



# SUPPLEMENT

TO THE

# NEW ZEALAND GAZETTE

OF

THURSDAY, 14 MAY 1981

*Published by Authority*

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WELLINGTON: FRIDAY, 15 MAY 1981

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# CLIMATOLOGICAL TABLE FOR MARCH 1981



CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for March 1981—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				mm		mm	mm	Hrs	
Ruakura, Hamilton	40	24.1	14.3	19.2	+2.5	27.1	8	4.3	31	80	16	-4	31	26	146
Whatawhata	104	23.7	14.2	19.0	+2.2	26.4	22	5.4	30	75	14	-34	18	18	135
Rukuhia	66	24.0	15.0	19.5	+2.4	26.4	22	5.5	31	71	17	-15	29	26	126
Hamilton Airport	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cambridge	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Port Taharoa	27	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mohakatino Station Mokau	46	22.8	15.9	19.4	+2.3	28.0	8	9.1	30	130	12	+21	52	17	..
Arapuni Power Station	123	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Waikeria	46	..	13.1	..	..	..	..	3.1	14	111	12	..	36	25	..
Te Kuiti	61	24.0	13.8	18.9	+2.2	27.3	1	3.8	30	97	14	-2	27	26	125
Pureora Forest	549	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Taumarunui	171	23.9	13.0	18.5	+2.0	28.0	2	2.3	30	132	17	+48	30	26	118
Omata	61	22.3	16.2	19.3	+1.9	26.7	1	9.5	30	141	15	..	33	17	..
New Plymouth	55	22.8	15.4	19.1	..	28.4	8	8.0	31	154	17	..	42	25	..
New Plymouth Airport	27	22.6	15.0	18.8	+2.5	27.6	8	7.4	30	97	17	-5	29	25	155
Tikorangi	77	22.2	14.3	18.3	..	27.0	1	6.0	30	132	18	..	43	17	..
Te Wera Forest	180	22.0	12.5	17.3	+2.6	26.7	2	0.2	30	132	25	+20	25	17	..
Lower Retaruke	223	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Turangi	366	21.8	12.3	17.1	+1.8	25.9	2	0.4	30	136	15	..	48	26	115
Chateau, Mt Ruapehu	1119	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mangamutu, Pahiatua	116	23.3	12.3	17.8	+2.5	30.8	9	0.0	30	64	6	-20	31	25	..
Mt Bruce Reserve	305	22.1	11.6	16.9	+2.8	29.2	9	0.6	30	79	14	..	26	1	..
Waingawa, Masterton	114	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kopua	311	21.5	12.3	16.9	+1.9	29.5	9	3.0	30	21	12	-76	6	4	..
Waipukurau	137	23.1	12.8	18.0	+2.2	32.1	10	2.4	31	23	12	-43	8	17	157*
Dannevirke	207	22.7	12.8	17.8	+2.2	31.2	9	1.7	30	26	13	-58	8	26	127
Porangahau	8	22.4	14.3	18.4	..	30.8	10	4.1	31	60	11	..	14	4	..
Castlepoint	3	21.2	15.2	18.2	+1.7	29.5	15	8.7	30	21	8	-50	9	20	..
Ngaumu Forest	244	23.1	10.8	17.0	+2.7	31.4	9	0.7	30	29	11	-57	7	25	..
Tauherenikau, Alloa	43	23.9	12.8	18.4	+2.6	30.5	9	1.8	30	39	9	-45	13	1	..
Gladstone, Arahura	116	23.6	12.1	17.9	+2.5	30.9	9	0.7	30	41	9	-28	10	29	..
Waiorongomai	21	22.2	13.6	17.9	+2.5	29.3	9	3.2	30	90	13	-22	32	25	..
Cape Palliser	10	21.9	14.7	18.3	+1.9	30.0	10	7.3	30	50	11	-36	22	2	..
East Cape	17	22.1	17.2	19.7	+1.5	25.4	11	12.2	30	51	16	-48	13	25	..
Ruatoria	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mangatu Forest	182	23.6	13.6	18.6	+2.0	28.9	9	4.5	31	52	11	-52	28	18	..
