



# SUPPLEMENT

TO THE

# NEW ZEALAND GAZETTE

OF

THURSDAY, 11 SEPTEMBER 1980

*Published by Authority*

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WELLINGTON: WEDNESDAY, 17 SEPTEMBER 1980

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# CLIMATOLOGICAL TABLE FOR JULY 1980

NEW ZEALAND METEOROLOGICAL SERVICE

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for July 1980

Station	Height of Station Above M.S.L.	Air Temperature in Degrees Celsius							Rainfall in Millimetres					Bright Sunshine Hrs	
		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
Metres	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	Hrs			
Cape Reinga	191	..	..	..	+0.2	18.1	1	2.6	17	141	23	+28	55	19	..
Kaitaia Airport	80	15.3	8.5	11.9	+0.2	18.1	1	2.6	17	141	23	-9	19	19	154
Aupouri Forest	69	15.4	9.7	12.6	+0.2	18.5	1	5.2	17	164	23	+14	40	19	..
Kerikeri Aerodrome	150	15.2	6.9	11.1	..	19.5	1	3.2	17	172	23	..	55	19	..
Umawera	50	15.3	6.3	10.8	..	18.7	2	-0.6	17	127	21	..	19	19	..
Kaikohe	204	13.7	7.6	10.7	+0.1	17.3	2	2.9	17	144	21	..	40	19	135
Waiotemarama	229	13.4	7.7	10.6	..	16.3	1	2.1	17	135	23	..	21	11	..
Waipoua Forest	88	14.8	6.9	10.9	+0.6	18.5	1	2.5	29	164	25	-14	35	19	..
Dargaville	20	14.8	6.9	10.9	+0.3	18.0	2	-1.0	17	131	23	-1	21	19	116
Waitangi Forest	55	15.5	7.0	11.3	-0.1	18.3	2	3.2	17	177	21	+22	41	19	142
Glenbervie Forest	107	14.6	4.9	9.8	+0.4	17.4	2	-1.6	17	145	21	-71	29	19	..
Whangarei Airport	37	14.9	7.0	11.0	-0.2	17.8	3	1.6	17	129	22	-39	28	19	..
Whangarei	29	15.5	6.0	10.8	+0.0	19.8	2	0.6	17	134	19	..	24	5	132*
Marsden Power Station	3	15.5	7.2	11.4	-0.1	19.5	12	1.7	17	128	29	..	20	20	..
Te Hana	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leigh	27	14.8	8.2	11.5	-0.4	..	..	4.6	17	90	22	-35	19	22	132
Warkworth	72	14.3	5.6	10.0	+0.1	17.2	3	-0.4	17	129	23	..	29	20	..
Oyster Point	0	14.1	6.7	10.4	..	16.9	3	-0.3	18	126	24	..	34	20	..
Woodhill Forest	30	14.6	6.2	10.4	+0.2	17.6	3	-1.5	18	133	21	-7	41	20	..
Riverhead Forest	28	14.4	5.5	10.0	+0.5	18.2	2	-2.0	18	138	21	-19	40	20	..
Kumeu	32	14.3	6.0	10.2	..	17.4	2	-1.8	18	146	24	..	36	20	..
Whenuapai	26	14.3	5.9	10.1	+0.3	17.8	2	-1.3	18	139	22	-8	55	20	..
Albert Park, Auckland	49	14.6	8.0	11.3	+0.3	16.9	5	3.2	17	142	22	+5	72	20	132*
Owairaka, Auckland	41	14.1	6.8	10.5	+0.4	16.8	2	-0.2	18	144	21	-1	58	20	..
Port Fitzroy	4	14.9	7.8	11.4	-0.2	17.4	3	1.7	18	195	25	-6	126	20	..
Coromandel	43	14.4	5.7	10.1	..	18.1	2	-1.2	27	217	21	..	146	20	..
Whangapoua Forest	4	14.9	5.8	10.4	+0.5	18.6	1	-2.0	18	128	18	-70	72	20	..
Thames	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tairua Forest	3	14.1	5.1	9.6	-0.1	16.8	8	-1.4	18	177	17	-11	61	20	..
Paeroa	4	14.2	4.3	9.3	+0.4	18.4	1	-3.4	18	142	23	+7	58	20	..
Waihi	91	12.9	4.8	8.9	+0.2	16.2	2	-4.6	18	212	20	-12	81	20	116
Te Aroha	12	13.7	4.8	9.3	+0.0	17.3	1	-2.4	18	116	23	-44	54	20	..
