

National Climate Summary - May 2010: Eastern areas extremely wet!

- **Rainfall:** Extremely wet in eastern regions of both islands, with several floods. Well below normal rainfall for the West Coast, Fiordland and Southland.
- **Soil moistures:** Now at capacity across most regions; still drier than normal in Waikato and Manawatu.
- **Temperature:** Above average in the Wairarapa, Nelson, Westland, Fiordland and around Christchurch. Generally near average elsewhere.
- **Sunshine:** Extremely cloudy for Nelson, Marlborough, coastal mid-Canterbury, Wellington, Wairarapa. Rather sunny for Westland, Fiordland, Southland, central North Island and Auckland.

May was a stormy month overall, with more lows than normal located in the Tasman Sea, and higher pressures east of the Chatham Islands. This produced more northeasterly winds than normal over New Zealand, resulting in an extremely wet month and several flood events in eastern regions. Soil moisture levels are now at capacity in most regions, but soils remain drier than normal in Waikato and Manawatu.

It was an extremely wet May in eastern regions of both Islands. Rainfalls were more than 200 percent (double) normal in Nelson, Marlborough, Canterbury and eastern Otago, Coromandel, Bay of Plenty, Hawkes Bay and coastal Wairarapa. Rainfall was also well above normal (more than 150 percent of normal) in eastern Northland and Auckland, and above normal (between 120 and 150 percent of normal) in Taranaki and Gisborne. In contrast, it was very dry on the West Coast, and in Fiordland and Southland, with less than 50 percent of normal rainfall recorded.

May temperatures were above average (between 0.5°C and 1.2°C above average) in Wairarapa, Nelson, Westland and Fiordland (showing the effects of the enhanced northeasterly winds), and around Christchurch. Temperatures were mostly near average elsewhere (within 0.5°C of the long-term average), except for small pockets of below average temperatures (between 0.5°C and 1.2°C below average) in eastern Otago. The New Zealand national average temperature was 11.3°C (+0.6°C above the 1971-2000 May average).

It was an extremely cloudy May for Nelson, Marlborough, coastal mid-Canterbury, Wellington and the Wairarapa. Sunshine totals were also below normal (between 75 and 90 percent of normal) in other parts of Canterbury, Taranaki, Bay of Plenty and Gisborne. In contrast, sunshine totals were above normal (between 110 and 125 percent of normal) for Westland, Fiordland, Southland, central North Island and Auckland.

Further Highlights:

- The highest temperature was 25.1°C, recorded at Motueka on the 13th (a new May record there).
- The lowest temperature was -5.2 °C, recorded at Windsor on the 6th (not a record).
- The highest 1-day rainfall was 153 mm, recorded at Whakatane Airport on the 24th (a new May record there).
- The highest wind gust was 146.4 km/hr, recorded at Puysegur Point on the 7th (the 3rd-equal highest gust for May at this site).
- Of the six main centres, Auckland and Tauranga were equally the warmest; Tauranga was the wettest but sunniest, Christchurch the coolest, and Hamilton the driest.

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RAINFALL: EXTREMELY WET IN EASTERN REGIONS OF BOTH ISLANDS, WITH SEVERAL FLOODS. WELL BELOW NORMAL RAINFALL FOR THE WEST COAST, FIORDLAND, AND SOUTHLAND.

It was an extremely wet May in eastern regions of both Islands, reflecting the enhanced northeasterly circulation observed during the month. Rainfalls were more than 200 percent (double) normal in Nelson, Marlborough, Canterbury and eastern Otago, Coromandel, Bay of Plenty, Hawkes Bay and coastal Wairarapa. Rainfall was also well above normal (more than 150 percent of normal) in eastern Northland and Auckland, and above normal (between 120 and 150 percent of normal) in Taranaki and Gisborne. In contrast, it was very dry on the West Coast, and in Fiordland and Southland, with less than 50 percent of normal rainfall recorded there, showing the effects of the interaction between northeasterly winds and the rain shadow of the Southern Alps.