Manutuke Gisborne	9	23.7	13.9	18.8	+1.9	29.6	10	4.7	31	47	9	-39	23	18	..
Gisborne Airport	4	23.8	14.2	19.0	+1.9	29.5	10	5.7	31	87	9	-4	38	18	183
Onepoto, Waikaremoana	643	21.6	12.5	17.1	+2.5	27.7	14	6.3	31	131	18	-37	35	18	..
Wharerata Forest	439	20.1	13.2	16.7	..	26.5	10	5.5	31	152	10	..	48	18	..
Esk Forest	427	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kaweka Forest	414	21.7	13.0	17.4	+1.7	29.6	10	5.6	30	116	12	..	35	18	..
Napier Airport	2	22.7	13.6	18.2	..	31.4	10	5.5	31	48	11	-26	18	18	..
Napier	2	23.8	14.6	19.2	+1.8	31.2	10	5.7	31	55	12	-11	20	18	180
Hastings	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Havelock North	9	23.1	13.4	18.3	+2.3	31.9	10	3.1	31	55	10	-6	25	18	167
Gwavas Forest	335	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Makaretu	335	22.3	11.6	17.0	+1.8	29.4	9	2.4	31	39	17	..	11	4	..
Mohaka Forest	286	22.3	12.9	17.6	+1.7	27.2	9	..	..	139	11	+31	66	18	..
Frasertown, Wairoa	8	24.1	14.4	19.3	+2.1	31.0	10	5.5	31	137	15	+25	45	18	..
Wairoa	20	..	14.2	..	..	..	..	5.8	31	108	14	..	31	18	182
Portland Island	78	21.3	16.2	18.8	+1.3	28.5	10	10.9	30	59	11	-15	10	19	..
Kapiti Island	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Paraparaumu Airport	7	21.8	14.2	18.0	+2.0	26.6	8	5.0	30	52	14	-24	13	16	170
Flockhouse, Bulls	9	23.2	13.8	18.5	+2.3	30.4	9	3.0	30	83	12	+22	34	27	..
Ohakea	48	23.5	14.5	19.0	+2.4	30.1	9	4.7	30	58	9	-8	22	26	174
Wharite Peak	914	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kairanga Palmerston North	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Palmerston North Airport	45	23.7	13.0	18.4	+2.4	31.2	9	1.7	30	53	8	-13	17	25	..
Palmerston North D S I R	34	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Massey University	61	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Foxton	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Waitarere Forest	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Levin	46	22.4	14.3	18.4	+2.4	30.1	9	4.7	30	76	10	+0	30	17	147
Taita, Lower Hutt	65	22.2	13.6	17.9	+2.1	28.7	8	3.2	30	74	15	-25	20	27	161
Avalon, Lower Hutt	15	22.2	14.1	18.2	+2.3	28.5	8	4.7	30	88	16	-11	31	27	..
Kelburn, Wellington	125	21.0	13.7	17.4	+1.8	26.6	8	5.5	30	70	15	-24	17	9	175
Somes Island	43	20.9	14.5	17.7	..	26.0	9	6.5	30	68	13	..	32	27	..
Gracefield, Lower Hutt	34	21.8	14.1	18.0	+2.0	27.4	9	4.1	30	88	11	-11	44	27	..
Wainuiomata	82	21.6	13.1	17.4	+2.2	28.9	1	2.4	30	92	11	..	27	27	..
Wellington Airport	6	21.3	14.4	17.9	+1.7	27.3	9	6.0	30	47	11	-29	10	2	..
Kaitoke	223	21.5	11.9	16.7	+2.7	29.0	9	0.0	30	64	16	-86	17	25	159
Wallaceville	56	22.4	13.1	17.8	+2.5	29.5	1	0.8	30	66	15	-23	20	25	169
Cape Egmont	8	22.0	15.6	18.8	+1.9	27.5	8	6.0	30	132	14	+46	31	17	..
Stratford Mountain House	846	17.1	10.5	13.8	+2.2	22.2	2	2.9	30	641	22	+212	170	9	..
Stratford Dem. Farm	311	20.8	11.0	15.9	+1.3	26.4	1	1.4	30	155	16	+18	41	1	115
Manaia Dem. Farm	98	21.4	13.6	17.5	+1.8	26.8	8	2.7	30	123	13	+42	41	1	160