Katikati	2	13.8	4.8	9.3	..	17.0	1	-3.2	18	69	14	..	17	22	..
Tauranga	2	13.6	6.0	9.8	-0.3	16.8	1	1.2	18	53	11	..	19	22	..
Tauranga Airport	4	13.7	4.6	9.2	-0.2	16.3	1	-1.0	19	54	14	-83	19	22	153
Te Puke	91	13.5	4.0	8.8	-0.3	16.5	1	-1.5	19	75	16	..	17	22	..
Rotoehu Forest	72	13.4	2.0	7.7	-0.2	15.6	1	-4.3	19	61	10	-114	19	22	..
Edgecumbe	5	14.6	..	..	..	16.9	6	-1.0	14	59	..	..	..	..	..
Whakatane	2	14.0	3.6	8.8	-0.5	17.0	5	-1.5	19	68	10	-69	31	3	156
Whakatane Airport	6	13.3	2.2	7.8	..	17.6	9	-3.2	19	56	12	..	21	3	..
Port Ohope	9	13.9	5.1	9.5	..	16.5	5	0.0	19	74	11	..	46	22	156
Kinleith	383	10.1	2.4	6.3	-0.5	12.7	2	-3.0	19	113	16	-7	26	22	..
Tokoroa	305	11.5	0.5	6.0	-0.6	14.6	24	-7.0	19	150	19	..	27	22	..
Tikitere	338	10.7	3.8	7.3	..	14.1	1	-1.5	19	57	15	..	18	22	..
Kawerau	30	13.9	3.4	8.7	-0.4	17.2	5	-1.0	13	72	12	-119	25	22	..
Te Teko	8	14.0	2.7	8.4	-0.7	17.9	4	-1.5	16	86	12	-74	36	3	146
Whakarewarewa	307	11.3	2.6	7.0	-0.4	15.1	1	-3.0	18	81	14	-61	22	22	..
Rotorua Airport	287	11.5	2.5	7.0	-0.4	15.3	1	-4.0	19	53	15	-97	19	22	141
Tarawera Forest	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Waiotapu Forest	435	10.1	1.1	5.6	+0.0	14.1	1	-6.4	19	65	15	-67	17	22	..
Atiamuri Power Station	253	11.4	1.5	6.5	-0.2	14.6	4	-3.4	26	88	15	-34	21	22	..
Kaingaroa Forest	544	9.5	0.8	5.2	-0.5	12.2	1	-4.5	18	76	15	-66	18	22	..
Murupara	198	11.8	0.6	6.2	..	15.0	4	-5.7	18	81	16	-43	19	22	..
Broadlands	305	10.1	0.7	5.4	..	14.3	1	-5.1	26	64	..	..	..	..	..
Wairapukao Forest	437	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Taupo	376	10.7	1.9	6.3	-0.1	14.4	2	-2.7	18	76	17	-41	23	22	132
Wairakei Power Station	342	11.1	1.8	6.5	-0.1	14.0	2	-4.0	26	84	15	-40	21	22	..
Wairakei Research Station	402	11.2	0.8	6.0	-0.1	14.1	4	-5.1	18	87	14	-32	22	22	..
Minginui Forest	366	10.9	0.0	5.5	-0.2	14.4	4	-6.5	30	122	16	-18	20	22	..
Taupo Airport	407	10.3	1.5	5.9	..	13.0	2	-4.0	18	73	15	..	19	22	..
Waimihia Forest	743	7.8	0.4	4.1	+0.0	11.0	28	-5.7	20	141	15	-22	28	9	..
Opotiki	6	13.8	3.3	8.6	-0.8	17.1	4	-1.7	13	88	11	-59	44	22	142
Waimana	37	13.6	0.9	7.3	-0.5	16.2	7	-5.8	19	118	11	-65	37	1	..
Mangere, Auckland	4	13.7	7.4	10.6	+0.4	17.0	2	-0.5	18	136	21	+4	52	20	116
Otara, Auckland	12	14.3	5.6	10.0	+0.4	17.6	2	-1.8	18	114	22	-18	39	20	..
Orere Point	30	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Auckland Airport	8	13.7	7.1	10.4	+0.2	17.4	2	1.0	18	129	22	-1	35	20	130
Ardmore	30	14.1	5.1	9.6	+0.0	16.7	2	-1.5	18	117	20	-28	29	22	..
Pukekohe	82	13.2	5.9	9.6	+0.1	17.2	2	0.3	18	140	24	..	22	9	114
Maioro Forest	52	13.8	5.8	9.8	-0.3	15.8	2	-0.5	18	142	20	+7	25	3	..
Hunua	122	13.3	4.2	8.8	..	16.5	1	-3.5	18	176	24	..	47	2	..
Maramarua Forest	38	13.7	3.4	8.6	+0.1	18.0	2	-3.4	18	120	20	-4	25	20	..
Te Kauwhata	32	13.4	5.6	9.5	+0.4	18.0	2	-1.0	18	123	24	+1	22	22	123
Ruakura, Hamilton	40	12.9	3.7	8.3	+0.0	16.5	2	-3.8	18	115	21	-2	20	22	102

