Greater Wellington
Te Pane Matua Taiao

Climate drivers and seasonal outlook for the Wellington Region

Winter 2025 summary

Spring 2025 outlook

Release date: 15 September 2025

Knowledge and Insights

On 7 August, an approaching fierce westerly front created a magnificent display of lenticular clouds seen all over the Wairarapa. The front was followed by a very strong polar wave, with widespread snow down to 600 m and a good white dusting all over the Tararua Range. Photo credit: GWRC, taken at about 1pm on 7 August 2025 by the Martinborough rugby field.

Overview

Winter 2025

Winter 2025 was mostly mild and wet during June and July, especially west of the ranges with well above average rainfall for Wellington and the Kapiti Coast. July was the 3rd warmest on record for Wellington. This pattern, however, abruptly shifted to below average temperatures in August, with the incursion of quite a long fetch of southerly flow bringing Antarctic air directly over New Zealand. This meant that the season finished under a more normal (proper) winter flow, with a good snow dusting over the hills, and severe frosts across the region. Overall, the seasonal temperatures ended up being slightly above average, with rainfall well above average west of the ranges and slightly below average in the Wairarapa.

Climate drivers

Although the climate drivers have been mostly neutral, the oceanic waters around New Zealand remain warmer than normal and prone to marine heatwaves. ENSO is expected to remain borderline between neutral and La Niña, impacting on the synoptic flow from October onwards. In alignment with this, the Indian Ocean Dipole is expected to remain mostly negative for the remainder of the year.

Climate outlook for the rest of spring

Most international climate models are predicting a strong westerly flow in September, eventually changing to an easterly flow from October onwards, as a weak La Niña signature develops. As such, the Wairarapa is expected to develop drier than normal conditions initially, eventually reverting to a wet signal on the east coast going into summer. Temperatures are expected to be around the long-term average in September, progressively increasing to above average as La Niña develops. Considering the overall climate drivers, the risk of a major drought is currently low for the remainder of the year. For Wellington and west of the ranges area, rainfall is expected to be around average or slightly above.

Contents

Overview **i**
Winter 2025 i
Climate drivers i
Climate outlook for the rest of spring i

1. Climate drivers **1**
1.1 El Niño – Southern Oscillation (ENSO) 1
1.2 Sea Surface Temperature (SST) anomalies 1
1.3 Southern Annular Mode (SAM) 2

2. Seasonal variability and outlook **4**
2.1 Trend analysis 4
2.2 Seasonal Outlook 7

Appendix 1 – Seasonal temperature and wind anomalies for selected stations **8**

Appendix 2 – Seasonal anomaly maps relative to the long-term average (1991-2020) **9**

1. Climate drivers

1.1 El Niño – Southern Oscillation (ENSO)

The ensemble projections of the Australian climate model below show that the ENSO event is predicted to remain mostly within the neutral range during spring but tending towards a La Niña signature overall.