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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.			Maximum	Date	Minimum	Date				Amount		Date
Metres	°C	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	Hrs		
Orari Estate	81	19.4	9.9	14.7	+0.8	27.2	10	1.9	20	61	13	-13	17	8	
Temuka	24	19.0	10.0	14.5	+0.4	26.0	26	3.1	20	64	13	+0	17	8	
Timaru Airport	26	18.6	9.6	14.1	+0.3	26.8	10	1.4	20	53	12	-3	17	8	
Adair	85	..	..	..	..	..	..	..	..	..	..	..	..	..	
Timaru	17	19.3	11.2	15.3	+1.1	26.1	16	4.4	20	55	13	-3	17	8	
Waimate	61	19.1	10.6	14.9	+0.5	27.5	16	4.2	29	103	13	+37	27	8	
Kurow	207	19.7	10.2	15.0	..	29.3	10	3.3	20	83	15	..	19	6	
Oamaru Airport	30	18.1	10.6	14.4	+0.8	27.3	10	4.0	29	59	13	+6	11	6	
Tara Hills, Oamarua	488	..	..	..	..	..	..	..	..	..	..	..	..	..	
Lake Hawea	350	19.1	10.7	14.9	+0.5	25.1	1	4.3	19	152	14	+81	48	6	
Wanaka	296	20.7	10.4	15.6	+1.1	28.8	1	3.1	19	150	14	+89	50	6	
Queensberry	277	20.8	10.5	15.7	..	28.3	1	3.9	19	147	14	..	57	6	
Bendigo	200	21.4	10.4	15.9	..	29.8	1	2.5	19	126	12	..	58	6	
Naseby Forest	610	..	..	..	..	..	..	..	..	..	..	..	..	..	
Ranfurly	427	19.7	7.1	13.4	..	26.5	10	-1.2	29	65	12	..	27	6	
Herbert Forest	61	18.4	9.6	14.0	+0.8	25.2	16	4.0	29	124	14	+46	25	6	
Palmerston	21	18.3	9.7	14.0	+1.3	24.5	10	2.2	29	97	14	..	29	6	
Cherry Farm Hospital	6	18.1	9.5	13.8	+0.6	25.0	16	3.2	29	85	15	+27	27	6	
Taiaroa Head	72	16.0	11.0	13.5	+0.9	22.5	16	7.0	29	83	15	+19	22	6	
Invermay, Taieri	30	17.7	9.5	13.6	..	24.6	21	1.5	30	71	13	..	22	6	
Berwick Forest	18	18.4	9.0	13.7	+0.5	23.7	10	1.1	30	53	15	-18	21	6	
Dunedin Airport	1	18.8	8.9	13.9	+1.0	24.7	21	-0.8	30	85	17	+21	33	6	
Musselburgh, Dunedin	2	16.5	10.9	13.7	+0.0	21.5	16	1.0	30	107	20	+31	30	6	
Te Anau	215	18.2	9.0	13.6	+0.8	24.2	1	-0.7	29	117	14	+18	39	6	
West Arm, Manapouri	232	..	..	..	..	..	..	..	..	..	..	..	..	..	
Borland Burn	183	..	..	..	..	..	..	..	..	..	..	..	..	..	
Queenstown	329	20.4	10.1	15.3	+1.5	28.0	1	5.4	19	131	13	+55	52	6	
Queenstown Airport	349	18.8	8.6	13.7	+0.7	25.4	1	2.5	19	118	13	+49	54	6	
Otama	183	18.4	8.3	13.4	..	27.0	5	0.3	29	72	17	-2	27	6	
Cromwell	213	21.3	10.1	15.7	+0.8	29.0	10	3.6	30	116	15	+75	56	6	
Northburn	210	21.3	10.0	15.7	..	28.2	1	3.7	19	110	12	..	58	6	
Clyde Dam	160	21.1	10.0	15.6	..	28.0	10	4.2	19	101	15	..	66	6	
Ophir	305	21.0	7.7	14.4	+1.3	27.3	10	-0.2	19	103	13	+55	66	6	
Moa Creek	427	..	..	..	..	..	..	..	..	..	..	..	..	..	
Earnsclough	152	21.9	8.9	15.4	+1.6	29.9	10	0.9	19	100	14	+59	70	6	
Alexandra	141	21.8	10.0	15.9	+1.3	28.5	10	3.5	19	88	14	+50	54	6	
Roxburgh Power Station	110	21.2	9.0	15.1	+0.9	28.0	10	0.5	29	70	11	+22	44	6	