It was the wettest May on record at Whangaparaoa, Kumeu, Whitianga, Blenheim, Timaru, Oamaru, and Dunedin, and phenomenally, May rainfall totals were more than four times the May normal at Dunedin (Airport) and Oamaru. In contrast, it was the driest May on record for Tiwai Point, Southland.

Record or near-record May rainfall totals were recorded at:

| Location | Rainfall total (mm) | Percentage of normal | Year records began | Comments |
|-------------------|---------------------|----------------------|--------------------|--------------------------|
| Kerikeri | 268 | 213 | 1981 | 2 nd -highest |
| Leigh | 245 | 286 | 1966 | 3 rd -highest |
| Whangaparaoa | 233 | 305 | 1946 | Highest |
| Kumeu | 219 | 212 | 1978 | Highest |
| Whitianga | 458 | 369 | 1961 | Highest |
| Te Puke | 311 | 274 | 1973 | 2 nd -highest |
| Whakatane | 294 | 373 | 1952 | 3 rd -highest |
| Rotorua | 285 | 261 | 1963 | 4 th -highest |
| Takapau Plains | 194 | 215 | 1962 | 2 nd -highest |
| Waipawa | 167 | 256 | 1945 | 3 rd -highest |
| Wanganui | 116 | 143 | 1987 | 2 nd -highest |
| Blenheim | 191 | 319 | 1927 | Highest |
| Hanmer Forest | 296 | 299 | 1905 | 3 rd -highest |
| Winchmore | 218 | 370 | 1909 | 3 rd -highest |
| Darfield | 190 | 322 | 1919 | 3 rd -highest |
| Lake Tekapo | 134 | 268 | 1925 | 4 th -highest |
| Orari Estate | 204 | 376 | 1897 | 2 nd -highest |
| Timaru | 150 | 341 | 1881 | Highest |
| Oamaru | 203 | 411 | 1898 | Highest |
| Dunedin (Airport) | 243 | 406 | 1918 | Highest |
| Cromwell | 72 | 192 | 1949 | 3 rd -highest |
| Reefton | 62 | 32 | 1960 | 4 th -lowest |
| Lumsden | 59 | 64 | 1982 | 4 th -lowest |
| Tiwai Point | 44 | 39 | 1970 | Lowest |

TEMPERATURES: ABOVE AVERAGE IN NELSON, WESTLAND, FIORDLAND, WAIRARAPA, AND IN CHRISTCHURCH. GENERALLY NEAR AVERAGE ELSEWHERE.

May temperatures were above average (between 0.5°C and 1.2°C above average) in Wairarapa, Nelson, Westland and Fiordland (showing the effects of the enhanced northeasterly winds), and around Christchurch. Temperatures were mostly near average elsewhere (within 0.5°C of the long-term average), except for small pockets of below average temperatures (between 0.5°C and 1.2°C below average) in eastern Otago. The New Zealand national average temperature was 11.3°C for May ¹ (+0.6°C above the 1971-2000 May average).

¹ Interim monthly value.

May mean maximum temperatures were the highest on record for Motueka (18.1°C), and May mean minimum temperatures were record high in Nelson and Orari (Canterbury), being 7.8°C and 4.6°C respectively.

Record or near-record May mean maximum daily air temperatures were recorded at:

| Location | Mean maximum air temperature (°C) | Departure from normal (°C) | Year records began | Comments |
|---------------|-----------------------------------|----------------------------|--------------------|--------------------------------|
| Leigh | 19.3 | 1.4 | 1966 | Equal highest |
| Whangaparaoa | 18.1 | 1.3 | 1982 | 3rd-highest |
| Reefton | 14.2 | 1.3 | 1960 | Equal 4 th -highest |
| Haast | 15.4 | 2.0 | 1949 | 4th-highest |
| Milford Sound | 13.7 | 1.4 | 1934 | 4th-highest |
| Motueka | 18.1 | 2.3 | 1956 | Highest |
| Woodbury | 15.7 | 1.6 | 1973 | 4th-highest |