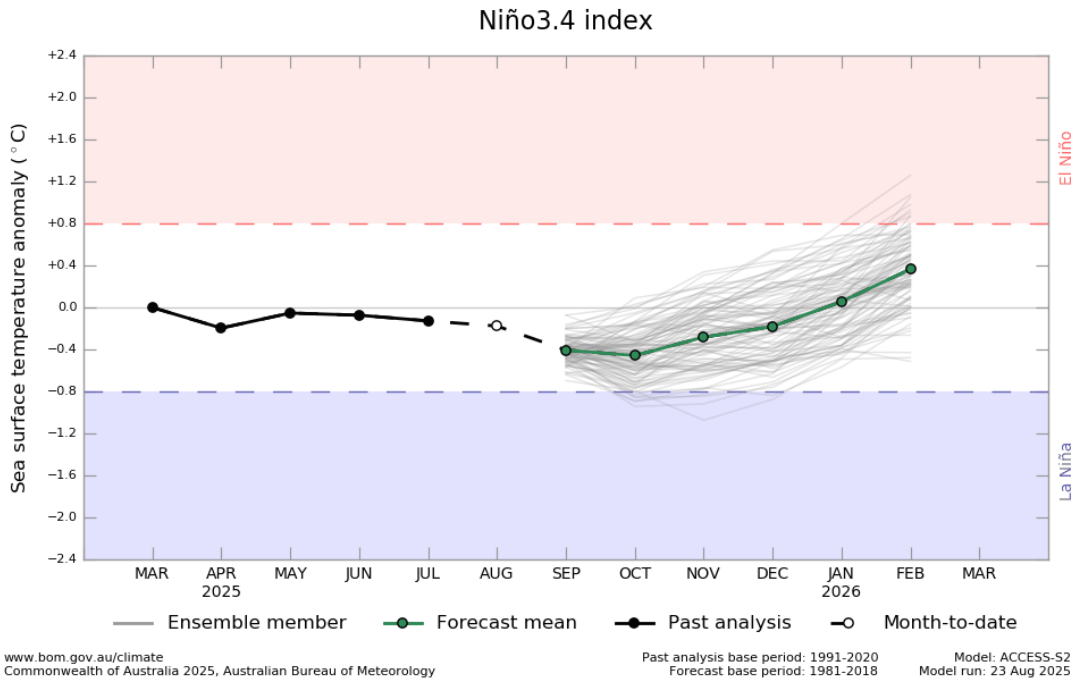


Figure 1.1: Average modelled projections (in green) show that the ENSO phenomenon is expected to remain within the neutral range over spring and early summer but tending towards La Niña. Source: Australian Bureau of Meteorology.

1.2 Sea Surface Temperature (SST) anomalies

The SST anomalies and the total Sea Ice Extent (SIE, in white) are shown in Figure 1.2, as of 30 August 2025.

The overall pattern shows a neutral equatorial Pacific albeit tending to a weak La Niña signature (i.e. neutral ENSO), with marine heatwave conditions prevailing around New Zealand. Antarctic sea ice is still undergoing its natural seasonal expansion, while the total coverage remains lower than the long-term average.

