

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for January 1970—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.	
Otautau .. .. .	180	67.1	50.6	58.8	+1.8	83.0	26	36.0	30	3.95	16	+0.4	0.81	4	137
Winton .. .. .	145	67.6	51.8	59.7	..	83.6	24	39.2	30	2.58	15	..	0.75	4	133
Gore .. .. .	235	69.9	47.4	58.6	-0.1	85.0	26	37.0	30	4.56	12	+1.4	1.53	4	124
Pebble Hills Forest .. .. .	150	68.3	51.6	60.0	+1.9	85.0	24	37.0	30	5.55	17	+2.3	1.38	4	..
Invercargill Airport .. .. .	1	65.8	51.4	58.6	+2.5	80.7	24	40.4	30	4.63	17	-1.0	1.48	4	124
Milton .. .. .	60	69.0	52.2	60.6	..	84.5	30	39.8	30	3.77	15	+1.3	1.04	4	..
Finegand, Balclutha .. .. .	20	67.8	52.3	60.0	..	83.9	26	40.0	30	2.58	13	..	1.18	4	114
Rarotonga, Cook Islands .. .. .	15	84.8	74.2	79.5	+1.3	89.5	31	70.7	18	10.60	20	+0.2	2.78	17	171
Raoul Island .. .. .	126	76.6	68.2	72.4	+1.6	80.2	29	63.7	13	3.35	16	-0.4	2.07	11	249
Chatham Islands .. .. .	157	65.3	54.4	59.9	+2.3	72.0	23	44.3	31	0.86	12	-1.9	0.19	7	183
Campbell Island .. .. .	49	51.8	42.5	47.4	..	59.2	24	35.3	7	4.02	24	..	0.94	24	75
Scott Base, Antarctica .. .. .	58	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lake Vanda, Antarctica .. .. .	510	42.3	28.8	35.6	..	50.7	8	21.9	15	..	..	..	..	..	..
LATE RETURNS															
Makahu Spur, Dec. 1969 .. .. .	4,850	58.4	45.6	52.0	..	72.2	22	34.9	27	..	..	..	..	..	..
Golden Downs, Dec. 1969 .. .. .	900	69.6	51.9	60.8	+3.1	82.5	21	41.5	7	4.73	14	+1.0	1.15	17	..
Glentanner, Dec. 1969 .. .. .	2,800	65.4	45.1	55.2	..	..	..	35.9	6	10.27	..	..	3.25	25	..
Temuka, Dec. 1969 .. .. .	80	71.4	51.4	61.4	+4.6	87.0	24	43.8	10	4.46	11	..	1.52	17	..
Erratum															
Palmerston North Aerodrome, Dec. 1969 .. .. .	140	..	54.9	63.8	+3.8	..	..	..	..	..	..	..	..	..	..
Gore, April 1969 .. .. .	235	..	..	..	..	..	..	..	..	..	..	+1.1	..	..	..

The "normal" refers to the present site of the instruments. The standard periods for normals are: for temperature 1931-60, for rainfall 1921-50, and for sunshine 1935-60. No normals are available for stations with only short records.

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

#### NOTES ON THE WEATHER FOR JANUARY 1970

**General**—January was a warm month. In the North Island it was sunny and dry, leading to a shortage of feed in many areas. In most western areas of the North Island dairy production was dropping rapidly and good rain was needed early in February to avoid drought conditions. In the South Island it was mainly cloudy and wet; and the additional rain was appreciated by farmers as it was causing good growth. The drought which had affected North Otago and South Canterbury for several months, and later also other parts of Canterbury, was now considered to be broken.

**Rainfall**—Rainfall was less than half the average value west of the main North Island ranges and north of Taupo; also in central Hawke's Bay and parts of Wairarapa, Nelson, and Marlborough. Greatest deficiencies were recorded in the Waikato, in northern Northland, and in parts of Hawke's Bay and Wairarapa, with most totals below half an inch. In parts of the Waikato it was the driest January for many years.