Beaumont	46	..	..	..	..	..	..	..	..	..	..	..	..	..	
Mahinerangi Dam	396	..	..	..	..	..	..	..	..	..	..	..	..	..	
Tapanui	226	18.7	8.1	13.4	+0.5	25.6	5	1.0	29	94	14	+10	35	6	
Taieri Mouth	15	16.0	9.5	12.8	+0.3	23.2	16	3.1	19	99	13	+30	35	6	
Tuatapere	27	19.0	9.2	14.1	..	26.6	5	0.6	29	91	15	..	20	27	
Otautau	55	18.7	8.0	13.4	+0.8	28.0	5	-1.1	29	92	14	+1	17	6	
Winton	44	18.4	8.1	13.3	+0.2	28.2	5	-0.3	29	110	16	+41	32	12	
Gore	123	18.0	8.8	13.4	+0.7	26.2	5	1.3	30	86	19	..	23	6	
Hokonui Forest	46	19.0	8.5	13.8	+0.6	27.2	5	-0.5	29	96	17	+2	20	6	
Woodlands	47	18.6	8.2	13.4	+0.6	28.4	5	0.1	29	96	23	..	23	26	
Invercargill Airport	0	17.8	8.2	13.0	+0.6	27.7	5	0.6	30	74	19	-20	17	26	
Tiwai Point, Bluff	5	17.4	9.8	13.6	+0.2	25.4	5	4.2	29	74	18	..	20	26	
Stewart Island	3	..	..	..	..	..	..	..	..	..	..	..	..	..	
Milton	18	18.4	8.8	13.6	+0.6	23.9	10	0.2	30	119	13	+55	41	6	
Finegand, Balclutha	6	18.3	..	..	..	24.2	10	..	..	100	15	..	38	6	
Owaka	5	17.1	8.0	12.6	..	22.7	5	-0.5	30	131	17	..	29	26	
Nugget Point	129	14.9	9.5	12.2	-0.6	19.9	16	5.6	29	145	22	+76	35	26	
Tautuku	61	..	..	..	..	..	..	..	..	..	..	..	..	..	
Nandi Airport, Fiji	19	..	..	..	..	..	..	..	..	..	..	..	..	..	
Rarotonga Airport	7	28.8	23.7	26.3	+0.6	30.7	1	21.0	12	71	11	-175	13	18	
Totokoitu, Rarotonga	9	..	..	..	..	..	..	..	..	..	..	..	..	..	
Raoul Island	38	25.1	21.2	23.2	+1.3	26.7	19	18.8	31	217	24	+85	87	13	
Campbell Island	15	11.3	7.2	9.3	+0.8	15.7	21	3.5	29	115	23	-15	26	9	
Waitangi, Chatham Island	44	18.2	12.6	15.4	+1.2	21.2	12	7.1	16	38	15	-46	13	13	
Scott Base, Antarctica	16	-10.5	-20.0	-15.3	+4.9	-1.0	5	-29.9	20	..	..	..	..	..	
LATE RETURNS AND CORRECTIONS															
Dargaville 02/1981	20	24.5	16.8	20.7	+1.9	29.9	28	11.6	18	42	10	-42	14	1	
Marsden Power Station 02/1981	3	24.7	..	..	..	29.4	7	..	..	78	16	..	29	1	
Tokoroa 02/1981	305	23.0	12.0	17.5	+0.1	25.3	24	4.8	27	113	14	..	34	12	
Ardmore 02/1981	30	24.4	15.2	19.8	+1.2	27.0	10	8.2	21	35	10	-69	12	28	
Huntly 01/1981	34	25.3	15.7	20.5	..	28.9	16	10.1	7	41	10	..	16	12	
Huntly 02/1981	34	24.6	15.7	20.2	..	28.1	11	10.5	21	67	11	..	45	28	
Waipukurau 02/1981	137	23.2	13.0	18.1	+0.5	32.1	11	7.3	3	37	10	-24	16	14	
Tauherenikau, Alloa 02/1981	43	24.2	11.8	18.0	+0.6	28.3	9	4.5	21	38	10	-28	11	6	
Wharerata Forest 02/1981	439	20.3	13.1	16.7	..	29.0	12	8.3	14	231	12	..	147	28	
Portland Island 02/1981	78	21.9	16.6	19.3	+0.9	28.5	11	14.5	26	32	11	-19	10	12	
Kapiti Island 11/1980	16	16.8	10.4	13.6	-0.4	18.8	12	7.2	26	137	15	+53	33	8	
Kapiti Island 12/1980	16	19.3	12.6	16.0	+0.1	25.0	25	6.9	12	41	12	-45	23	23	

