

**National Climate Summary – September 2011: Dry, sunny and cool start to spring**

- **Rainfall: Less than half of normal in Bay of Plenty, Gisborne, the West Coast, and Mackenzie country. Generally dry elsewhere, except for Auckland, central Otago and coastal Southland. Driest September on record for Whakatane.**
- **Sunshine: Extremely sunny for North Island, and north and east of South Island.**
- **Temperatures: Below average over North Island, also for Nelson, Marlborough, West Coast, Coastal Fiordland, south Canterbury. Near average elsewhere.**
- **Soil moisture: Already below normal for this time of year in north Canterbury, Mackenzie country and central Otago, as well as parts of the North Island.**

September 2011 was characterised by higher pressures than usual over the Tasman Sea and lower pressures to the south and east of the country. This pressure pattern produced more southwest winds than normal over New Zealand.

It was a very dry month for most regions. Less than half of normal September rainfall was recorded in Bay of Plenty, Gisborne, on the West Coast, and in the Mackenzie country. It was the driest September on record for Whakatane. It was generally very dry elsewhere, with below normal rainfall (between 50 and 79 percent of September normal). The only exceptions were coastal Southland (where rainfall totals between 120 and 149 percent of September normal were recorded), and Central Otago and Auckland (where near normal rainfall was experienced). Soil moisture levels are already below normal for this time of year in north Canterbury, Mackenzie country and central Otago, as well as parts of the North Island.

September sunshine totals were well above normal (more than 125 percent of normal) across much of the North Island, and the north and east of the South Island. It was the sunniest September on record for Dargaville, New Plymouth, Tauranga, Dannevirke, Gisborne, Waipawa, Takaka, and Cheviot. For the remainder of the country, it was also a rather sunny September (with sunshine totals between 110 and 125 percent of normal). The only exceptions were Fiordland and Southland, which experienced close to normal September sunshine hours.

Mean temperatures well below average (between 1.2°C and 0.5°C below September average) across much of the North Island (with the exceptions of Coromandel, and parts of Auckland, Taranaki and Wanganui, where near average temperatures were recorded), as well as for most of Nelson and Marlborough, along the West Coast, coastal Fiordland, and south Canterbury. In north Canterbury, Southland and Otago, temperatures were close to average (within 0.5°C of September average).

The average temperature in September 2011 was 9.7°C (0.7°C below the 1971–2000 September average) using NIWA's seven-station temperature series which begins in 1909.

**Further Highlights:**

- The highest temperature was 22.3°C, observed at Hanmer Forest on 30 September.
- The lowest temperature recorded was -6.1°C at Pukaki Aerodrome on 14 September.
- The highest 1-day rainfall experienced was 98 mm recorded at Milford Sound on 10 September.
- The highest gust recorded was 126 km/hr at Castlepoint on 1 September.
- Of the six main centres in September 2011, Auckland was the warmest and wettest, Christchurch the coldest and driest, and Tauranga the sunniest.

**For further information, please contact:**

**Ms Georgina Griffiths – Climate Scientist– NIWA National Climate Centre, Auckland,**  
**Tel. (09) 375 4506 (office) or (027) 293 6545 (mobile)**

**Dr Andrew Tait – Climate Scientist – NIWA National Climate Centre, Wellington,**  
**Tel. (04) 386 0562 (office) or (027) 327 7948 (mobile)**

**PRECIPITATION: LESS THAN HALF OF NORMAL IN BAY OF PLENTY, GISBORNE, WEST COAST AND MACKENZIE COUNTRY. GENERALLY VERY DRY ELSEWHERE, EXCEPT FOR AUCKLAND, CENTRAL OTAGO AND COASTAL SOUTHLAND.**

Less than half of normal September rainfall was recorded in Bay of Plenty, Gisborne, on the West Coast, and in the Mackenzie country. It was the driest September on record for Whakatane. It was generally very dry elsewhere, with below normal rainfall (between 50 and 79 percent of September normal). The only exceptions were coastal Southland (where rainfall totals between 120 and 149 percent of September normal were recorded), and Central Otago and Auckland (where near normal rainfall was experienced). Soil moisture levels are already below normal for this time of year in north Canterbury, Mackenzie country and central Otago, as well as parts of the North Island.