Rainfall was above average in the South Island south-west of a line from Karamea to Ashburton; and in northern Hawke's Bay and parts of Gisborne. The catchment of the Taieri River with coastal North Otago received more than double the average value.

As in December, there was considerable thunderstorm activity over the North Island, affecting especially the drier northern districts and bringing relief at times to a few areas. Some heavy downpours were experienced, including one of 3.65 in. in 2 hours at Kingseat, Waiuku, south of Auckland, on the 1st.

**Temperatures**—Temperatures were warmer than average over the whole country, mainly by about 3 degrees. Highest departures, exceeding 4 degrees, were recorded in some northern and western districts of both Islands besides Rotorua, Taupo, and Taihape. In the North Island temperatures were similar to those in January 1938 and January 1956, but a little below those in January 1935. This was the third month of a warm spell; the last warm spell at the same time of the year was from November 1961 to January 1962.

**Sunshine**—Sunshine was above average over the North Island and in Nelson and Marlborough, mainly by about 30-60 hours. Highest departures were recorded in Northland, Auckland, Waikato, and Waitomo. By contrast, over the remainder of the South Island sunshine was below average, with a deficiency of 60-70 hours in Southland and parts of coastal Otago and South Canterbury. The totals of 120 hours at Dunedin, 124 hours at Invercargill, and 138 hours at Timaru were record low values for January.

**Weather Sequence**—For the first 5 days of the month an extensive belt of high pressure covered the north and central Tasman Sea and most of New Zealand, also extending well to the east. The weather was fine and very warm over the whole country at first. However, a depression over Victoria moved slowly east-south-

eastward and a trough of low pressure moved on to Southland on the 4th, bringing rain to the south-western half of the South Island on this and the following day. During the 6th and 7th the depression crossed the South Island and the main trough of low pressure associated with it brought rain to the whole country, with southerlies and cooler temperatures. Gales were reported in Cook Strait, affecting the Wellington-Akaroa Yacht Race.

From the 8th to the 10th a belt of high pressure with main centre over the eastern Tasman Sea brought mainly fine weather; but considerable rain was reported at first in eastern Northland and the islands off the Hauraki Gulf, and there was also some rain about the Gisborne ranges. During the two following days a trough of low pressure brought rain to western and southern districts of the South Island. On the 13th a depression was centred over the South Tasman Sea, and during this and the following day it moved north-eastward, while the associated trough of low pressure crossed the country. Conditions remained unsettled in western and southern districts of the South Island, and rain also extended to North Canterbury and Christchurch, besides the greater part of the North Island. The days from the 15th to the 17th were marked by mainly fine weather as an anticyclone over the North Tasman Sea moved north-eastward. Some further rain was reported over the Gisborne ranges at first.

During the 18th and 19th a deep depression passed far to the south and the associated trough of low pressure crossed the country, with general rain over the South Island, extending also to southern and western districts of the North Island. The 20th was a day of fine weather, with a ridge of high pressure extending over the country from the east. The weather soon deteriorated once again over the South Island as a trough of low pressure moved over it on the 21st and 22nd. The rain was heavy in the Alps but it missed North Canterbury, Marlborough, and Nelson. During the next 3 days a shallow depression moved into the North Tasman Sea while pressures rose sharply over the South Island. The weather was very warm, with scattered rain, especially in western districts of the South Island and the central high country of the North Island. By the 26th an anticyclone was centred to the east of the Chatham Islands, and during this and the following day a small depression passed close to Southland. Temperatures were still very warm in the northlies, and rain was reported over the West Coast and the Alps, besides Central Otago and the Canterbury high country.

From the 28th to the 30th an anticyclone south-east of Tasmania moved towards the South Island and a cold front ahead of it brought southerlies with much cooler temperatures, and rain over the South Island, besides some scattered falls over the North Island. On the last day of the month a depression developed off East Cape, causing considerable rain in Gisborne and northern Hawke's Bay, with some rain also in Bay of Plenty.

J. F. GABITES, Director.