

LATE RETURNS AND CORRECTIONS—continued

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 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.

NOTES ON THE WEATHER FOR SEPTEMBER 1976

General—As in the previous month, the frequency of winds from an easterly quarter was unusually high for the time of the year, especially over the North Island, where it was the highest for September since 1943. This caused cloudy conditions with excessive rain in most eastern districts, especially Gisborne and Hawke's Bay, where it was the wettest September since 1943. By contrast, the weather was very dry for the second month in succession in the far southwest. In the northern half of the North Island farmers found the weather rather favourable, with good growth. On the other hand, in most eastern districts, especially in the North Island, conditions were too wet, and heavy losses of lambs were reported. West coast districts from Kawhia to Buller were battered by heavy seas on the 12th and 13th, with serious erosion in some areas, especially just north of Wellington. Small local whirlwinds caused some damage at Swanson, Auckland, on the 6th, and at Gisborne on the 27th.

Rainfall—Rainfall showed particularly large variations, ranging from a tenth of normal and less in a considerable area of Fiordland and the Southern Lakes district to more than four times the normal in parts of northern Hawke's Bay. In the North Island rainfall was mainly above normal. It was more than double the normal value over nearly the whole of Gisborne and Hawke's Bay and also in the Coromandel-Hauraki Plains area. In parts of Gisborne and northern Hawke's Bay totals of up to 580 mm were recorded, with up to 300 mm from the 6th to the 9th, causing flooding in some areas. Very heavy rain with strong to gale force easterlies affected Northland, Auckland, Coromandel, and the Hauraki Plains from the 5th to the 7th, with some flooding, especially around Auckland and Paeroa. Coromandel received 273 mm during these three days and Paeroa 219 mm. In the South Island rainfall was above normal over most of Marlborough and Canterbury. It was less than half the normal value in South Westland and Fiordland, most of the Alps with part of the Canterbury high country, most of Southland and part of Otago. Milford Sound's total of 55 mm was less than a third of the previous lowest rainfall in September, 192 mm in 1935. The rainfall there for the 110 days from 11 June to 28 September was only 608 mm, the lowest for this period in nearly 50 years of record.

Temperature—Temperatures were below normal except on the West Coast and in Nelson, and also in a few small areas in the North Island. In Canterbury and parts of Central Otago the departure amounted to 1-2 degrees C. Over a considerable part of the Canterbury Plains and South Canterbury this was the coldest September since 1943. However, in most inland areas of Canterbury it was only the coldest since 1961.

Sunshine—Sunshine was below normal by more than 30 hours east of the ranges from Gisborne to Canterbury except for the Canterbury high country. In Wairarapa, on the Kaikoura coast and in North Canterbury and parts of the Plains, it was 40-60 hours below normal. The only area with sunshine appreciably above normal was the West Coast, with a surplus of 30 hours.

WEATHER SEQUENCE

On the first two days of September an anticyclone extended over the South Island from the west and south, while pressures were low to the northeast. Very cold south-easterlies brought showers to the east coast of the North Island. However, on the following day the anticyclone covered the whole country and the weather was mainly fine.

During the 4th and 5th a depression near Lord Howe Island developed a second centre and moved slowly towards Northland. Rain developed there and in Auckland, and also in eastern districts as far south as Christchurch in the easterlies. For the next two days the depression remained almost stationary with one centre close to northern Northland and the other south-east of Lord Howe Island. Rain continued to affect much the same districts, with some very heavy falls. Flooding was reported south of Paeroa and also in parts of Coromandel and parts of Auckland city. Easterly gales and heavy seas buffeted a considerable part of the east coast of the North Island. During the 8th and 9th the complex depression was centred to the north-east of the North Island while an anticyclone was centred to the south-east of the South Island; and conditions remained fairly similar. However, the rain was lighter in the north and heavier in Hawke's Bay, causing some flooding; and light rain extended further south and west in both Islands.

On the 10th and 11th a complex depression over the mid-Tasman Sea moved slowly southward, while an anticyclone was centred far to the south. Rain was reported over the North Island and northern and western districts of the South Island. During the next two days this depression, which had now become very deep, crossed the southern part of the South Island. Rain persisted and extended eventually to the whole country, with some heavy falls in the centre of the North Island. Heavy seas buffeted the west coasts from Waikato to Buller.

From the 14th to the 22nd the depression remained centred east of the South Island and cold southerlies persisted over nearly the whole of this period. However, several troughs caused some brief variations in wind direction. Rain became lighter and rather scattered after the 14th.

On the 23rd a ridge of high pressure extended over the country from the north but a weak trough caused some scattered rain, especially in Westland and about the Gisborne ranges. During the following two days a depression remained almost stationary over the mid-Tasman Sea, while its associated trough of low pressure crossed New Zealand, with fairly general light rain. This depression soon moved north-eastward, and on the 26th and 27th the main centre was situated close to Northland while a second centre lay well east of the North Island. Rain affected mainly the North Island, with some heavy falls in Hawke's Bay. On the following day the depression moved away to the east and an extensive belt of high pressure covered New Zealand. Some rain was still reported, especially in the Gisborne district. On the 29th rain was reported mainly in far south-westerly districts of the South Island during the passage of a trough associated with a shallow depression just to the south. The last day of the month brought a cold southerly change to the South Island with showers in some of its eastern districts.

J. F. DE LISLE, Director.

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

Ministry of Works and Development—Schedule of Civil Engineering and Building Contracts of \$20,000 or More in Value

Name of Works	Successful Tenderer	Amount of Tender Accepted \$
Civil Engineering—		
Auckland Urban Motorway: Hobson Street on ramp	Ascot Construction Co. Ltd.	446,524.00
Paeroa Residency: State highway sealing 1976/77	Waikato Bitumen Co. Ltd.	265,435.29
Rotorua area: State highway second coat sealing and resealing 1976/77	Emoleum (NZ) Ltd.	87,596.37
Reseals, second coat seals and surface smoothing coats: Wanganui Residency 1976/77	J. and J. Walters Ltd.	206,172.13
S.H.3: Waiwhakaihō River bridge foundations	Frankpile New Zealand Ltd.	167,161.00
Tongariro Power Development: transport of employees	Reesby Buses Ltd.	Schedule Rates
Building—		
Invercargill Borstal: new boiler and chimney	B. and D. Engineering	25,000.00
Alterations to staff facilities Block A: Kaikorai Valley High School	Stewart Construction Ltd.	32,521.00
Napier Girls' High School: new two-storey block	Northe and Pratt Ltd.	477,846.00
Papakura Military Camp building: alterations to toilets: ablutions	Sanitation Services (NZ) Ltd.	27,407.51
Papakura Military Camp: Roller doors to workshops	D. Scandrett Construction Ltd.	27,278.00

N. C. McLEOD, Commissioner of Works.