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Autumn 2009: Cold and sunny for most places; dry in the north and wet in the south.

- **Rainfall:** Above normal in Canterbury and Otago, the lower North Island, and western Northland; below normal in central and eastern North Island and northern South Island.
- **Temperature:** Below average for most of the country, except for Southland and Fiordland where autumn temperatures were near average.
- **Sunshine:** Above normal for most of New Zealand; below normal in parts of Otago.

Autumn overall was colder than average (by between 0.5 and 1.5°C) for most of the country with the exception of Southland and Fiordland where temperatures were near average. Below average temperatures persisted for the whole period for most areas, while parts of the West Coast, coastal Fiordland, Southland and south Otago had some respite in April with warmer than average temperatures for that month. The national average temperature of 12.5 °C was 0.7 °C below average for autumn.

Autumn rainfall totals were above normal (120 – 150% of normal) in western parts of Northland, Wairarapa, Canterbury, Southern Alps and Otago. However, much of the rain in these areas occurred in May, with March and April being particularly dry for most of the country, particularly Hawke’s Bay, Tararua District, Marlborough, and north Canterbury. Areas that received below normal (between 50 and 80% of normal) rainfall for autumn were Waikato, central and eastern North Island (with the exception of Wairarapa), Tasman District and Marlborough. Severe soil moisture deficits in many eastern areas of the country eased to near normal levels by the end of May.

March and April were dominated by the slow passage of anticyclones (“highs”) coming over New Zealand from the west. In March, these highs tended to stall over the Tasman Sea resulting in more south to south-westerly air flows than normal over New Zealand, while in April they persisted to the east of the North Island resulting in more northerly air flows than normal over the country. In May, the anticyclones tended to persist over southern Australia resulting in more southerly air flows than normal over New Zealand. More depressions (“lows”) than normal passed over and to the east of New Zealand in this month, which contributed to the cold and wet conditions experienced in many eastern areas during May.

Major Highlights

- On 5–7 March, a storm crossed the upper North Island and moved down to the Bay of Plenty. Winds reached 150 km/h at Cape Reinga. The high winds, heavy rain and lightning strikes caused property damage and brought down trees and power lines. On 17 March, heavy rain caused surface flooding, landslips, and sewer overflows in Tauranga.
- Heavy rain along the West Coast resulted in flooding on 27 April. Homes were evacuated in Greymouth and roads became impassable. Trampers were stranded in the Mueller Hut in Aoraki Mt Cook National Park, and about 120 people were evacuated from the Milford Track by helicopter.
- There were several extreme events during May. Many locations received record low maximum and minimum temperatures, particularly between the 9th and the 11th and on the 21st and 22rd. Heavy rainfall resulted in flooding in south Canterbury on the 17th, and in Otago on the 18th. High winds buffeted Wellington on the 15th, 17th, 23rd, 24th, 30th and 31st. Snow fell to low levels periodically during the month and tornadoes damaged property in Warkworth on the 11th, and in Taranaki on the 17th.
- The lowest temperature during autumn was recorded at Hanmer Forest on the 12th of May, where the minimum temperature was -7.0 °C. The highest temperature for autumn was 30.5 °C recorded at Hastings on 1 March. The highest 1-day rainfall was 341 mm recorded at Mt Cook on 27 April (the highest autumn 1-day total for this location, since records began in 1928).
- Of the six main centres, Tauranga was the warmest and sunniest, Wellington the wettest, and Hamilton was the driest.

Full report

http://www.niwa.co.nz/_data/assets/pdf_file/0006/93354/sclimsum_09_autumn.pdf

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Acknowledgement of NIWA as the source is required.

MONTHLY WEATHER IN CHRISTCHURCH - AUTUMN 2009

MARCH

The weather this month was drier, but cooler than normal, with higher than normal frequency of southerly winds. The only period of notable weather was on the 10th-11th, when a disturbed southwesterly flow turned cold southerly with showery periods to the city, including some hail during the afternoon of the 11th. Light snow fell on the ranges of North Canterbury.