Record or near-record May mean minimum daily air temperatures were recorded at:

| Location | Mean minimum air temperature (°C) | Departure from normal (°C) | Year records began | Comments |
|---------------|-----------------------------------|----------------------------|--------------------|-------------|
| Kaikohe | 11.8 | 1.4 | 1973 | 2nd-highest |
| Martinborough | 6.9 | 1.5 | 1986 | 4th-highest |
| Ngawi | 11.2 | 1.1 | 1972 | 4th-highest |
| Farewell Spit | 10.6 | 2.4 | 1971 | 3rd-highest |
| Lake Rotoiti | 3.2 | 1.8 | 1965 | 3rd-highest |
| Haast | 8.3 | 2.1 | 1949 | 2nd-highest |
| Motueka | 6.1 | 1.9 | 1956 | 2nd-highest |
| Nelson | 7.8 | 1.7 | 1943 | Highest |
| Blenheim | 6.8 | 1.6 | 1941 | 4th-highest |
| Cape Campbell | 10.4 | 3.4 | 1953 | 3rd-highest |
| Culverden | 4.1 | 1.9 | 1928 | 3rd-highest |
| Cheviot | 4.1 | 1.2 | 1982 | 2nd-highest |
| Darfield | 5.9 | 2.1 | 1939 | 3rd-highest |
| Orari Estate | 4.6 | 2.1 | 1972 | Highest |
| Timaru | 5.8 | 2.6 | 1885 | 2nd-highest |
| Alexandra | 2.4 | 1.6 | 1983 | 4th-highest |

SUNSHINE: EXTREMELY CLOUDY IN NELSON, MARLBOROUGH, COASTAL MID-CANTERBURY, WELLINGTON AND THE WAIRARAPA; SUNNY IN WESTLAND, FIORDLAND, SOUTHLAND, CENTRAL NORTH ISLAND AND AUCKLAND.

It was an extremely cloudy May for Nelson, Marlborough, coastal mid-Canterbury, Wellington and the Wairarapa. Sunshine totals were also below normal (between 75 and 90 percent of normal) in other parts of Canterbury, Taranaki, Bay of Plenty and Gisborne. In contrast, sunshine totals were above normal (between 110 and 125 percent of normal) for Westland, Fiordland, Southland, central North Island and Auckland.

Record or near-record May sunshine hours were recorded at:

| Location | Sunshine (hours) | Percentage Of normal | Year records began | Comments |
|---------------|------------------|----------------------|--------------------|-------------------------|
| Martinborough | 95 | 71 | 1986 | 2 nd -lowest |
| Takaka | 127 | 78 | 1985 | Lowest |
| Blenheim | 119 | 69 | 1947 | Lowest |

MAY CLIMATE IN THE SIX MAIN CENTRES

Of the six main centres, Auckland and Tauranga were equally the warmest; Tauranga was the wettest but sunniest, Christchurch the coolest, and Hamilton the driest. It was a relatively warm and extremely wet May in most of the main centres. Sunshine totals were near normal in Auckland, Tauranga and Hamilton, but it was a very cloudy May in Wellington and Christchurch. In contrast, it was quite sunny in Dunedin.

May 2010 main centre climate statistics:

| Location | Mean temp. (°C) | Departure from normal (°C) | | Rainfall (mm) | % of normal | | Sunshine (hours) | % of normal | |
|---------------------------|-----------------|----------------------------|---------------|---------------|-------------|-------------------|------------------|-------------|-------------------|
| Auckland ^a | 13.9 | +0.1 | Near average | 166 | 162% | Well above normal | 138 | 100% | Near normal |
| Tauranga ^b | 13.9 | +1.1 | Above average | 254 | 286% | Well above normal | 155 | 95% | Near normal |
| Hamilton ^c | 11.9 | +0.6 | Above average | 120 | 114% | Near normal | 125* | 95% | Near normal |
| Wellington ^d | 11.9 | +0.4 | Near average | 209 | 179% | Well above normal | 92 | 72% | Well below normal |
| Christchurch ^e | 9.4 | +0.5 | Above average | 164 | 313% | Well above normal | 110 | 78% | Below normal |
| Dunedin ^f | 9.8 | +0.5 | Above average | 160 | 229% | Well above normal | 117 | 117% | Above normal |

^a Mangere ^b Tauranga Airport ^c Hamilton Airport ^d Kelburn ^e Christchurch Airport ^f Musselburgh ^g Ruakura

*3 hours of sunshine data missing; estimated monthly total

HIGHLIGHTS AND EXTREME EVENTS

• Heavy rain, slips and flooding

The highest 1-day rainfall in May was 153 mm, recorded at Whakatane on the 24th (a new May record there).