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Station	Height of Station Above M.S.L.	Air Temperature in Degrees Celsius								Rainfall in Millimetres				Bright Sunshine Hrs	
		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
Metres	°C	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	mm		
Whatawhata	104	12.7	4.6	8.7	-0.1	15.7	4	-3.0	18	164	23	+1	24	22	116
Rukuhia	66	13.0	4.2	8.6	+0.0	16.7	2	-3.4	18	129	20	+2	25	22	102
Hamilton Airport	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cambridge	76	12.5	3.5	8.0	..	16.3	2	-3.7	18	130	19	..	23	21	..
Port Taharoa	27	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mohakatino Station Mokau	46	12.7	5.8	9.3	-0.2	15.2	4	0.5	19	97	18	-81	16	8	..
Arapuni Power Station	123	12.3	2.6	7.5	-0.5	15.3	4	-3.0	19	127	18	-18	22	22	..
Waikeria	46	12.6	2.5	7.6	..	15.9	2	-4.8	18	138	19	..	22	21	..
Te Kuiti	61	12.6	3.5	8.1	+0.1	15.4	1	-2.6	19	168	20	+13	29	3	100
Pureora Forest	549	9.2	1.1	5.2	-0.2	13.5	1	-5.5	19	158	18	-20	25	9	..
Taumarunui	171	11.7	1.7	6.7	-0.5	17.0	1	-3.8	20	125	22	-10	25	9	94
Omata	61	13.4	7.4	10.4	+0.0	16.4	2	3.4	18	171	19	..	38	3	..
New Plymouth	55	13.2	5.8	9.5	..	16.5	2	-0.6	18	178	19	..	55	3	..
New Plymouth Airport	27	13.0	5.3	9.2	+0.2	15.7	2	-1.0	18	167	19	+4	53	3	134
Tikorangi	77	12.4	4.9	8.7	..	14.8	2	-0.5	18	199	19	..	45	8	..
Te Wera Forest	180	11.8	2.2	7.0	+0.3	13.5	1	-4.0	18	185	20	+7	42	8	..
Lower Retaruke	223	10.9	1.5	6.2	-0.4	16.9	1	-4.9	30	124	18	..	37	8	..
Turangi	366	10.6	0.9	5.8	-0.4	14.5	1	-6.1	18	148	16	..	40	3	130
Chateau, Mt Ruapehu	1119	5.7	-2.1	1.8	-0.7	11.2	1	-9.5	18	216	..	-53	61	8	..
Mangamutu, Pahiatua	116	11.5	3.0	7.3	+0.3	17.5	1	-4.5	18	144	21	+20	33	9	..
Mt Bruce Reserve	305	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Waingawa, Masterton	114	11.6	2.5	7.1	+0.0	16.8	1	-2.6	18	110	19	+8	19	8	86
Kopua	311	10.4	3.0	6.7	+0.1	14.7	1	-3.7	18	130	19	+31	35	23	..
Waipukurau	137	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dannevirke	207	11.3	3.3	7.3	+0.2	16.9	1	-4.0	18	112	21	+5	26	23	103
Porangahau	8	12.8	4.8	8.8	..	17.7	2	-1.5	18	188	14	..	65	6	..
Castlepoint	3	..	..	..	..	..	..	..	..	144	16	+37	44	4	..
Ngaumu Forest	244	11.0	2.3	6.7	+0.6	16.1	1	-4.2	18	142	19	+5	31	23	..
Tauherenikau, Alloa	43	12.1	3.2	7.7	+0.2	19.0	1	-2.7	20	166	18	+54	38	8	..
Gladstone, Arahura	116	11.4	2.8	7.1	+0.1	17.8	1	-3.4	18	169	18	+60	37	23	..
Waiorongomai	21	11.6	4.7	8.2	+0.6	15.5	2	-1.8	20	173	21	+8	30	9	..
Cape Palliser	10	..	..	..	..	..	..	..	..	106	20	-13	23	4	..
East Cape	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ruatoria	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mangatu Forest	182	12.6	3.1	7.9	-0.4	16.9	9	-3.1	19	73	16	-69	17	23	..
Manutuke Gisborne	9	13.9	3.6	8.8	-0.2	17.7	9	-2.5	18	67	17	-45	12	6	..
Gisborne Airport	4	13.6	3.7	8.7	-0.5	17.8	9	-3.2	19	51	18	-61	10	6	148
Onepoto, Waikaremoana	643	9.1	3.0	6.1	+0.0	13.2	1	-1.0	18	142	17	-56	66	23	..
Wharerata Forest	439	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Esk Forest	427	10.1	3.1	6.6	-0.2	15.4	1	-3.4	18	103	14	-65	39	23	..
Kaweka Forest	414	10.8	4.4	7.6	+0.0	16.4	2	-1.5	18	91	15	..	47	23	..
Napier Airport	2	13.3	3.2	8.3	..	18.3	2	-3.1	18	43	14	-38	8	23	..
Napier	2	13.5	3.6	8.6	-0.3	18.5	2	-2.6	18	49	14	-30	9	23	138
Hastings	12	13.2	3.0	8.1	-0.4	18.3	2	-3.0	18	61	15	-3	15	6	..
Havelock North	9	13.1	1.6	7.4	-0.2	17.3	2	-3.8	18	70	15	-9	16	23	127
Gwasas Forest	335	11.0	1.4	6.2	+0.3	16.3	3	-4.5	18	109	19	-5	43	23	..
Makaretu	335	11.1	2.5	6.8	+0.0	15.3	1	-3.8	18	94	20	..	20	23	..
Mohaka Forest	286	11.8	3.0	7.4	-0.1	17.0	2	-3.7	18	55	12	-91	25	23	..
Frasertown, Wairoa	8	13.6	4.3	9.0	+0.1	18.8	2	-1.5	18	86	15	-54	38	23	..
Wairoa	20	..	4.0	..	..	..	..	-1.5	20	76	13	..	32	23	133
Portland Island	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kapiti Island	16	11.2	7.3	9.3	+0.2	13.5	2	4.5	18	99	15	-8	37	8	..
Paraparaumu Aerodrome	7	12.3	4.9	8.6	+0.4	15.5	1	-0.4	20	100	15	-7	32	8	111
Flockhouse, Bulls	9	12.4	3.4	7.9	-0.1	17.4	1	-2.2	17	72	17	-7	18	10	..
Ohakea	48	12.3	4.5	8.4	+0.0	17.7	1	-0.1	20	64	19	-17	17	9	123
Wharite Peak	914	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kairanga Palmerston North	15	12.4	3.2	7.8	+0.2	17.7	1	-1.2	18	78	17	..	22	9	110
Palmerston North Airport	45	12.0	5.2	8.6	+1.1	17.1	1	-1.5	31	78	19	-6	18	9	..
Palmerston North D S I R	34	12.2	4.5	8.4	+0.4	17.0	1	-1.2	18	88	18	-3	24	9	80
Massey University	61	12.1	4.4	8.3	..	16.9	1	-1.4	18	99	19	+8	23	9	..
Foxton	3	..	..	..	..	..	..	..	..	78	16	-6	25	9	..
Waitarere Forest	3	12.4	4.0	8.2	+0.5	16.2	1	-1.6	20	64	15	-20	16	9	..
Levin	46	12.1	4.7	8.4	+0.2	16.1	1	0.4	17	97	21	-10	18	9	88
Taita, Lower Hutt	65	11.7	5.0	8.4	+0.3	14.2	21	-0.6	20	131	19	-14	19	23	82
Avalon, Lower Hutt	15	11.9	5.4	8.7	+0.4	14.5	1	-1.0	20	114	21	-43	24	23	..
Kelburn, Wellington	125	11.1	6.2	8.7	+0.4	13.7	21	2.5	16	84	16	-56	21	22	109
Somes Island	43	11.3	6.8	9.1	..	14.0	1	2.0	20	55	18	..	19	23	..
Gracefield, Lower Hutt	34	11.7	6.1	8.9	+0.3	14.6	1	0.3	20	77	17	-70	19	23	..
Wainuiomata	82	11.3	4.6	8.0	+0.5	14.1	3	-2.3	20	178	19	..	43	22	..
Wellington Airport	6	12.0	6.5	9.3	+0.4	15.2	2	-0.6	20	76	17	-33	23	22	..
Kaitoke	223	10.6	3.1	6.9	+0.6	14.5	1	-4.2	18	280	21	+59	56	8	69
Wallaceville	56	11.8	3.7	7.8	+0.5	15.0	1	-3.6	20	149	20	+14	25	8	77
Cape Egmont	8	13.0	6.2	9.6	-0.4	15.7	2	2.1	20	127	22	-28	20	3	..
Stratford Mountain House	846	6.7	1.0	3.9	+0.2	11.0	2	-3.3	18	604	23	-107	76	3	..
Stratford Dem. Farm	311	10.8	2.5	6.7	-0.3	13.8	31	-3.3	18	188	20	-33	23	8	99
Manaia Dem. Farm	98	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Normanby	122	11.6	4.8	8.2	..	15.4	2	0.1	18	112	25	..	16	23	..