APRIL

This month was dominated by long periods of relatively settled weather, interspersed with a few wet spells. Temperatures varied greatly, with several summery days contrasting with some early wintry periods. Very cold southerlies affected the area on the 8th-9th, with snow flurries reported on the upper plains early on the 8th and above about 200m on Banks Peninsula (only settling on the peaks) and the Port Hills the next day, with some hail and sleet in Christchurch. A complex low pressure system crossed over on the 29th-30th, bringing rain to the city. No significant precipitation fell on any of other days of the month.

MAY

Winter definitely came early this year, with May being one of the coldest and wettest on record for Christchurch. Wave after wave of southerlies swept over the area, each one seeming to be colder than the one before. A low deep low to the east on the 10th resulted in snow to about 200 metres on the upper plains and Banks Peninsula, plus a little on the higher Port Hills and some hail and sleet in Christchurch.

There was a break in this pattern mid month, with west or northwest flows allowing for warmer spell from the 14th-17th. However, cold southerlies returned on the 18th, with the next two days bringing rain, hail, sleet, and even some snow flurries to the city. (settling above about 300 metres on the Port Hills) Conditions didn't improve until the 26th, as cold damp southerlies persisted. The southerlies rose to near gale about the peninsula and Port Hills on the 22nd and 23rd, with some heavy falls of rain.

It was dry from the 26th-30th, though temperatures remained cold. The month ended with yet another very cold southerly blast on the 31st, bringing hail, sleet and snow flurries to the city, though only light dustings settled on the Port Hills and Banks Peninsula.

NOTABLE WEATHER IN NZ - AUTUMN 2009

March and April were unsettled at times, but there were also significant settled spells. May was a different story altogether - frequent low pressure systems and southerly outbreaks resulted in it the coldest, snowiest, and in many places, the wettest in recent history.

MARCH

- 3rd - A period of thunderstorms in Waikato in afternoon.
- 4th - Overnight 1C minimum in Lumsden and 3C at Dunedin Airport. (but rising to 29C maximum there in afternoon)
- 5th - Heavy rain and northeasterly gales lash the north of the North Island. 147mm recorded in Te Puke, its second highest one day total for March. Damage caused by wind and rain, including about 13,000 homes lost power in Auckland region. Gusts up to 163 km/hr recorded at Cape Reinga, and 93 km/hr across Waitemata Harbour. Unusually warm in the far south due to foehn northeasterly, e.g. 27C maximum at Tiwai Point; 25C at Puysegur Point.
- 6th - Warm 30C maximum in Hanmer. Very warm in Northland, e.g. 27C maximum in Kaikohe (its warmest March maximum since records began in 1973), and 28C maximum in Whangarei.
- 7th - Ohakune records its warmest ever march night, after an overnight minimum of 17C. Wanganui records a warm 18C minimum at same time. Thunderstorms in western Bay of Plenty result in lightning strikes cutting power to about 74,000 households.

- 8th - Afternoon thunderstorms in Fiordland.
- 10th - Cold southerly change sweeps over South Island, with snow on hills in south.
- 11th - Unseasonably cold south to southwest flow covers NZ by end of day. Snow showers to unusually low levels on hills in parts of Otago and Southland, including higher Dunedin hill suburbs. Only 8C maximum in Queenstown; 12C at Castlepoint. Snow on North Canterbury/Kaikoura and (by evening) North Island ranges as well. Temperature drops to a wintry 5C at Takapau (inland Hawkes Bay) at 6pm.
- 12th - Chilly night minimums in areas sheltered from a continuing southwesterly flow, eg 0C at Takapau and Dannevirke, and 4C in Wairoa. Brief period of westerly gales in Hawkes Bay in afternoon; gust of 163 km/hr recorded on Takapau Plains.
- 17th - Heavy rain in western Bay of Plenty causes disruptive flooding and slips in Tauranga. A major triathlon race had to be cancelled.
- 19th - Band of heavy showers sweeps across northern North Island in morning.
- 22nd - Cold southerly flow chills east coast of South Island, with only 11C maximums in Dunedin and Christchurch, and 10C at Le Bons Bay. Morning frosts in many inland areas of South Island, e.g. -3C in Hakataramea Valley and -1C in Queenstown. (its coldest March temperature on record)
- 23rd - Cold southerly flow continues in central and eastern areas, with low maximums of 10C in Ohakune, and 13C in Hawera and Wellington.
- 24th - Another chilly start to the day in many places, e.g. only 3C minimum in Christchurch.
- 25th - Light morning frosts in Hawkes Bay and central North Island, but a warm 29C maximum in Culverden.
- 27th - Heavy rain in Fiordland and South Westland, e.g. 114mm at Milford Sound.
- 29th - 28C maximums in Ashburton and Culverden. Some fog in Waikato and central North Island. Northwesterly gales in the far south.
- 30th - 1C minimum in Waiouru.
- 31st - Only 13C maximum in Ashburton, thanks to a cool southerly.