On 10 May, the Awatuna and Waimea Creeks burst their banks, isolating Stafford Township, north of Hokitika, and flooding property.

On 13 May, heavy rain caused flooding in Rotorua.

On 16 May, Tapawera, south of Motueka, was flooded, with 22 families evacuated, some by helicopter. The Motueka River, and its tributaries, the Wangapeka and Baton Rivers, flooded over farmland, and closed roads, including Motueka Valley Highway, closed by a landslide.

On 21 May, heavy rain caused sewage to spill into Whangarei Harbour.

Heavy rain on 24 May caused severe flooding on Main North Road on the outskirts of Christchurch, and forced the closure of Willowbank Wildlife Reserve. Six kiwi were moved from the flooded nocturnal house. Flooding also occurred in the Bay of Plenty, with the evacuation of one family in Whakatane, and the main road between Whakatane and Ohope blocked by a large slip.

Flooding occurred in Tawa and Titahi Bay (near Wellington) after heavy rain on 25 May, with one person rescued from a submerged car. Further south, several properties and businesses in Richmond, north of Oamaru, were evacuated, a property in York Street Oamaru was evacuated, as was the Oamaru Camping Ground. Schools in Oamaru were closed, as was the freezing works. The Kakanui Bridge, 14 km south of Oamaru, was closed at 7 pm. SH1 north of Oamaru was closed at Waitaki Bridge, and at the SH83 junction, with no detours available. Its intersection with SH82 was closed, and SH82 and SH83 were also closed. South of Oamaru, SH1 was closed at Maheno, open at Hampden, but closed at Palmerston and Cherry Farm. The detour through Kurow was closed about 7 pm because of flooding at Georgetown and Duntroon. Many local roads were also flooded. Rural school bus services in North Otago and Waimate were cancelled, and rural schools in North Otago were all closed. In Dunedin City, sports grounds and some roads were closed by minor flooding, and a large slip closed Highcliff Road on Otago Peninsula. The heavy rain also caused problems with sewage back-up, resulting in the occupants of one house being evacuated, several other properties cleared, and pupils from Northeast Valley Normal School, and students and staff at the Otago Polytechnic Manaaki Student Centre, being sent home. The Temuka River flooded in parts, with low lying areas and some roads on its southern side under water. At Ardmore Airport, Auckland, the heavy rain caused a drain to collapse, exposing an old ammunition dump, fortunately only old shells and casings. In Napier, central city businesses were flooded, damaging stock in some cases.

On 26 May, the Avon River burst its banks causing minor flooding in Christchurch. Heavy rain resulted in a rock fall that blocked the entrance to Ngai Tahu Maori Rock Art site, near SH83 south of Duntroon, but fortunately did not damage the art. Construction work on a section of the Manuka Gorge, SH8 between Milton and Lawrence, was halted temporarily when the Manuka Stream flooded.

On 27 May, the inland road between Waiau and SH1, south of Kaikoura, was closed after heavy rain washed out the road at Lulu's Creek. Telephone links were lost in the Mt Terako and Whalesback area, near Mt Lyford.

On 28 May, residents in Aln Street, Oamaru were evacuated for one night after a landslip caused by saturated soil. Flooding also occurred in Henley on the Taieri Plains. The Danseys Pass Coach Inn manager and his young sons spent two days trapped in the Inn after heavy rain washed out part of the access road, and snow blocked the alpine route. A rough track past the washed-out section was cleared on 30 May.