**Record or near-record September rainfall totals were recorded at:**

Location	Rainfall total (mm)	Percentage of normal	Year records began	Comments
Kerikeri	63	34	1981	4th-lowest
Leigh	46	44	1966	3rd-lowest
Whitianga	63	38	1961	3rd-lowest
Whakatane	31	34	1952	Lowest
Rotorua	46	40	1963	4th-lowest
Stratford	67	39	1960	3rd-lowest
Wanganui	33	46	1987	2nd-lowest
Hokitika	104	42	1963	3rd-lowest

**SUNSHINE: EXTREMELY SUNNY OVER MOST OF NORTH ISLAND, AS WELL AS NORTH AND EAST OF SOUTH ISLAND.**

September sunshine totals were well above normal (more than 125 percent of September normal) across much of the North Island, and the north and east of the South Island. It was the sunniest September on record for Dargaville, New Plymouth, Tauranga, Dannevirke, Gisborne, Waipawa, Takaka, and Cheviot. For the remainder of the country, it was also a rather sunny September (with sunshine totals between 110 and 125 percent of normal). The only exceptions were Fiordland and Southland, which experienced close to normal September sunshine hours (between 90 and 110 percent of September normal). No part of New Zealand experienced below normal sunshine hours in September 2011.

**Record or near-record September sunshine hours were recorded at:**

Location	Sunshine (hours)	Percentage Of normal	Year records began	Comments
Dargaville	198	129	1943	Highest
Te Kuiti	176	149	1962	2nd-highest
New Plymouth	202	127	1972	Highest
Tauranga	231	140	1933	Highest
Dannevirke	202	157	1963	Highest
Martinborough	197	129	1986	4th-highest
Gisborne	242	140	1905	Highest
Waipawa	247	168	1945	Highest
Stratford	167	126	1963	4th-highest
Takaka	234	135	1985	Highest
Nelson	250	135	1948	2nd-highest
Appleby	247	133	1948	3rd-highest
Cheviot	223	152	1983	Highest
Dunedin	190	149	1947	3rd-highest
Balclutha	190	141	1964	2nd-highest

**TEMPERATURE: BELOW AVERAGE OVER MUCH OF NORTH ISLAND, ALSO FOR NELSON, MARLBOROUGH, THE WEST COAST, COASTAL FIORDLAND AND SOUTH CANTERBURY. NEAR AVERAGE ELSEWHERE.**

Mean temperatures well below average (between 1.2°C and 0.5°C below September average) across much of the North Island (with the exceptions of Coromandel, and parts of Auckland, Taranaki and Wanganui, where near average temperatures were recorded), as well as for most of Nelson and Marlborough, along the West Coast, coastal Fiordland, and south Canterbury. In north Canterbury, Southland and Otago, temperatures were close to average (within 0.5°C of September average).

The average temperature in September 2011 was 9.7°C (0.7°C below the 1971–2000 September average) using NIWA’s seven-station temperature series which begins in 1909<sup>1</sup>.

During the month of September, mornings were particularly cold (see minimum temperatures below), notably for eastern and central parts of the North Island. Mean minimum temperatures were the lowest on record for September in Masterton, Takapau Plains, Martinborough, Wairoa and Waipawa (all North Island eastern sites), as well as for Motueka, Hanmer Forest, Orari and Timaru.