APRIL

- 2nd - Anticyclonic conditions with clear skies result in a frosty start to the day in the central North Island. -3C in Turangi and -2C in Taumaranui are equal to the coldest April minimums for both these stations.
- 4th - Warm 27C maximum in Culverden.
- 5th - Overnight 16C minimum in Dunedin. (warmest ever for April)
- 6th - Heavy rain in Fiordland and Westland.
- 7th - Heavy rain and thunderstorms on South Island West Coast. 430mm recorded at Cropp on 5th and 6th. Warmest April night on record for Cheviot, with a 17C minimum under a northwesterly flow. However, becoming colder in the south later, with snow on the mountains.
- 8th - Cold southerlies over South Island with snow on hills and high country; brief flurries on upper Canterbury plains overnight. 20cm snow recorded at Mt Hutt; 10cm on Coronet peak and the Remarkables. Only 7C maximum in Dunedin; 8C in Queenstown and Reefton.
- 9th - Thunderstorms and hail in many parts of North Island; waterspout seen offshore from Opunaki. Snow showers on central high country, with flurries as low as Waiouru. Maximums of only 11C in Hawera, 13C in Hamilton, and 14C in Paeroa. Early morning snow showers reported to as low as 200m about Banks Peninsula and

Port Hills, and brief hail and sleet in parts of Christchurch. Icy -5C minimum at Tekapo.

- 10th - Cold morning in many places in wake of previous day's cold southerly. Record 0C minimum in Kemeu; 0C also in Hamilton, and 3C in Warkworth.
- 11th - Overnight -4C minimum in Waiouru.
- 12th - 1C minimum in Masterton.
- 14th - Warm 25C maximum in Kawerau.
- 15th - Puysegur Point reaches an unseasonably warm 20C.
- 16th - Warm 28C maximum in Alexandra and 27C in Cromwell.
- 17th - A period of heavy rain in Fiordland and South Westland. 453mm recorded at Cropp. Warm northerly flow pushes maximum to 28C in Hororata.
- 20th - Cold southerly flow in east of South Island brings light snow to the Canterbury foothills.
- 20th/21st - Some heavy rain in Gisborne and northern Hawkes Bay (e.g. 130mm at Te Puia), but not enough to ease drought conditions there. Heavy falls also on Coromandel Peninsula, e.g. 117mm in Golden Valley; 87mm in Whitianga.
- 21st - Frosty start to the day in southern South Island, e.g. -5C minimum in Middlemarch, and -6C minimum in Ranfurly. Dunedin records an April record minimum of -4C, as does Balclutha with -3C.
- 22nd - Cold overnight minimums in many southern and central places, eg -2C in Christchurch, Cheviot, and Ohakune; 0C in Paraparaumu.
- 23rd - -3C minimum in Raetihi; -2C in Middlemarch.
- 24th - -3C minimum in Ranfurly.
- 25th - Heavy rain in Northland, e.g. 72mm in Kerikeri and 115mm in Kaitiāia. (the latter's highest ever one-day April total) An unusually warm 22C maximum at Milford Sound, under a northeasterly flow.
- 26th - Heavy rain about and west of the Southern Alps, e.g. 170mm at Milford Sound. Warm northwesterlies result in 27C maximums in Alexandra, Dunedin, Timaru, and Kaikoura. Nugget Point records 25C, its highest recorded April maximum.
- 27th - Heavy rain in some northern and western areas of both islands, and Wellington. Flooding causes damage in Greymouth, with several houses having to be evacuated. Haast Pass and Punakaiki highways also closed by flooding. Trampers stranded in Mt Cook National park and on Milford Track. Cropp records 584mm in 48 hours to noon. 330mm recorded at North Egmont to 1pm. 341mm recorded at Mt Cook is the station's highest April one-day total. Takapau records its warmest ever recorded April maximum, with 26C, while Castlepoint records 24C. Overnight minimum of 19C is a April record for Darfield.
- 28th - Heavy rain continuing on Mt Taranaki. Warm 26C maximum in Napier.
- 30th - Only 9C maximums in Alexandra, Timaru, and Ashburton, under a chilly southerly flow. Arthurs Pass records only 5C, while Greymouth only reaches 10C. (its lowest April maximum ever recorded) Fresh snow on South Island mountains.