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		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.			Maxi-mum	Date	Mini-mum	Date				Amount		Date
	Metres	°C	°C	°C	°C	°C	°C			mm		mm	mm		Hrs
Patea	43	12.6	6.2	9.4	+0.2	17.0	2	2.0	18	94	15	-51	17	22	..
Ohakune Junction	629	8.0	1.1	4.6	..	14.0	1	-4.4	18	168	20	..	51	8	..
Karioi	648	8.5	0.9	4.7	-0.2	14.2	1	-5.6	18	136	18	+29	46	8	..
Waiouru	823	7.3	-0.2	3.6	-0.2	13.6	1	-8.3	18	99	17	-3	28	8	..
Waiouru Military Camp	823	6.9	0.0	3.5	+0.1	12.9	1	-8.5	18	117	20	+13	27	8	..
Taihape	433	10.0	1.3	5.7	-0.3	15.7	1	-5.7	18	140	21	..	49	8	..
Kahui, Taihape	518	..	..	..	..	..	..	..	..	129	..	..	45	8	..
Wanganui	22	12.8	5.1	9.0	+0.3	18.2	5	0.3	20	75	17	-6	22	9	106
Wanganui Airport	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Farewell Spit	3	12.6	4.6	8.6	-0.5	16.4	2	-1.2	18	163	15	+33	43	22	..
Totaranui	10	..	4.1	..	..	..	..	0.5	13	189	15	..	55	22	..
Westport Airport	2	12.1	4.2	8.2	+0.1	15.5	23	0.4	18	173	19	-10	23	10	112
Cobb Dam	823	..	-1.9	..	..	..	..	-6.9	18	159	15	-49	25	14	..
Arapito	20	12.2	3.7	8.0	..	16.2	1	-0.5	18	189	15	..	44	14	110
Karamea	5	..	..	..	..	..	..	..	..	164	..	..	..	..	..
Lake Rotoroa	443	8.4	-0.1	4.2	..	11.4	2	-4.4	26	139	14	..	32	8	..
Lake Rotoiti	634	7.9	-2.3	2.8	-0.2	12.0	27	-8.2	18	114	14	-43	35	8	..
Hokitika Airport	39	11.5	2.6	7.1	+0.0	15.7	24	-2.2	12	194	13	-47	38	1	120
Reefton	198	8.6	-0.1	4.3	-0.4	14.0	2	-5.0	26	193	16	+28	33	8	..
Barrytown	30	12.3	6.1	9.2	..	15.1	1	1.5	12	188	14	..	24	8	..
Totara Flat	77	10.0	-0.2	4.9	-0.5	14.2	24	-3.5	18	149	14	-8	34	8	..
Greymouth	4	11.3	3.8	7.6	+0.0	15.0	24	-1.5	12	205	13	+12	40	1	90
Otira Substation	383	8.4	-0.1	4.2	..	12.8	4	-4.0	18	280	16	-76	67	8	..
Springs Junction	421	7.5	-1.6	3.0	..	12.3	4	-7.3	18	187	16	+12	48	8	..
Hari Hari	45	12.0	-0.1	6.0	+0.1	15.2	23	-4.4	18	225	12	-16	50	8	..
Franz Josef	122	11.8	0.9	6.4	-0.3	17.0	27	-2.0	12	319	11	-24	75	1	..
Fox Glacier	152	11.4	1.5	6.5	..	17.5	23	-1.9	12	284	11	-30	57	1	..
Milford Sound	3	8.8	1.1	5.0	-0.6	15.3	23	-1.7	17	338	16	-40	71	1	..
Puyssegur Point	43	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stephens Island	187	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Riwaka, Motueka	8	12.2	1.3	6.8	-0.2	15.0	25	-3.4	18	92	14	-53	22	22	152
Tapawera	146	11.4	-0.7	5.4	..	15.1	6	-4.9	18	84	13	..	15	8	..
Appleby	17	11.9	2.0	7.0	-0.2	15.4	6	-1.9	18	50	11	-41	13	22	..
Nelson Airport	2	11.6	1.3	6.5	+0.1	15.1	25	-3.5	18	56	11	-35	12	22	156
Rai Valley	79	12.7	0.9	6.8	+0.8	16.7	23	-5.0	19	176	11	-7	47	21	..
Moutere Hills	110	11.4	4.3	7.9	+0.1	14.3	23	-0.1	18	56	11	-48	14	22	..
Blenheim Airport	27	12.6	0.8	6.7	+0.0	16.4	2	-3.8	17	40	10	-31	10	22	..