**Record or near-record September mean minimum air temperatures were recorded at:**

Location	Mean minimum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Kaitaia	8.2	-1.0	1985	3rd-lowest
Kerikeri	6.7	-1.5	1981	4th-lowest
Leigh	9.1	-1.4	1966	4th-lowest
Warkworth	6.6	-2.7	1966	4th-lowest
Whangaparaoa	9.0	-1.3	1982	3rd-lowest
Whakatane	4.8	-1.6	1974	3rd-lowest
Rotorua	3.6	-2.3	1964	2nd-lowest
Taupo	2.3	-1.9	1949	3rd-lowest
Hamilton (Ruakura)	3.9	-2.6	1906	4th-lowest
Te Kuiti	4.6	-2.0	1959	2nd-lowest
Taumarunui	3.4	-2.0	1947	3rd-lowest
Masterton	1.7	-3.7	1906	Lowest
Takapau Plains	3.0	-2.5	1962	Lowest
Dannevirke	3.8	-2.3	1951	2nd-lowest
Martinborough	2.8	-3.1	1986	Lowest
Hicks Bay	8.0	-1.4	1969	4th-lowest
Gisborne	4.9	-1.9	1905	4th-lowest
Napier	4.6	-1.9	1870	2nd-lowest
Hastings	3.8	-2.5	1965	3rd-lowest
Waipawa	2.2	-3.1	1945	Lowest
Wairoa	4.4	-2.5	1964	Lowest
Wallaceville	3.5	-2.5	1939	2nd-lowest
Waiouru	0.4	-1.9	1962	2nd-lowest
Takaka	3.4	-2.3	1978	3rd-lowest
Lake Rotoiti	0.2	-1.3	1965	3rd-lowest
Motueka	2.2	-2.6	1956	Lowest
Appleby	2.9	-3.0	1943	2nd-lowest
Blenheim	2.3	-2.5	1932	3rd-lowest
Hanmer Forest	-1.3	-3.1	1906	Lowest

<sup>1</sup> Interim monthly value.

Arthurs Pass	-0.1	-2.2	1973	3rd-lowest
Cheviot	2.2	-1.6	1982	2nd-lowest
Winchmore	1.7	-2.1	1928	4th-lowest
Orari	1.4	-1.7	1972	Lowest
Timaru	0.6	-2.3	1990	Lowest

Afternoon (maximum) temperatures were well down in September at a handful of sites, most notably at Greymouth, which experienced the coldest September mean maximum temperature there since records began in 1947.

**Record or near-record September mean maximum air temperatures were recorded at:**

Location	Mean maximum air temperature (°C)	Departure from normal (°C)	Year records began	Comments
Leigh	17.6	1.4	1966	3rd-highest
Cheviot	15.3	0.4	1982	3rd-highest
Hamilton (Ruakura)	14.4	-1.7	1906	2nd-lowest
Greymouth	12.3	-1.8	1947	Lowest
Puysegur Point	10.6	-1.2	1978	3rd-lowest

**SEPTEMBER CLIMATE IN THE SIX MAIN CENTRES**

For all of the six main centres, September 2011 was very dry, and extremely sunny. Wellington, Tauranga and Dunedin experienced near average temperatures in September, but Auckland, Hamilton and Christchurch recorded below average temperatures. Of the six main centres, Auckland was the warmest and wettest, Christchurch the coldest and driest, and Tauranga the sunniest.

**September 2011 main centre climate statistics:**

Location	Mean temp. (°C)	Departure from normal (°C)		Rainfall (mm)	% of normal		Sunshine (hours)	% of normal	
Auckland <sup>a</sup>	12.1	-0.8	Below average	76	71%	Below normal	185	124%	Above normal
Tauranga <sup>b</sup>	11.6	-0.4	Near average	37	36%	Well below normal	231	140%	Highest in September
Hamilton <sup>c</sup>	10.2	-0.9	Below average	61	57%	Below normal	186 <sup>g</sup>	128%	Well above normal
Wellington <sup>d</sup>	10.2	-0.4	Near average	63	62%	Below normal	204	130%	Well above normal
Christchurch <sup>e</sup>	8.4	-0.9	Below average	21	47%	Well below normal	197	120%	Above normal
Dunedin <sup>f</sup>	9.3	0.0	Average	26	49%	Well below normal	190	147%	3rd highest in September

<sup>a</sup> Mangere <sup>b</sup> Tauranga Airport <sup>c</sup> Hamilton Airport <sup>d</sup> Kelburn <sup>e</sup> Christchurch Airport <sup>f</sup> Musselburgh <sup>g</sup> Ruakura

## HIGHLIGHTS AND EXTREME EVENTS

- **Snow and ice**

On 13 September, snow warnings were issued for SH87 from Outram to Middlemarch, and SH94 from Te Anau to Milford Sound.

On 14 September, snow closed SH8 at the Lindis Pass from Tarras to Omarama, and SH73 from Arthurs Pass to Otira to towing vehicles, and chains were required by other vehicles.

