago. Temperatures were cold, with snow in the Mackenzie Country.

As the depression moved away on the 9th and pressures rose over New Zealand the weather improved in many districts. For the next two days fair weather prevailed during the passage of an anticyclone across the country.