CLIMATOLOGICAL TABLE-Summary of the Records of Temperature, Rainfall, and Sunshine for July 1979-continued LATE RETURNS AND CORRECTIONS-continued

Station	Height of Station Above M.S.L.	Air Temperatures in Degrees (Celsius)								Rainfall in Millimetres					
		Means of		Mean of A	Differ-	Absolute Maximum and Minimum				Total	No.	Differ- ence	Maximum Fall		Bright Sun- shine
		A Max.	B Min.	and B	From Normal	Maxi- mum	Date	Mini- mum	Date	Fall	Rain Days	From Normal	Amount	Date	
Christchurch, May 1979 Ophir, June 1979 Earnscleugh, June 1979 Alexandra, June 1979 Rarotonga, Airport, June 1979	Metres 7 305 152 141 7	°C 13.3 9.2 9.4 26.0	°C 4.4 -3.3 -2.0 -1.1 20.9	°C 8.9 3.6 4.2 23.5	°C -0.2 +0.8 +0.9 +1.1	°C 20.8 16.1 17.0 28.6	11 19 19 3	°C -1.6 -7.8 -6.6 -4.8 17.4	24 27 26 7 29	mm 99 2 6 4 127	15 4 10 4 20	$\begin{array}{c} mm \\ +15 \\ -23 \\ -17 \\ -16 \\ +30 \end{array}$	mm 27 1 4 3 39	5 19 19 19 20	Hrs 95 104
Raoul Island, April 1979 Raoul Island, May 1979 Totokoitu, Rarotonga, May 1979 Totokoitu, Rarotonga, June	38 38 9 9	23.3 21.6 27.0 25.5	17.5 16.4 22.1 20.9	20.4 19.0 24.6 23.2	-0.3 +0.2 	24.9 24.3 29.5 28.4	1 15 21 3	14.1 11.3 20.0 17.0	24 21 24 29	50 254 27 186	16 17 19 17	74 +109 	27 101 7 46	12 23 10 20	195 139

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.

rain 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. 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.

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WEATHER NOTES FOR JULY 1979

General—July was the fourth consecutive month with pressures above normal over the whole of New Zealand. Easterly winds were more frequent than usual in the northern areas of the country, and north-westerly winds predominated in the south. There was a marked absence of days with very strong winds. Throughout most of the country July was a mild month, and much wetter than normal in districts to the north of Bay of Plenty, and in parts of Canterbury.

Although conditions were very wet in parts of the North Island, milder than usual temperatures produced fair to good grass growth in most districts. Over the country most farmers reported that stock were wintering well and in good condition.

Rainfall-Areas with rainfall totals below normal were Hawke's Bay, Wairarapa, Taranaki, Central Districts, Manawatu, and Westland. In Manawatu only 50 percent of the normal July total was recorded. The wettest areas were Auckland, Bay of Plenty, and parts of Canterbury where the totals ranged from 40 to 75 percent above normal.

percent above normal. Heavy rain that began to fall in Northland and Auckland at the end of June continued on the 1st of July. Widespread flooding was reported in many areas, and homes were evacuated in the Auck-land district. Roads were blocked by landslips and floodwaters when streams burst their banks. More than 100 mm of rain were recorded at Albert Park, Auckland, between midnight and 9 a.m. on the 1st (40 mm from 8 a.m. to 9 a.m.), and almost 70 mm at Auched Airort in the same period Auckland Airport in the same period.

Further heavy rain began to fall in Northland during the afternoon of the 31st of July; 46 mm had been recorded at Kaitaia by midnight on that day.

Temperatures-Warmer night time temperatures were reflected Temperatures—warmer night time temperatures were reflected in the higher than normal mean temperatures for the month. Most districts were above normal by at least $\frac{1}{2}^{\circ}C_{1}$, and in South Canterbury, Otago, and Southland by more than $\frac{1}{2}^{\circ}C_{2}$. The longest cold spell was from the 6th to 10th, and during this period temperatures were unusually cold in the Auckland area. The minimum air temperature at Whenuapai on the 8th was

-2°C and at Albert Park-3°C.

Sunshine-Bay of Plenty was the only area with sunshine hours appreciably below the average for the month. Although Northland, Auckland, and Canterbury experienced a wetter month than usual, the sunshine in these districts was above normal by about 10 hours.

WEATHER SEQUENCE

The complex depression that brought heavy rain to Northland and Auckland at the end of June continued to move slowly across the country at the beginning of July. 24 hour rainfall totals of more than 100 mm were recorded in the Auckland district on the 1st.

Heavy rain was also reported in parts of Nelson, Marlborough. Waikato, and Poverty Bay as a front associated with the depression moved across New Zealand on the 1st and 2nd. A cold front moved onto the West Coast from the Tasman Sea late on the 2nd, and this brought heavy rain to parts of Fiordland and Westland, and moderate falls to areas west of the main ranges. Temperatures were warmer than normal throughout most of the country at the

beginning of the month. By the 3rd a ridge of high pressure extended onto the South Island from an anticyclone centred over Australia, and pressures were low to the north-west of the North Island. On the 4th a depression formed to the west of Northland and moved across the district, rain was reported in most areas north of the Waikato. The ridge of high pressure covered most of New Zealand by the evening of the 5th. Late on the 7th the anticyclone had moved eastwards, and this persisted until the 9th, bringing fine weather to most of the country apart from some isolated showers in Poverty Bay, Hawke's Bay, Wairarapa, Fiordland, and parts of Southland. During the morning of the 9th a cold front associated with a depression moving to the south of the country crossed onto the South Island and moved north-east. Heavy rain was reported in Fiordland, and moderate to light falls west of the main ranges in both Islands. Temperatures were cooler than usual over most of New Zealand until the 8th.

On the 10th a depression developed in the north Tasman Sea and began to move south-east towards Northland, and a ridge of high pressure extended onto the South Island from the west. The depression moved across Northland on the 11th/12th and moderate rain was reported over most areas in the North Island. Falls of 30 mm in 24 hours were recorded in Poverty Bay and parts of Bay of Plenty. By the morning of the 13th the ridge had weakened, and a cold front in the Tasman Sea had moved onto the South Island. As the front moved northwards moderate to heavy rain was reported in most districts, but lighter falls in some areas east of the ranges.

An anticyclone in the Tasman Sea moved eastwards, and by the 16th had extended a ridge of high pressure onto New Zealand. The ridge weakened on the 18th as a trough of low pressure moved onto the country from Tasmania. 24 hour rainfalls of more than 50 mm were recorded in Fiordland, Westland, and Buller with moderate falls in Southland, Waikato, and Auckland. The anti-cyclone in the Tasman Sea again moved east and was centred over New Zealand from the 20th until the 23rd. Most of the country had fine weather during this period apart from some northern districts. Temperatures were higher than normal especially on the east coasts of both Jelands

east coasts of both Islands. During the morning of the 24th the anticyclone had moved east away from New Zealand, and a trough of low pressure was moving from the Tasman Sea onto the country. A wave depression formed on a cold front and began to move towards New Zealand from the west late on the 24th. By the morning of the