Snow affected SH94 from Te Anau to Milford Sound on 15 September, with all vehicles required to carry chains. Heavy snow closed Danseys Pass, with extreme care required on roads around Poolburn, Oturehua, St Bathans and Naseby.

On 20 September, the Desert Road was closed by snow for a short time.

- **Rain and slips**

The highest 1-day rainfall experienced in September 2011 was 98 mm recorded at Milford Sound on 10 September. There were no record high 1-day rainfalls during September.

On 6 September, another slip came down on SH3 through the Manawatu Gorge, extending the closed period.

- **Temperatures**

The highest temperature recorded in September 2011 was 22.3°C, observed at Hanmer Forest on 30 September. The lowest temperature observed was -6.1°C at Pukaki Aerodrome on 14 September.

### **Record or near-record daily maximum air temperatures for September were recorded at:**

Location	Extreme maximum temperature (°C)	Date of extreme temperature	Year Records Began	Ranking
Manapouri	21.0	30th	1963	2nd-highest
Greymouth	8.9	25th	1972	3rd-lowest

### **Record or near-record daily minimum air temperatures for September were recorded at:**

Location	Extreme minimum Temperature (°C)	Date of extreme temperature	Year records began	Ranking
Whangaparaoa	6.1	26th	1982	4th-lowest
Te Puke	-0.2	3rd	1973	3rd-lowest
Castlepoint	2.0	14th	1972	3rd-lowest
Waipawa	-2.9	3rd	1945	Equal 3rd-lowest
Takaka	-1.8	3rd	1978	3rd-lowest

- **Wind**

The highest gust recorded during September 2011 was 126 km/hr observed at Castlepoint on the 1st.

On 11 September, a tornado swept through the Auckland suburbs of Avondale and Te Atatu South, damaging homes, felling trees and downing power lines. The NIWA electronic climate station at Albany was also damaged. In the Hauraki Gulf, savage wind gusts caused problems for yachts in the Simrad 100 race, snapping masts and causing one yacht to run aground. Hawera recorded its highest September gust (98 km/hr) on the 11th, in records that began in 1986.

On 13 September, wind warnings were issued for SH87 from Outram to Middlemarch, SH85 from Kyburn to Palmerston, SH8 from Lawrence to Milton, SH1 from Gore to Waiholā, and SH90 from McNab to Raes Junction.

Wind warnings were issued on 14 September for roads in Taranaki, Waikato, Auckland, Coromandel Peninsula, and western Bay of Plenty. A tornado in Pehiri Valley, inland from Gisborne, damaged property and uprooted trees.

On 16 September, wind warnings were issued for SH1 between Gore and Waihola.

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

Location	Extreme wind gust speed (km/hr)	Date of extreme gust	Year records began	Comments
Kaikohe	89	20th	1986	4th-highest
Napier	96	10th	1973	4th-highest
Hawera	98	11th	1986	Highest

• **Lightning and hail**

On 11 September, lightning hit property and power lines in the Auckland suburbs of Te Atatu South and Avondale, cutting power to some properties.

A lightning storm swept across Wellington city on 13 September, with the accompanying marble-sized hail blanketing the ground, making some roads impassable. Several flights into Wellington were cancelled or delayed. About 900 homes in Eastbourne, Days Bay, and Evans Bay lost power for a few hours. In the Wairarapa, sleet and snow fell briefly. A separate storm brought hail to Gisborne on the same day.

On 19 September, a very-localised, intense hailstorm was reported in Renwick, with small hail covering the ground, looking like snow. Lightning disrupted some telephone and television services.

On 20 September, another hail storm struck Wellington.

On 25 September, a hail storm coated some steep Dunedin streets, creating havoc for motorists.

**For further information, please contact:**

**Ms Georgina Griffiths – Climate Scientist– NIWA National Climate Centre, Auckland,**

**Tel. (09) 375 4506 (office) or (027) 293 6545 (mobile)**

**Dr Andrew Tait – Climate Scientist – NIWA National Climate Centre, Wellington,**

**Tel. (04) 386 0562 (office) or (027) 327 7948 (mobile)**

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