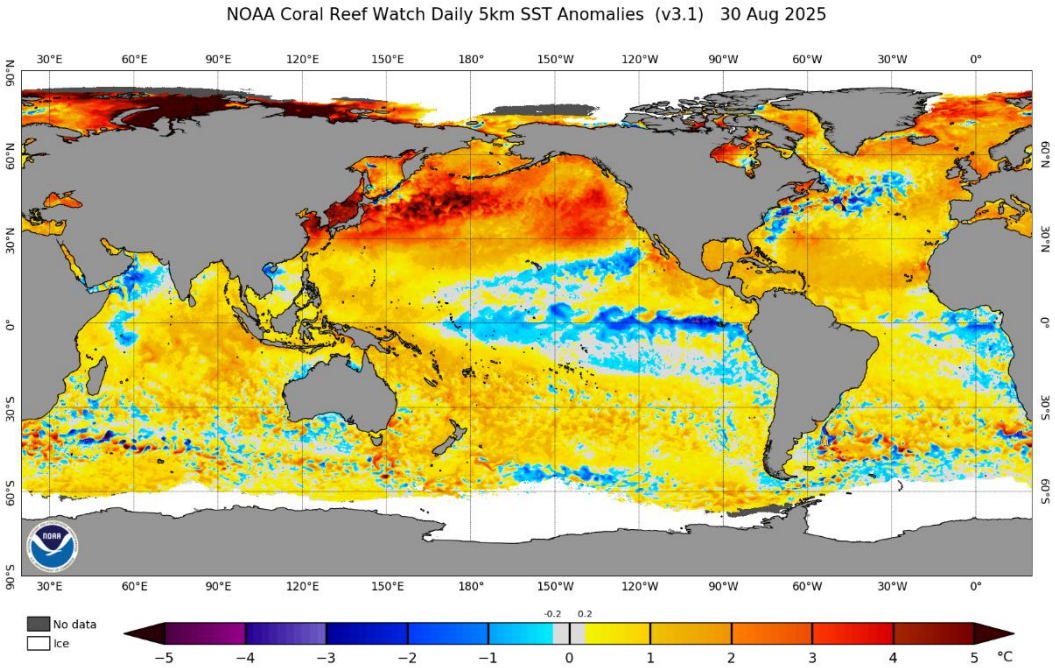


Figure 1.2: Sea Surface Temperature (SST) anomalies as of 30 August 2025. Sea ice coverage is shown in white. The Equatorial Pacific (ENSO) shows neutral ENSO conditions tending to a La Niña signature, and marine heatwaves persist around New Zealand. Sea Ice Extent (in white) remain below the long-term average, in a very similar fashion to last year. Source: NOAA.

1.3 Southern Annular Mode (SAM)

The SAM is the natural pressure oscillation between mid-latitudes and the Antarctic region. Normally, positive SAM is associated with high pressures around the North Island keeping the weather stable and dry/cloud-free (especially in summer), whereas the opposite is expected when the SAM is negative.

The SAM was predominantly in the positive phase during winter. Figure 1.3 shows that the winter average sea level pressure anomaly was characterised by a blocking anticyclone southeast of New Zealand. This synoptic set up helped explain the anomalous easterly flow more typical of La Niñas, with fewer westerlies and cooler conditions observed in August. As a result, the average wind speed was substantially below the long-term normal across the region (see Appendix 1 and 2).

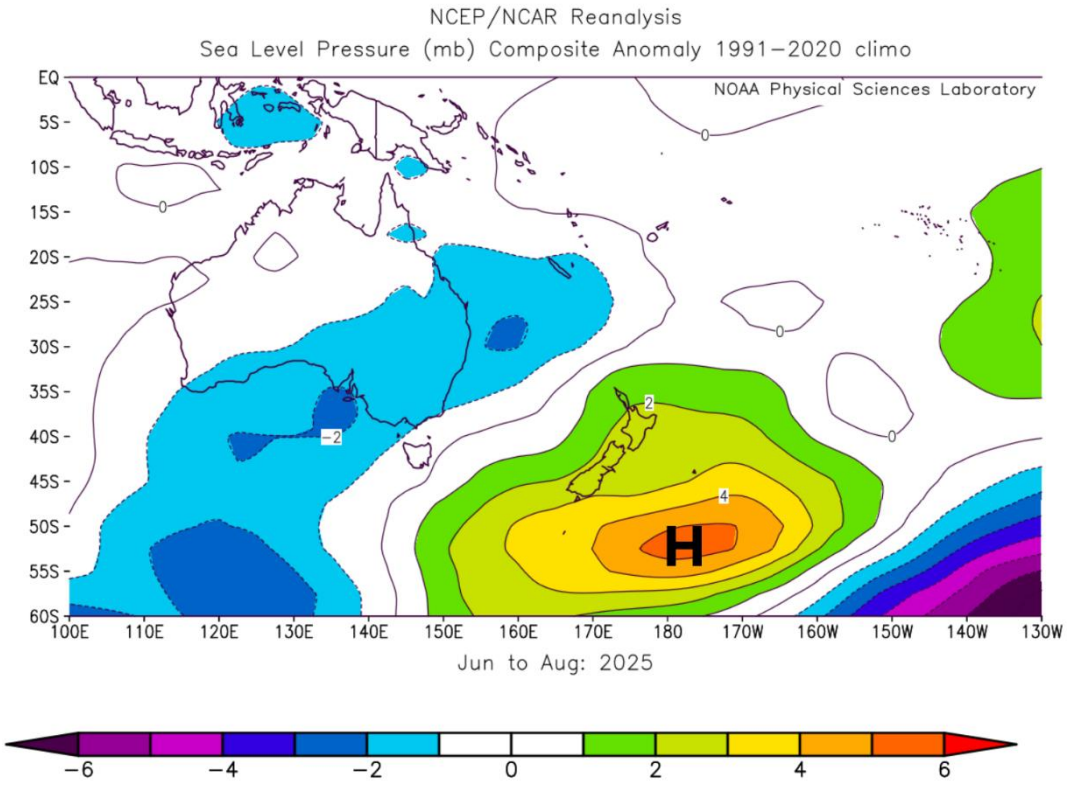


Figure 1.3: Mean sea level pressure anomaly map (hPa) for winter 2025. The 'H' indicates the centre of the anomalous blocking high pressure east of New Zealand, favouring an easterly flow more typical of La Niña during winter. Source: NCEP Reanalysis.

