

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for July 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.
Queenstown ..	1,080	48.1	33.2	40.6	+2.3	57.3	19	27.3	16	5.86	16	+3.7	2.98	19	59
Queenstown Aerodrome ..	1,154	48.1	30.6	39.4	..	57.0	19	23.8	17	4.39	15	..	1.77	19	..
Mid Dome ..	1,268	49.6	31.6	40.6	+2.9	60.5	19	18.8	16	4.85	16	+2.5	1.11	19	..
Cromwell ..	698	49.8	30.2	40.0	+3.3	60.4	26	18.2	17	1.81	13	+0.9	0.81	19	..
Ophir ..	1,000	48.6	27.4	38.0	+3.8	58.3	19	17.0	17	0.79	6	0.0	0.23	20	..
Moa Creek ..	1,400	46.7	24.5	35.6	+2.8	55.0	26	15.8	17	1.05	11	+0.4	0.32	13	..
Earnsclough ..	500	49.1	28.0	38.6	+2.6	62.4	19	18.2	17	0.99	12	+0.3	0.27	20	..
Alexandra ..	461	48.2	29.8	39.0	+1.7	62.0	19	20.6	17	0.90	13	+0.2	0.25	20	93
Roxburgh (Power Stn.) ..	360	50.8	33.6	42.2	+2.7	62.0	19	26.0	16	0.95	10	-0.1	0.32	20	..
Moa Flat, West Otago ..	1,345	46.9	33.6	40.2	+2.9	56.9	19	26.3	16	2.33	14	+0.4	0.36	20	..
Mahinerangi Dam ..	1,300	47.5	32.4	40.0	..	56.9	19	23.0	17	2.68	15	+0.1	0.58	20	..
Tapanui ..	740	49.5	35.8	42.6	+2.4	60.0	19	31.0	17	3.81	16	+1.2	0.53	20	..
Rankleburn Forest ..	835	49.5	36.1	42.8	+4.0	60.0	19	26.6	17	3.45	16	+1.1	0.73	21	..
Taieri Mouth ..	50	52.3	36.4	44.4	..	62.0	26	28.0	17	2.08	13	..	0.67	20	..
Otautau ..	180	50.3	33.4	41.8	+3.0	57.0	26	25.0	17	4.53	17	+1.8	0.91	20	74
Winton ..	145	51.3	34.9	43.1	+2.2	59.0	19	26.5	17	1.32	16	..	0.22	21	83
Gore ..	235	49.6	34.9	42.2	+2.2	58.5	19	28.0	17	3.44	18	+1.2	0.57	21	81
Hokonui Forest ..	150	51.8	35.8	43.8	+3.7	59.0	26	27.0	17	3.60	18	+1.1	0.59	20	..
Invercargill Airport ..	1	51.2	34.4	42.8	+2.5	57.9	26	27.2	17	3.32	18	+0.5	0.43	14	83
Tiwai Point, Bluff ..	15	50.7	38.3	44.5	..	56.2	26	30.3	17	4.33	20	..	1.15	13	..
Milton ..	60	49.2	32.3	40.8	+1.0	61.1	26	24.8	17	2.43	17	+0.4	0.83	20	..
Finegand, Balclutha ..	20	50.7	34.4	42.6	+2.6	59.0	25	28.0	17	2.50	17	..	0.63	20	96
Rarotonga, Cook Islands ..	15	77.4	64.7	71.0	0.0	80.9	4	56.6	28	5.46	10	+1.1	4.41	9	177
Raoul Island ..	126	66.4	56.9	61.6	+0.8	70.0	12	50.3	31	6.37	15	-0.3	3.38	3	156
Chatham Islands ..	157	51.9	44.8	48.4	+2.8	57.0	11	35.1	24	3.51	24	-0.1	0.50	13	59
Campbell Island ..	49	45.6	37.7	41.6	..	50.0	26	26.0	13	7.78	30	..	2.32	20	15
Scott Base, Antarctica ..	58	..	..	-21.1	-1.7	17.2	7	-58.0	31	..	..	..	..	..	..
Lake Vanda, Antarctica ..	510	-27.6	-41.4	-34.5	..	18.3	8	-63.4	31	..	..	..	..	..	..