Blenheim	4	12.6	1.4	7.0	-0.1	16.9	2	-2.9	18	44	11	-22	12	3	166
Waihapai Power Station	262	10.6	0.3	5.5	-0.5	14.9	2	-4.4	18	37	8	-42	15	1	..
Vernon Lagoons	2	12.4	0.9	6.7	-0.1	16.6	2	-4.2	18	42	11	..	12	22	144
Lake Grassmere	2	11.4	3.6	7.5	+0.2	16.1	2	-3.1	18	68	11	+2	37	23	150
Cape Campbell	3	11.8	6.2	9.0	+0.5	14.7	2	1.2	18	70	11	-6	31	23	..
Hanmer Forest	387	9.6	-1.9	3.9	+0.2	16.5	1	-6.1	18	130	12	+26	47	22	102
Molesworth	893	6.0	-4.8	0.6	-0.9	11.6	2	-13.0	18	79	7	+18	29	22	..
Kaikoura	99	11.0	5.3	8.2	+0.4	17.5	2	2.0	18	52	11	-29	28	22	140
Arthurs Pass	738	5.5	-3.0	1.3	..	10.5	3	-8.6	20	219	13	-58	37	9	..
Balmoral Forest	198	10.0	-1.6	4.2	-0.3	17.5	1	-7.5	18	27	7	-37	9	22	..
Hawarden	244	10.4	-0.9	4.8	..	16.3	1	-7.5	18	26	6	..	11	15	..
Waiau	137	10.6	-1.4	4.6	..	18.2	2	-7.9	18	37	10	..	12	22	..
The Hermitage, Mt Cook	765	6.2	-2.4	1.9	+0.0	10.2	3	-5.9	18	187	15	-57	43	8	93
Mt John	1027	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Craigieburn Forest	914	5.9	-2.8	1.6	+0.1	11.4	31	-8.3	18	69	18	-55	28	1	..
Lake Coleridge	364	9.4	-1.5	4.0	+0.1	14.9	1	-7.0	18	63	15	-18	22	8	..
Highbank Power Station	336	9.2	1.6	5.4	-0.2	16.1	1	-2.2	18	39	10	-40	13	15	129
Hororata Substation	192	10.6	-1.0	4.8	+0.3	18.5	3	-6.4	18	43	16	-23	20	15	..
Winchmore	160	9.8	0.2	5.0	+0.3	16.3	2	-3.4	30	51	10	-10	21	15	..
Peel Forest	274	9.8	-0.9	4.5	..	15.4	2	-5.0	18	25	8	..	10	22	..
Ashburton	101	10.5	0.4	5.5	+0.3	17.5	2	-3.1	18	43	10	-18	19	15	128
Waipara	64	11.7	0.5	6.1	..	18.6	1	-5.6	18	21	7	..	9	22	..
Ashley Forest	107	10.7	2.8	6.8	+0.6	18.5	1	-1.6	18	19	4	-52	14	15	127
Rangiora	46	10.9	0.8	5.9	+0.5	18.7	2	-3.9	19	23	13	-30	13	15	..
Darfield	195	10.6	1.1	5.9	+0.9	15.8	26	-2.8	30	49	10	-17	23	15	..
Eyrewell Forest	158	10.4	1.2	5.8	+1.2	18.0	1	-3.6	30	42	9	-24	18	15	..
Christchurch Airport	30	10.6	-0.5	5.1	-0.3	17.8	2	-6.8	18	33	12	-28	15	15	135
Templeton	46	10.4	0.8	5.6	..	16.0	3	-4.0	18	36	9	..	18	15	..
Christchurch	7	11.3	1.0	6.2	+0.3	19.2	2	-3.6	18	38	14	-20	14	15	..
Bromley, Christchurch	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mt Pleasant	137	10.4	4.9	7.7	+0.2	17.5	2	0.8	18	47	13	-27	16	15	..
Lincoln	11	10.5	0.8	5.7	+0.3	17.5	2	-4.1	18	40	10	-18	16	15	110
Akaroa	3	11.4	2.4	6.9	..	18.6	2	-0.5	12	109	13	..	22	12	..
Lake Tekapo	683	6.5	-2.0	2.3	+0.6	10.2	2	-6.8	18	21	8	-32	9	8	128
Lake Pukaki	556	6.8	-2.1	2.4	+1.3	10.6	2	-6.0	18	19	9	..	7	8	..
Fairlie	304	9.7	-3.2	3.3	..	15.6	2	-8.0	18	23	7	..	5	23	..
Twizel	457	7.2	-4.2	1.5	+0.7	11.7	2	-9.0	18	19	10	..	5	8	..
Ikawai	70	10.3	-0.1	5.1	+0.6	15.0	26	-5.0	17	19	3	..	10	15	..
Geraldine	119	10.6	-0.5	5.1	..	15.5	2	-5.0	19	31	8	..	12	22	..
Orari Estate	81	10.2	-0.4	4.9	+0.4	16.5	2	-3.8	17	24	9	-34	12	15	..