MAY

- 2nd - Frosty dawn in the south, e.g. -6C minimum in Middlemarch; -4C in Lumsden. Chilly 12C maximums in Auckland and Whitianga, under cloud and rain.
- 3rd - -5C minimum in Middlemarch; -3C in Alexandra.
- 4th - Continuing frosty in many parts of South Island, e.g. -6C minimum in Middlemarch; -3C at Christchurch Airport.

- 5th - Cold trough moving onto South Island, with snow on southern high country, including Milford Road.
- 6th - Cold southerlies spreading onto North Island, but easing over South Island. Snow on mountains and ski-fields.
- 7th-26th May - A prolonged period of stormy weather. (see details below)
- 26th/27th - Chilly 4C maximums in Alexandra.
- 28th - Cloud cover suppresses maximums in parts of South Island, e.g. only 4C maximum in Timaru, and 3C in Alexandra.
- 29th - Areas of fog about central NZ. Only 5C maximum in Murchison.
- 30 May to 1 June - Very cold southerly outbreak. (see details below)

MAJOR EVENTS

Stormy Spell - May 7th-26th

The weather from the 7th-24th May was very unsettled with frequent bouts of stormy and often very cold weather in many parts of the country. The rain, wind and snow caused disruption to many areas.

This period can be divided into three main parts:

1. Complex low pressure system 7th-13th
2. Strong west to northwest flow 14th-17th
3. Prolonged very cold southerly outbreak 18th-24th

1. Complex low pressure system 7th-13th

A trough and cold front moved onto the South Island late on the 7th, preceded by a westerly flow, and followed by colder southwesterlies. As the system crossed the rest of NZ the next day, a complex low pressure system developed over the North Island and east of the South Island with cold southerlies in its wake, bringing snow to the South Island high country.

On the 9th, the low remained to the east, with a decreasing south to southwest flow over the North Island. Meanwhile, following a weak ridge, another trough moved onto the South Island, with rain spreading to many areas during the day. Cold air resulted in snow falling to low levels in South Canterbury in the evening.

The next day, this trough (now moving onto the North Island) and the earlier low pressure system combined to form an even bigger system. Very cold southerlies over the South Island brought snow to about 200-300 metres in many eastern areas, with Le Bons bay on Banks Peninsula recorded its lowest ever recorded May maximum of 5C. In the North Island, thunder and hail affected many areas (especially in the west), while snow fell on the central high country by evening.

During the 11th and 12th, this low pressure system remained slow moving over the country, with unsettled weather continuing in many areas (though the central and northern South Island was mostly fair) A secondary low crossed the North Island during the 11th, with thunder and hail in many areas. The worst of these storms lashed the Bay of Plenty, with waterspouts visible offshore from Papamoa, while very heavy hail left a snow-like blanket in Mt Mangonui, causing damage but also some very rare opportunities for snow boarding and skiing on the beach. Snow showers continued on the central mountains and high country - not

enough to close any roads, but enough on Mt Taranaki (50cm) to open parts of its ski-field for one of the earliest openings on record.

On the 13th, the system moved away to the southeast of the South Island, leaving a westerly flow over most of NZ by the end of the day.

Mean sea-level analyses for midday NZST 7th May to midday NZST 13th May in 12 hour steps are shown here.