2. Seasonal variability and outlook

2.1 Trend analysis

The graphs below (Figure 2.1) show summaries of seasonal climate change and variability for Wellington and the Wairarapa using reference climate stations, chosen based on length of data record and availability.

The key climate variables shown are mean temperature, total sunshine hours, mean wind, total rainfall and total number of rain days (above 0.1 mm). Temperature measurements go back to the 1910s, allowing for a meaningful analysis of climate change trends. Most other variables also have long periods of measurement greater than 50 years, except sunshine hours and wind for the Wairarapa; these are only available for less than two decades, which is a very short period climatologically and does not allow for an analysis of trends yet.

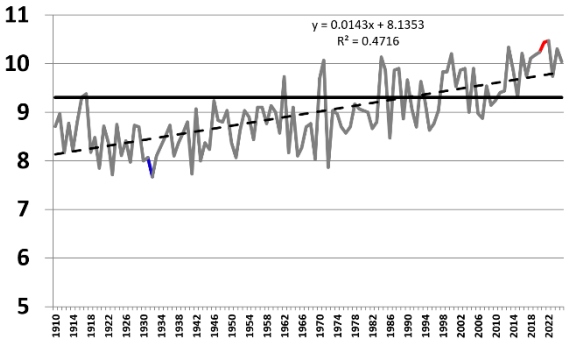
The red and blue bars show the extreme years of the entire measurement period. Red indicates seasons that were warmer, drier, sunnier and windier than average, and blue indicates seasons that were colder, wetter, cloudier and less windy than average. The reference climatological average (1981-2010) is shown by a horizontal bar where available.

An analysis of linear trends associated with climate change is plotted onto the graph only when the trends are statistically different from zero at the 99% confidence level.

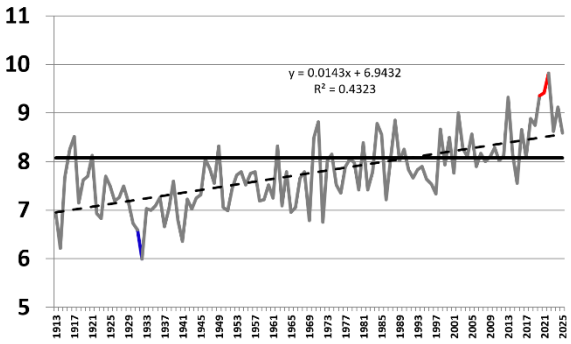
The climate change and variability summary for winter 2025 is as follows:

- Statistically significant trends are seen only for temperature and wind, meaning that winter is getting warmer and less windy due to ongoing climate change. The long-term historical warming trend is about one and a half degree per century for both Wellington Masterton, noting that winter is the season with the greatest among of historical warming;
- Winter 2025 mean temperatures were above the long-term average for both Wellington and Wairarapa (more so for Wellington);
- Sunshine hours were slightly above average for Wellington, and more on the lower side in the Wairarapa;
- Seasonal average wind speed was below average for both Wellington and Wairarapa;
- Total seasonal rainfall was slightly above average for Wellington and slightly below average for the Wairarapa;
- Total seasonal rain days were near average for both Wellington and Wairarapa.