On 29 May, heavy rain in Napier caused a large slip on Faraday Street, forcing the evacuation of seven residents, who were allowed home on the 30th after the road was re-opened. In other parts of Napier, surface flooding was up to a metre deep. Water schemes supplying several parts of Waitaki district were closed after contamination at their intakes. Affected areas included Palmerston, Awamoko, Dunback, Hampden/Moeraki, Herbert/Waianakarua, Lower Waitaki, Goodwood, and Kauru Hill. In north Otago, a landslip and other slumps also occurred in Moeraki, but affected properties were unoccupied. In Dunedin, land movement resulting from the heavy rain burst a water main, cutting supplies to MacAndrew Bay and Company Bay for several hours.

On 30 May, a major slip north of Macandrew Bay blocked Portobello Road on the Otago Peninsula between Castlewood Road and Broad Bay.

Record or near record high extreme 1-day rainfall totals were recorded at:

| Location | Extreme 1-day rainfall (mm) | Date of extreme rainfall | Year Records Began | Comments |
|-------------------|-----------------------------|--------------------------|--------------------|-------------|
| Leigh | 80 | 20th | 1967 | 3rd-highest |
| Warkworth | 96 | 20th | 1967 | 3rd-highest |
| Whangaparaoa | 81 | 20th | 1946 | 2nd-highest |
| Kumeu | 66 | 20th | 1978 | 2nd-highest |
| Whitianga | 109 | 20th | 1961 | 2nd-highest |
| Whakatane | 153 | 24th | 1952 | Highest |
| Rotorua | 113 | 24th | 1964 | 3rd-highest |
| Takapau Plains | 71 | 24th | 1962 | 2nd-highest |
| Dannevirke | 50 | 24th | 1951 | 4th-highest |
| Castlepoint | 95 | 24th | 1907 | 3rd-highest |
| Waipawa | 75 | 24th | 1945 | Highest |
| Hanmer Forest | 105 | 25th | 1905 | 3rd-highest |
| Winchmore | 61 | 25th | 1927 | 3rd-highest |
| Darfield | 73 | 25th | 1919 | 3rd-highest |
| Woodbury | 108 | 27th | 1973 | Highest |
| Orari Estate | 73 | 25th | 1897 | 4th-highest |
| Timaru | 54 | 25th | 1881 | 4th-highest |
| Oamaru | 71 | 24th | 1898 | 3rd-highest |
| Dunedin (Airport) | 79 | 28th | 1918 | Highest |
| Balclutha | 40 | 25th | 1964 | 3rd-highest |

• **Temperature**

The highest May temperature was 25.1°C, recorded at Motueka on the 13th (a new May record there). On the same day, Leigh and Cheviot also broke long-standing maximum temperature records for May, with 23.5°C and 25.0°C recorded, respectively. In contrast, maximum temperatures were extremely low on the 27th and 28th of the month in many eastern South Island locations.

Record or near-record daily maximum air temperatures were recorded at:

| Location | Extreme maximum temperature (°C) | Date of extreme temperature | Year Records Began | Comments |
|----------------|----------------------------------|-----------------------------|--------------------|-------------------|
| Kerikeri | 22.5 | 13th | 1981 | Equal 3rd-highest |
| Leigh | 23.5 | 13th | 1966 | Highest |
| Whangaparaoa | 21.8 | 13th | 1982 | Equal highest |
| Port Taharoa | 23.3 | 10th | 1973 | 2nd-highest |
| Wanganui | 22.4 | 13th | 1987 | Equal 2nd-highest |
| Puysegur Point | 19.6 | 6th | 1978 | 2nd-highest |
| Motueka | 25.1 | 13th | 1956 | Highest |
| Cheviot | 25.0 | 13th | 1982 | Highest |
| Woodbury | 25.0 | 7th | 1973 | 3rd-highest |
| Kumeu | 13.2 | 20th | 1978 | Equal 4th-lowest |
| Pukekohe | 11.2 | 20th | 1972 | 4th-lowest |
| Takaka | 8.8 | 27th | 1978 | Lowest |
| Farewell Spit | 10.5 | 28th | 1972 | Equal lowest |
| Puysegur Point | 7.0 | 27th | 1978 | Lowest |
| Blenheim | 7.6 | 28th | 1972 | 3rd-lowest |
| Hanmer Forest | 2.1 | 28th | 1972 | Equal 3rd-lowest |
| Arthurs Pass | 0.2 | 27th | 1973 | 2nd-lowest |
| Cheviot | 6.6 | 27th | 1982 | Equal 4th-lowest |
| Winchmore | 5.1 | 27th | 1928 | Equal 2nd-lowest |
| Waipara West | 5.7 | 27th | 1973 | 3rd-lowest |
| Darfield | 5.2 | 27th | 1954 | 3rd-lowest |