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for July 1980—continued

Station	Height of Station Above M.S.L.	Air Temperature in Degrees Celsius							Rainfall in Millimetres				Bright Sunshine Hrs		
		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
Metres	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	Hrs			
Temuka	24	10.9	0.3	5.6	+0.6	15.4	26	-2.5	18	18	5	-28	10	15	..
Timaru Airport	26	10.6	-0.5	5.1	+0.4	16.6	26	-3.3	21	16	7	-27	10	15	..
Adair	85	10.2	2.3	6.3	+0.6	16.0	2	-0.6	18	18	6	-25	12	15	..
Timaru	17	10.1	1.3	5.7	+0.4	15.7	26	-1.8	21	21	10	-20	11	15	129
Waimate	61	11.3	1.4	6.4	+0.5	15.8	26	-2.0	18	35	7	-8	23	15	..
Kurou	207	9.8	-0.2	4.8	..	15.0	2	-4.4	18	8	8	..	4	4	..
Oamaru Airport	30	10.1	1.2	5.7	+0.7	15.9	2	-2.4	11	18	9	-18	11	15	126
Tara Hills, Omarama	488	7.1	-3.3	1.9	+0.6	11.7	27	-8.0	18	20	9	-8	5	2	139
Lake Hawea	350	7.2	-0.4	3.4	-0.3	10.7	3	-3.5	18	47	12	-11	12	2	..
Wanaka	296	8.0	-1.5	3.3	-0.2	11.8	3	-5.3	18	51	13	-2	13	21	..
Queensberry	277	7.2	-1.2	3.0	..	12.0	2	-6.1	18	38	18	..	12	21	..
Bendigo	200	7.8	-1.6	3.1	..	12.3	2	-6.5	18	24	15	..	11	21	..
Naseby Forest	610	5.5	-3.3	1.1	-0.5	12.7	2	-9.6	18	22	11	-11	9	22	..
Ranfurlly	427	6.0	-2.9	1.6	..	11.0	24	-9.7	18	5	7	..	2	14	83
Herbert Forest	61	10.6	0.3	5.5	+0.7	16.8	2	-3.2	18	31	12	-31	8	22	..
Palmerston	21	10.4	0.5	5.5	+0.9	15.6	3	-4.6	17	51	13	..	26	22	115
Cherry Farm Hospital	6	10.1	2.0	6.1	+0.7	14.6	3	-1.7	18	52	13	+6	13	22	..
Taiaroa Head	72	8.6	4.5	6.6	-0.2	14.4	2	1.7	11	60	16	+12	13	13	..
Invermay, Taieri	30	9.3	1.2	5.3	..	14.0	2	-3.2	17	74	14	..	15	12	86
Berwick Forest	18	9.3	1.2	5.3	+0.7	15.2	2	-3.4	17	81	18	+33	24	14	..
Dunedin Airport	1	9.4	1.2	5.3	+0.9	15.0	2	-3.5	17	55	11	+9	12	12	..
Musselburgh, Dunedin	2	9.4	3.8	6.6	+0.3	16.0	2	0.0	11	72	18	+16	17	12	77
Te Anau	215	7.4	0.8	4.1	+0.2	11.1	3	-2.0	17	81	18	-8	19	8	68
West Arm, Manapouri	232	5.3	1.1	3.2	+0.0	9.0	26	-2.0	17	221	20	..	38	8	..
Borland Burn	183	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Queenstown	329	7.1	-0.2	3.5	-0.2	10.2	3	-3.2	29	77	14	+13	28	30	81
Queenstown Airport	349	6.4	-2.0	2.2	-0.6	10.1	3	-5.3	18	85	15	+35	23	30	..
Cromwell	213	7.4	-2.0	2.7	-0.2	10.5	25	-7.2	18	29	13	+6	9	22	102
Northburn	210	7.6	-1.3	3.2	..	10.3	14	-5.5	18	32	22	..	13	21	..
Clyde Dam	160	8.2	-1.4	3.4	..	11.4	25	-5.4	19	28	20	..	8	30	..
Ophir	305	..	-4.1	..	..	..	..	-8.4	18	19	9	+1	6	14	..
Moa Creek	427	5.9	-3.7	1.1	+0.3	10.6	2	-8.0	17	25	15	+10	5	22	..
Earnsclough	152	8.3	-2.4	3.0	+0.7	13.0	27	-7.6	18	25	14	+7	9	30	..
Alexandra	141	8.8	-1.9	3.5	+0.9	12.3	25	-6.5	18	30	14	+15	9	14	97
Roxburgh Power Station	110	..	..	..	..	..	..	..	..	50	8	+25	14	14	..
Moa Flat	410	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mahinerangi Dam	396	6.9	0.1	3.5	+0.2	11.9	3	-6.5	18	141	18	+80	29	12	..
Tapanui	226	8.0	0.9	4.5	-0.3	12.7	3	-3.8	6	110	19	+44	18	14	..
Rankleburn Forest	255	7.3	-0.1	3.6	-0.7	11.2	2	-5.5	17	165	17	+96	38	14	..
Taieri Mouth	15	9.4	2.2	5.8	+0.3	15.0	2	-1.4	21	91	11	+38	22	12	..
Otautau	55	9.0	0.7	4.9	+0.2	13.2	31	-3.7	17	137	19	+61	24	14	50
Winton	44	8.8	0.9	4.9	-0.3	13.5	31	-3.6	21	97	21	+49	16	14	66
Gore	123	7.4	0.8	4.1	+0.1	10.4	3	-4.0	17	92	23	..	21	14	79
Hokonui Forest	46	8.8	1.0	4.9	+0.0	13.4	31	-4.5	17	112	21	+46	22	14	..
Woodlands	47	8.9	1.4	5.2	+0.1	13.3	31	-3.0	17	105	29	..	14	14	..
Invercargill Airport	0	9.1	1.7	5.4	+0.5	12.9	31	-2.5	17	80	23	+11	10	13	76
Tiwai Point, Bluff	5	9.2	3.0	6.1	+0.3	13.1	3	-1.5	17	74	23	..	12	13	..
Stewart Island	3	8.9	2.4	5.7	..	11.2	3	-1.1	29	118	29	..	16	19	..
Milton	18	8.5	0.6	4.6	+0.3	11.5	31	-4.0	18	90	14	+39	21	12	..
Finegand, Balclutha	6	8.8	1.5	5.2	+0.6	12.4	31	-2.8	21	91	17	..	23	14	83
Owaka	5	9.1	2.0	5.6	..	12.0	3	-3.1	21	118	20	..	27	12	..
Nugget Point	129	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tautuku	61	9.1	2.9	6.0	..	11.6	3	-1.0	21	119	22	..	38	12	..
Rarotonga Airport	7	25.0	19.0	22.0	+0.3	27.4	20	14.0	17	155	11	+58	105	13	191
Raoul Island	38	18.7	13.9	16.3	+0.1	21.6	4	10.2	27	321	24	+158	157	19	156
Waitangi, Chatham Island	44	9.7	4.6	7.2	-0.5	13.4	9	1.3	12	111	29	+32	27	15	60
Campbell Island	15	6.7	2.1	4.9	+0.3	8.4	7	2.8	29	104	28	-3	16	4	22
Nandi Airport, Fiji	19	28.1	17.4	22.8	-0.8	31.1	11	13.3	14	73	3	..	67	27	234
Totokoitu, Rarotonga	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scott Base, Antarctica	16	-20.2	-31.7	-26.0	+3.8	-10.3	20	-47.5	17	..	..	..	..	..	..