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		A Max.	B Min.			Maxi-mum	Date	Mini-mum	Date				Amount	Date	
Metres	°C	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	Hrs		
LATE RETURNS AND CORRECTIONS															
Kapiti Island 01/1981	16	22.4	15.2	18.8	+1.8	26.4	20	10.5	9	45	5	-26	18	20	..
Kapiti Island 02/1981	16	21.9	15.5	18.7	+1.6	24.8	9	12.4	3	18	6	-58	14	6	..
Wharite Peak 02/1981	914	15.3	9.2	12.3	+0.6	22.4	9	5.4	3	230	15	+95	42	7	..
Manaia Dem. Farm 01/1981	98	21.9	13.1	17.5	+1.3	27.3	22	4.7	9	65	9	-14	36	12	206
Manaia Dem. Farm 02/1981	98	21.8	13.2	17.5	+1.1	26.6	11	6.3	3	33	8	-46	17	6	190
Wanganui Airport 02/1981	9	23.2	14.3	18.8	..	26.2	11	7.0	3	39	7	..	16	6	..
Fox Glacier 02/1981	152	19.5	10.3	14.9	..	26.1	9	5.4	20	280	14	-165	65	16	..
Puysegur Point 02/1981	43	16.4	10.3	13.4	..	24.5	10	7.8	8	95	25	-106	31	4	..
Stephens Island 02/1981	187	19.3	13.5	16.4	..	22.1	9	11.0	8	17	7	-36	8	6	..
Craigieburn Forest 02/1981	914	21.7	8.5	15.1	+1.6	26.6	9	0.7	20	42	13	-62	15	19	..
Ashley Forest 02/1981	107	22.3	11.6	17.0	+0.8	33.0	10	7.6	21	48	6	-18	20	23	159
Christchurch 02/1981	7	23.1	12.3	17.7	+0.9	35.4	10	7.0	3	11	6	-35	3	23	..
Bromley, Christchurch 02/1981	9	21.8	13.2	17.5	+1.0	34.0	10	8.5	21	14	6	-32	4	6	..
Lincoln 02/1981	11	22.9	12.4	17.7	+1.3	33.8	10	5.4	21	12	5	-44	5	23	168
Timaru 02/1981	17	20.6	11.8	16.2	+0.5	33.5	10	7.3	21	38	13	-20	13	23	151
Tara Hills, Omarama 02/1981	488	23.5	8.9	16.2	+0.8	31.2	9	2.7	1	39	11	-17	17	23	212
Alexandra 02/1981	141	23.8	10.1	17.0	+0.2	32.2	10	4.2	7	24	9	-14	7	10	203
Finegand, Balclutha 01/1981	6	20.5	9.8	15.2	+0.7	30.0	27	5.3	14	14	9	..	4	20	154
Totokoitu, Rarotonga 02/1981	9	29.2	24.2	26.7	..	31.0	4	..	..	433	24	..	135	12	..
Campbell Island 02/1981	15	11.4	6.2	8.8	-0.4	15.2	26	2.5	24	123	25	+9	24	25	90