LATE RETURNS

Te Paki, Stn, Te Hapua, June 1970	190	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pauatahanui, May 1970 ..	100	58.2	42.7	50.4	..	67.4	8	34.2	27	8.64	..	..	1.94	26	..
Pauatahanui, June 1970 ..	100	57.2	43.7	50.4	..	64.2	3	34.2	11	8.43	..	..	2.51	16	..
Kaitoke, June 1970 ..	625	53.6	38.5	46.0	..	63.2	3	26.4	23	8.36	21	..	1.61	5	66
Franz Josef, June 1970 ..	400	53.7	37.0	45.4	+1.1	59.2	6	31.8	11	12.93	13	+0.1	2.96	3	..
Ashley Forest, June 1970 ..	350	..	..	..	..	..	..	..	..	..	..	..	..	..	104
Berwick Forest, May 1970 ..	60	52.6	33.9	43.2	-2.1	59.8	17	22.5	30	2.27	10	+0.1	0.72	25	..
Berwick Forest, June 1970 ..	60	51.4	34.6	43.0	+1.8	66.4	4	25.2	14	0.42	6	-2.3	0.12	18	..
Moa Creek, June 1970 ..	1,400	47.9	25.4	36.6	+2.8	58.4	28	15.8	8	0.44	6	-0.5	0.12	2,17	..

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 JULY 1970

General—July was an unusually mild month marked by a high frequency of westerly winds. Some growth was reported in the North Island and even in parts of Canterbury. Stock were reported to be in good condition and the weather proved favourable for early lambs.

On the 11th two small local tornadoes caused some damage in Waitara and New Plymouth. Strong westerly to north-westerly gales buffeted many districts from Taihape to Otago on the 20th.

Rainfall—For the greater part of the country rainfall was close to normal. However, it was more than double the normal value in Fiordland and the Southern Lakes district, while it was 50 percent above normal in most of Buller and Nelson, besides Taranaki just east of Mount Egmont. On the other hand, it was less than half normal in Central Hawke's Bay and in Northland around and to the west of Whangarei. It was also somewhat below normal elsewhere in the North Island east of the main ranges, in addition to Taupo and the remainder of Northland with Coromandel.

On the 2nd daily rainfalls of 2-4 in. in Nelson and Marlborough caused some flooding.

Temperatures—Temperatures were warmer than normal by 3-4 degrees in the South Island and by 2 degrees in the North Island. Wellington had its warmest July in over 100 years of records; and most of Marlborough, Canterbury, and Otago had the warmest July since 1949. This was the second successive month of relatively warm temperatures, especially in the South Island.

Snow was reported on the high country of both islands after southerly changes on the 13th and 27th; and also in parts of western Southland and Central Otago in strong westerlies on the 20th and 21st.

Sunshine—Sunshine was somewhat below normal west and south of a line through Motueka, Hanmer, and Dunedin; also in some western and central districts of the North Island. Highest deficiencies of 20-40 hours were recorded in Westland and North Taranaki. Areas east of the main ranges in the North Island besides Northland and Auckland were favoured with 15-50 hours above normal.

Weather Sequence—At the beginning of July a depression lay to the south-east of the Chatham Islands and another one to the south of Tasmania, while pressures were high to the north of New Zealand. Westerly conditions prevailed and a weak trough crossed the country causing rain in western districts as far north as Taranaki and also about Cook Strait. During the next 3 days the depression south of Tasmania moved eastward across the South Tasman Sea and an anticyclone formed near Campbell Island. Moist north-easterlies prevailed, causing the rain to become general, with heavy falls in Nelson, Marlborough, and North Taranaki. Some flooding was reported in Marlborough and Nelson. The depression eventually passed close to Southland and on the 5th a weak ridge of high pressure covered the country. Rain was still reported on the West Coast and about the North Island ranges.

On the 6th and 7th a complex trough of low pressure with a small depression crossed the North Island accompanied by general rain, mainly light. During the next 2 days an anticyclone moved on to the North Island from the Tasman Sea. The weather was settled apart from some rain in Hawke's Bay on the 8th and on the West Coast and parts of western Southland on the 9th.

On the 10th and 11th a depression south-west of Campbell Island moved eastward, while the associated trough of low pressure crossed the country. Rain was reported mainly in districts exposed to the north, including however Wellington and southern Mana-