LATE RETURNS AND CORRECTIONS

Broadlands 03/1980	305	19.4	7.7	13.6	..	23.5	11	-2.0	22	115	..	..	..	..	..
Broadlands 04/1980	305	17.4	6.4	11.9	..	21.9	25	-0.5	20	89	..	..	..	..	..
Broadlands 05/1980	305	14.3	4.1	9.2	..	18.1	10	-2.5	9	24	..	..	..	..	..
Orere Point 01/1980	30	22.5	13.4	18.0	..	27.5	28	7.5	4	107	..	..	..	..	..
Orere Point 03/1980	30	20.9	..	..	..	24.5	5	..	..	83	12	..	18	31	..
Orere Point 04/1980	30	18.2	9.1	13.7	..	20.0	1	5.0	5	36	..	..	..	..	..
Orere Point 05/1980	30	15.7	8.0	11.9	..	18.0	15	1.8	30	34	9	..	16	21	..
Lower Retaruke 03/1980	223	20.1	9.2	14.7	-0.9	24.6	4	1.0	22	174	16	..	46	15	..
Lower Retaruke 04/1980	223	18.1	6.5	12.3	-0.3	21.2	20	0.9	13	90	13	..	21	2	..
Lower Retaruke 05/1980	223	15.0	4.5	9.8	+0.2	19.1	4	-1.8	29	66	9	..	33	21	..
Lower Retaruke 06/1980	223	12.0	1.9	7.0	-0.2	16.3	2	-6.1	19	120	16	..	39	4	..
Waipukurau 06/1980	137	11.9	2.4	7.2	-0.4	16.0	2	-2.7	28	121	19	+40	31	17	90*
Porangahau 06/1980	8	13.2	4.3	8.8	..	..	..	..	..	116	18	..	30	21	..
Ruatoria 06/1980	61	15.4	5.2	10.3	+0.1	20.4	2	-1.2	28	354	22	+161	119	21	..