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 rainday 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.

## THE NEW ZEALAND WEATHER IN MARCH 1981

Warm, cloudy weather was experienced in most parts of New Zealand in March. Rainfall was highly variable in different parts of the country, some of which had drought and others floods.

Some stock problems were reported by farmers in central and northern areas, with facial eczema causing most concern. Grain yields were high in the South Island although sprouting was a problem in some of the wetter areas. There were also losses of late stone fruits due to splitting in wet weather and early frosts.

North-easterly winds continued to be more frequent than usual in the north of the country again this month. The south also experienced more north-easterlies than usual, and winds were generally much lighter than expected at this time of the year.

*Rainfall*

March was a dry month over the North Island, particularly in Auckland, East Cape - Bay of Plenty and the Wairarapa, these areas recording less than 50 percent of their normal rainfall. Local areas of severe drought occurred in parts of South Auckland where 30 percent of normal rainfall occurred. Although isolated heavy falls in Kaitiaki, Kerikeri, and Matamata caused monthly totals to be well above normal, these areas were otherwise dry this month as well.

The north-east coast, Southland, and Fiordland had below or close to normal rainfall this month, but the rest of the South Island was much wetter than usual. Areas of Nelson, Golden Bay, Westland, the Mount Cook region, and Central Otago had more than twice their normal rainfalls.

Severe localised flooding occurred in Kerikeri after torrential rain associated with a thunderstorm during the night of the 19th-20th. Kerikeri Aerodrome reported 265 mm of rain in the 24 hours to 9 a.m. on the 20th, an event that could be expected less frequently than once in 200 years; 130 mm of this rain were reported as having fallen between 8 p.m. and 9.30 p.m., a record intensity that again would be expected less often than once in 200 years. One person drowned in the flash floods that followed and damage to property was estimated at \$2 million. At Waitangi, south of Kerikeri, 257 mm were recorded in the 24-hour period, most of this falling between 10 p.m. and 2.30 a.m.

Heavy rain also fell in Matamata on the afternoon of the 26th. A total of 112 mm fell in the 24 hours to 9 a.m. on the 27th, 100 mm of this falling between 4 p.m. and 5.30 p.m. Shops in the township and houses in low-lying areas were flooded to a depth of 75 cm.

*Temperatures*

In March, mean temperatures were above normal by an average of 1°C in the South Island and 2°C in the North.

Some very high March temperatures were recorded during a warm spell between the 8th and 10th, particularly in the Manawatu district. These included 27.6°C at New Plymouth on the 8th, the highest for March since the station opened in 1944; 30.1°C at Ohakea on the 9th and 31.2°C at Palmerston North the same day, both records since 1964. To the east of the ranges, Napier Airport recorded 31°C on the 9th, a record for March since the station opened in 1973, and 32°C in Waingawa, Masterton, a record for this month since 1956.

Temperatures over the whole country became much cooler towards the end of the month. Mean temperatures were as much as 5.5°C lower than average on the 29th and 5° lower on the 30th, with -1°C recorded in Dunedin Airport.

