

## WEATHER NOTES FOR NOVEMBER 1980

*General*—November in New Zealand was generally wetter, windier, and cooler than usual with a very high frequency of south-westerly winds.

Farmers reported reasonable stock health despite slow to moderate pasture growth. In the South Island frosts during the month caused damage to the orcharding areas, and some observers noted that it had been a poor season for whitebait.

Thunderstorms during the 4th and 5th affected western parts of the North Island from Northland to Taranaki. Hailstones to 3 cm diameter were reported in New Plymouth. In Auckland the storm disrupted power, caused faults to fire alarms, and extensive damage to orchards and vineyards.

On three separate occasions during the month heavy snow falls were recorded in the mountains of both islands, and reached low levels in Otago and Southland.

*Rainfall*—Rainfall was below average in the far north of the country, about Gisborne and Hawkes Bay, and in parts of Fiordland, but elsewhere rainfall was above the November normal. After 2 dry months in parts of Canterbury, November rainfall was over 150 percent of normal making it the wettest November south of Banks Peninsula since at least 1967.

Cape Reinga with 12 mm of rain had the second lowest November total since 1945 when 11 mm were measured. At Waingawa (Masterton) 133 mm of rain fell; this was the highest November total since 1952. It was also the wettest November in Dunedin since 1971 and in Invercargill since 1964.

The highest daily rainfalls during the month occurred along the West Coast on the 27th. The 24 hour totals (9 a.m. to 9 a.m.) for selected sites included Milford Sound (156 mm), Fox Glacier (95 mm), Whataroa (91 mm), Hari Hari (78 mm) Lake Kaniere (64 mm), Maori Gully (Dobson) (84 mm) and Bainham (82 mm).

*Temperatures*—Mean temperatures were below average over the country with areas of the South Island more than 1.5°C below their November normals. Apart from a period during the middle of the month maximum temperatures were generally below average. During a very cold spell from the 24th to 26th when some mean temperatures in the south of the country were at least 7°C below average, snow fell to low levels in parts of Otago and Southland, with fresh snow on other alpine areas of both islands.

*Sunshine*—Sunshine hours were above average in the east of the country and about Cook Strait. Elsewhere they were below average. Invercargill with 34 hours sunshine less than usual had its lowest total since 1973 when only 129 hours were recorded. Above normal sunshine occurred at Gisborne (23 hours), Kelburn, Wellington (26 hours), and Timaru (27 hours).

## WEATHER SEQUENCE DURING NOVEMBER 1980

During November the disturbed westerly conditions which prevailed during the previous 3 months continued and there were frequent changes in the weather in most areas.

A trough of low pressure accompanied by a cold front moved over the country on the 1st, bringing rain to most districts. Heavy rain fell along the West Coast with over 100 mm in 24 hours measured in some southern Westland areas. Another cold front accompanied by rain spread onto the south-west from the Tasman Sea on the 3rd, while a depression developed over the north Tasman Sea and crossed central areas of New Zealand on the 5th. Rain was widespread during this time with moderate falls reported over the North Island.

Another depression formed over the mid-Tasman Sea on the 7th and crossed the South Island on the 8th, while an associated trough of low pressure moved north-eastwards over the North Island during the 9th. Moderate falls of rain were reported over most of the country. An anticyclone near Tasmania on the 10th extended a ridge of high pressure on to southern New Zealand behind the earlier trough, and on the 12th the ridge lay north of New Zealand. A disturbed west to south-west airflow covered the country from the 12th to 19th. Cold fronts in this flow brought rain to western and southern areas on the 14th and 19th, and to most areas on the 16th, with heavy falls occurring in Fiordland.

A cold front crossed New Zealand during the 20th bringing rain to most of the South Island and to the west of the North Island. Another cold front on the 21st brought rain to the west and south of the South Island, but as it crossed the rest of New Zealand it became weak, and dry conditions were reported in the east and north of the North Island. A strong disturbed west to south-west airflow followed this front and persisted over the country until early on the 25th. Showery conditions prevailed over New Zealand during this time and local heavy falls were measured in Fiordland (22nd, 23rd), Westland (22nd, 24th), and Buller (24th).

On the 24th a trough of low pressure south-west of the country advanced over New Zealand on the 25th and 26th, and brought rain to most districts. A cold showery southerly airflow spread over the country on the 26th, but the airstream turned westerly ahead of a cold front in the Tasman Sea. The cold front crossed New Zealand on the 27th bringing rain to the country and heavy falls to the West Coast.

A depression formed south-west of the South Island on the 27th and passed over southern districts during the 28th. Its associated cold front accompanied by rain moved over the country and lay to the east by early on the 29th. During the 29th and 30th, a ridge of high pressure, from an anticyclone north of Norfolk Island, moved over New Zealand with mostly dry weather. However, a complex trough of low pressure near Lord Howe Island on the 29th moved towards central New Zealand on the 30th.

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