The lowest May temperature was -5.2 °C, recorded at Windsor on the 6th (not a record).

Record or near-record daily minimum air temperatures were recorded at:

| Location | Extreme minimum temperature (°C) | Date of extreme temperature | Year Records Began | Comments |
|---------------|----------------------------------|-----------------------------|--------------------|-------------------|
| Whakatane | 17.0 | 13th | 1975 | Equal 4th-highest |
| Port Taharoa | 16.9 | 13th | 1974 | 4th-highest |
| Martinborough | 15.7 | 13th | 1986 | 3rd-highest |
| Milford Sound | 13.0 | 26th | 1935 | Equal highest |
| Waipara West | 15.3 | 7th | 1973 | 4th-highest |
| Darfield | 13.7 | 7th | 1954 | 3rd-highest |

• **High winds and tornadoes**

The highest wind gust in May was 146.4 km/hr, recorded at Puysegur Point on the 7th (the 3rd-equal highest gust for May at this site).

Gales on 13 May damaged property, downed trees and caused power outages in Westport, Greymouth, Hokitika and Kumara. In Blaketown, a shed was dumped on a house roof, and in Cobden, a trampoline was blown over two houses and on to power lines. In South Westland, the quarterly Whataroa court sitting was cancelled, and Whataroa, Ross, and Kokatahi-Kowhitirangi schools were closed because of the power cuts. The Hokitika Aero Club lost its roof, a plane parked on the tarmac was spun around in the wind, and nearby property was damaged.

On 14 May, small tornadoes were reported between Oakura and New Plymouth. Power was cut to the Oakura area, some properties suffered structural damage, and shelter belts were flattened.

On 18 May, a tornado was reported above Rotorua airport.

Near-record high extreme wind gusts for May were recorded at:

| Location | Extreme wind gust speed (km/hr) | Date of extreme gust | Year Records Began | Comments |
|----------------|---------------------------------|----------------------|--------------------|-------------------|
| Castlepoint | 139 | 3rd | 1972 | Equal 4th-highest |
| Westport | 113 | 13th | 1973 | 2nd-highest |
| Hokitika | 117 | 13th | 1972 | 2nd-highest |
| Puysegur Point | 146 | 7th | 1986 | Equal 3rd-highest |

• **Snow and ice**

On 27 May, snow closed SH87 between Middlemarch and Outram, SH85 between Palmerston and Kyeburn, and Porters Pass in Canterbury. Lee Stream School, near Outram, was also closed.

The Lindis Pass was closed by snow on 28 May, and the Lewis Pass closed to towing vehicles.

On 29 May the Crown range road was closed by snow. SH8 between Fairlie and Twizel was also covered in snow and closed to towing vehicles.

• **Lightning and hail**

On 14 May, thunder and lightning struck Taranaki, with surface flooding from the associated heavy rain.

On 15 May, lightning in the Bay of Plenty split a tree into four sections in Te Puke, and activated alarms in

Tauranga. In Auckland a violent thunderstorm caused surface flooding, blew down trees, uplifted roofing tiles, and also generated a tornado.

On 17 May, MetService reported 118 lightning strikes between 4.14 pm and 7.50 pm in the Whangarei area.

- **Fog**

On 14 May, widespread fog across the lower South Island led to the cancellation of flights in and out of Invercargill Airport at both ends of the day.

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