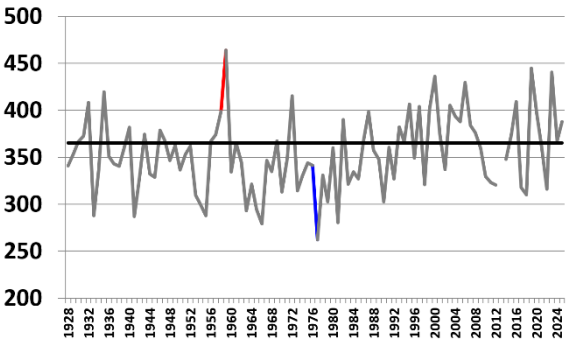
Winter Mean Temperature (deg C) - Kelburn (1910-2025)



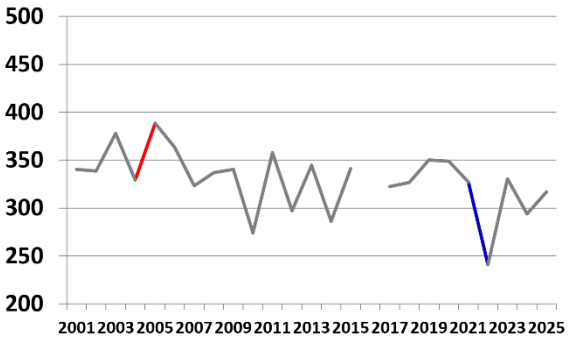
Winter Mean Temperature (deg C) - Masterton (1913-2025)



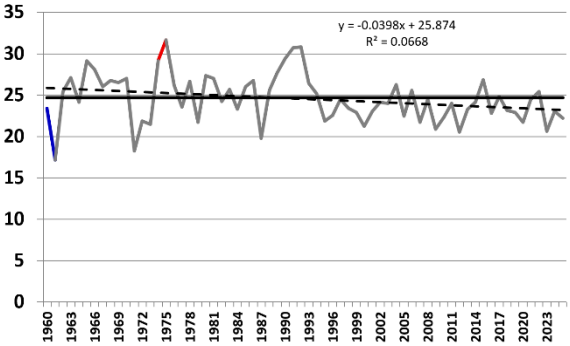
Winter Total Sunshine Hours - Kelburn (1928-2025)



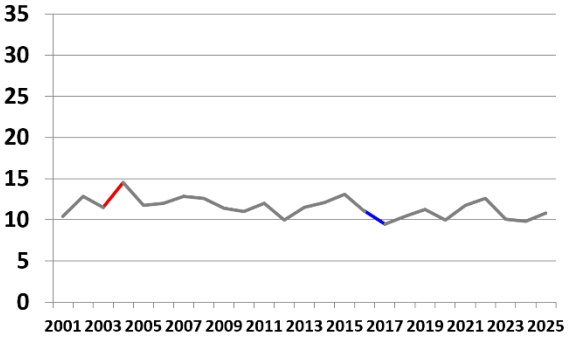
Winter Total Sunshine Hours - Martinborough (2001-2025)



Winter Mean Wind (km/h) - Wellington Airport (1960-2025)



Winter Mean Wind (km/h) - Martinborough (2001-2025)