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for July 1980—continued

Station	Height of Station Above M.S.L.	Air Temperature in Degrees Celsius								Rainfall in Millimetres					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	
		Metres	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	Hrs		
LATE RETURNS AND CORRECTIONS															
Kapiti Island 01/1980	16	20.0	14.1	17.1	+0.1	24.8	30	9.7	3	150	15	+79	55	22	..
Kapiti Island 02/1980	16	20.9	14.8	17.9	+0.8	25.5	9	11.0	24	61	8	-15	23	21	..
Kapiti Island 04/1980	16	15.7	11.5	13.6	-0.4	17.5	25	8.1	20	158	15	+82	47	2	..
Kapiti Island 05/1980	16	14.2	10.0	12.1	+0.3	16.2	3	8.0	22	94	15	-10	43	18	..
Kairanga Palmerston North 06/1980	15	12.9	3.1	8.0	+0.0	17.1	2	-3.2	28	70	12	..	35	11	91
Palmerston North D S I R 06/1980	34	12.7	4.8	8.8	+0.1	16.6	4	-1.5	27	57	11	-42	23	11	77
Kahui, Taihape 06/1980	518	..	..	..	..	..	..	..	..	35	14	..	13	13	..
Karamea 06/1980	5	13.4	6.4	9.9	..	16.6	30	0.6	14	166	12	..	52	10	..
Totara Flat 06/1980	77	9.4	0.5	5.0	-0.8	16.0	3	-5.0	21	126	16	-37	45	10	..
Lake Coleridge 06/1980	364	9.3	-1.1	4.1	-0.3	16.5	3	-5.5	19	107	11	+36	56	10	..
Ashley Forest 06/1980	107	10.4	2.1	6.3	-0.5	17.0	24	-1.6	22	96	12	+43	35	4	103
Raoul Island 05/1980	38	21.1	15.3	18.2	-0.6	23.1	1	13.2	28	130	19	-15	94	19	166
Raoul Island 06/1980	38	19.8	14.3	17.1	-0.2	23.4	6	10.7	17	80	18	-70	18	21	125

The "normal" refers to the present site of the instruments. Standard period for normals is 1941-1970. No normals are available for stations with only short records.

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

A rainy day is a day with rainfall equal to or greater than 0.1 mm.

Where the extremes of temperature and rainfall have occurred more than once during the month, the date of the first occurrence is given.

## WEATHER NOTES FOR JULY 1980

*General*—Throughout the country, July was generally a little dryer than normal, and temperatures were near the average. Pressures were considerably lower than usual in all districts and there was a greater frequency of south-westerly winds.

Many farmers reported little pasture growth, but stock was in good condition with some early lambing and calving underway.

Tornadoes accompanied by hail and thunder affected parts of Taranaki during the month causing widespread damage to a number of farms. Hailstones up to 6 cm long were reported on one occasion.

*Rainfall*—Rainfalls down to 35 percent of the July normal were recorded in the central districts of the North Island and in Gisborne, Hawkes Bay, Canterbury, Buller, and Westland. However in Central Otago and Southland some stations received nearly twice their usual amount.

Gisborne Aerodrome with 51 mm of rain had its lowest July rainfall since 1964, while at Queenstown 97 mm of rain, made it the wettest July since 1970 when 112 mm fell.

During the 24 hours to 9 a.m. on the 21st of July, 72 mm of rain were recorded at Albert Park, Auckland. This intensity occurs about once in 2 years. More than half of this total fell in the 6 hours from 2 p.m. with more than 10 mm between 5 p.m. and 6 p.m.

*Temperatures*—Temperatures were about average over much of the country for July, although south-eastern parts of the South Island were about 1.0°C warmer than normal. Temperatures were below normal by a similar amount in parts of the Bay of Plenty and the south-west of the South Island.

During a warm spell at the beginning of the month daily maximum temperatures were up to 8°C above the monthly average along the east coast of the South Island. For the remainder of the month they were mostly below average. On some days this deficit reached 4°C over the South Island.

*Sunshine*—Sunshine hours were near the July normal over the country with the exception of Southland where there were about 20 hours fewer.

## WEATHER SEQUENCE FOR JULY 1980

A cold front crossed New Zealand in the first 2 days of the month and brought moderate to heavy rain to Westland and Fiordland, with

mainly light falls of rain in other western and southern areas.

From the 3rd to 7th a succession of depressions moved on to New Zealand from the Tasman Sea with rain in eastern districts of both Islands and about Northland. Moderate falls were recorded in Northland, Hawkes Bay, and Wairarapa.

On the evening of 7th, a cold front ahead of a complex low pressure area moved on to Fiordland and crossed New Zealand by the evening of the 8th. The trough spread over the country during the 8th and lay to the east of central New Zealand by the morning of the 12th, with a cold showery south-westerly airflow covering the country. During this period widespread rain was recorded with falls in excess of 40 mm in Fiordland and Westland, and isolated heavy falls in Manawatu and about the central North Island. Temperatures on the 11th were 4°C below the monthly average in eastern Canterbury and parts of Westland.

The south-westerly airflow covering the country brought isolated showers to most districts, and lasted until the 17th when a ridge of high pressure spread on to New Zealand. An anticyclone with mainly fine cool weather lay over the country on the 17th and 18th. On the 19th a complex trough of low pressure covered the Tasman Sea and Northland, while a high pressure area lay east of New Zealand. Moderate to heavy rain occurred over Northland and Auckland and dry settled weather predominated elsewhere. This weather pattern remained slow moving until the 22nd when a depression moved towards central New Zealand. Rain fell over much of the country with the passage of the depression and heavy falls were reported in Westland, North Canterbury, Marlborough, Waikato, Taranaki, and Northern and Central Hawkes Bay. By the 24th the depression had been absorbed into a trough of low pressure lying to the east of New Zealand.

A further cold showery south-westerly airflow had spread over the country by the 25th, and lasted until the 28th when an anticyclone from the Tasman Sea spread on to New Zealand accompanied by fine weather throughout both the North and South Islands.

On the 30th a front moved on to the south-west of the South Island accompanied by rain. This front moved north-eastwards over the rest of the country but became slow moving over northern New Zealand as a small wave depression developed near Lord Howe Island.

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