*Sunshine*

Although March was a warm month it was also cloudy. All areas of New Zealand recorded less sunshine than normal although coastal areas south-east of Christchurch received close to normal sunshine.

Stations recording large deficits this month were: Rotorua Aerodrome (-71 hours), Taupo (-63 hours), Auckland City (-46 hours), Tauranga Aerodrome (-39 hours), Hokitika Aerodrome (-59 hours), Nelson Aerodrome (-51 hours), and Westport Aerodrome (-48 hours).

The total for Taupo was the second lowest for March since 1950, and the lowest at Rotorua since records began in 1974.

In the South Island, Nelson has had only two less sunny Marches since 1930, Hokitika one since 1964, and Westport three since 1937.

## WEATHER SEQUENCE FOR MARCH 1981

An anticyclone lay to the south-east of New Zealand on the 1st of March, bringing fine weather and mild temperatures to most of the country. A small depression to the north-east and a north-east flow onto northern North Island brought rain to Northland and the east coast of the North Island. The rain spread further south on the 2nd, but temperatures continued warm. Scattered areas of rain persisted in Marlborough, Nelson, and the east coast of the North Island on the 3rd.

A cold front developed in the Tasman Sea on the 3rd and by the 4th was bringing rain to Westland, Fiordland, and Southland. This front moved onto the South Island on the 5th, increasing the intensity of rainfall in Fiordland and Westland. The rest of the country had fine warm weather under the influence of an anticyclone to the south-east of the South Island. This situation persisted until the 7th when the cold front moved north to lie across the north of the South Island, bringing a clearance to the far south, but continuing rain on the West Coast and much of the South Island. The front remained stationary during the 8th and 9th producing rain in all New Zealand regions except the East Coast.

On the 7th a tropical cyclone centred over northern New Caledonia began to intensify and move south towards Norfolk Island. By the 9th it had filled and become an extratropical depression centred between Norfolk Island and Cape Reinga. Only scattered local falls were experienced as it passed to the south of the country on the 10th, most areas having fine, mild weather.

A cold front associated with a trough in the Tasman Sea brought rain to Westland, Fiordland, Southland, and south-western districts of the North Island on the 11th and 12th. By the 13th it had moved eastward and a ridge over the country brought fine weather on the 13th and 14th. Fine conditions continued in the North Island and eastern parts of the South Island on the 15th while a complex frontal system in the Tasman Sea brought rain to the south-west of the South Island. As the front crossed the country on the 16th and 17th there were falls of rain in most districts in the South Island and southern North Island. Although the front had weakened by the 18th there were some heavy falls in central North Island districts and Northland. The anticyclone which lay north of New Zealand on the 14th moved to the south-east and became stationary during this period. A trough began to develop between this and a second anticyclone lying in the western Tasman on the 18th. A cold front within this trough brought rain as it crossed the country on the 18th and 19th, with some record falls in the Kerikeri district on the 19th. The anticyclone moved onto the country behind the front bringing fine settled weather to the south and southern North Island on the 19th and the whole country on the 20th.

A complex trough lay south of Tasmania on the 20th and this system moved east to lie in the western Tasman on the 21st. An associated complex frontal system brought heavy rain to Westland on the 21st and lighter falls to western and north-eastern districts as it crossed the country on the 22nd. A front associated with a small depression east of Lord Howe Island brought some warm showery weather to Northland and Bay of Plenty on the 22nd.

A second complex frontal system developed in the Tasman Sea and on the 23rd this lay south-west of the country. Heavy rain fell in Westland on the 23rd and in Westland and Northland on the 24th. By the 25th rain was general over the whole country, and continued until the 29th as a series of fronts crossed the country. Further local heavy falls occurred in this period, notably at Matamata on the night of the 26th.

An anticyclone to the south extended a ridge onto the country during the 29th bringing clearing weather to most districts. As the anticyclone spread northwards it brought fine but cool weather to all districts on the 30th and 31st.

(N.Z. Met. S. PUB. 107)

J. S. HICKMAN, DIRECTOR.