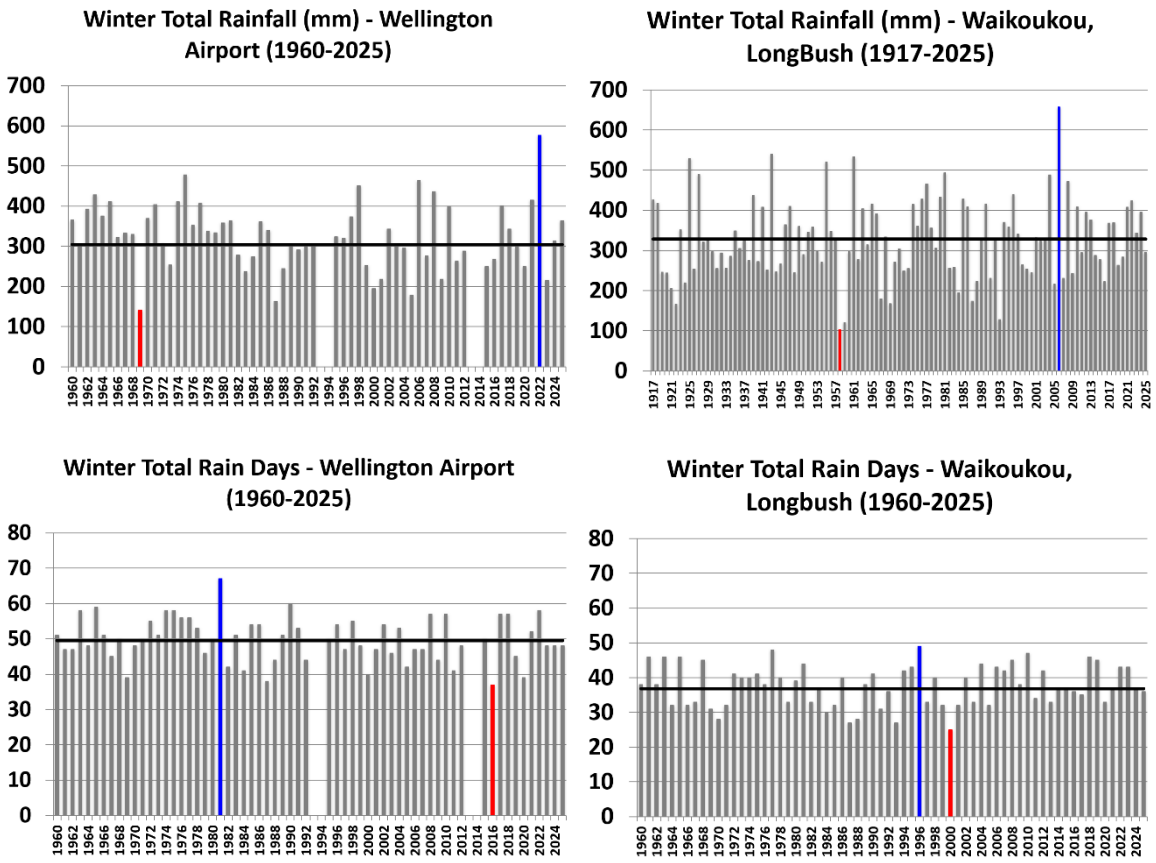


Figure 2.1: Climate change and variability graphs for winter in Wellington and the Wairarapa. The thick horizontal line shows the 1981-2010 average (where available), and the dashed line shows the linear trend. Trends are plotted only when statistically significant at 99% confidence level. For all graphs, the bright red and blue bars show the extreme min and max values for each time series (red for warmer, drier, sunnier and windier and blue for cooler, wetter, cloudier and calmer). The key variables shown are mean temperature, total number of sunshine hours, mean wind speed, total rainfall and total number of rain days (>0.1mm for Wellington and > 1mm for Waikoukou). Missing bars means that no reliable mean seasonal data was available for that particular year.

2.2 Seasonal Outlook

- Strong westerlies in September, changing to a La Niña easterly flow from October onwards.
- Temperatures normal to above average, and with high chance of marine heatwaves later in the season.
- Wairarapa drier than normal initially, changing to normal to wet on the east coast as a La Niña easterly flow develops.

Whaitua*	Variables	Climate outlook for spring 2025*
Wellington Harbour & Hutt Valley	**Temperature:**	Average to above.
	Rainfall:	Average to above. Strong westerlies initially. La Niña easterly flow developing from October onwards.
Te Awarua-o-Porirua	**Temperature:**	Average to above.
	Rainfall:	Average to above. Strong westerlies initially. La Niña easterly flow developing from October onwards.
Kāpiti Coast	**Temperature:**	Average to above.
	Rainfall:	Average to above. Strong westerlies initially. La Niña easterly flow developing from October onwards.
Ruamāhanga	**Temperature:**	Average to above.
	Rainfall:	Average to below. Dry initially but changing to normal to wet as La Niña easterly flow takes over. Low chance of a major drought for the remainder of the year.
Wairarapa Coast	**Temperature:**	Average to above.
	Rainfall:	Average to below. Dry initially but changing to normal to wet as La Niña easterly flow takes over. Low chance of a major drought for the remainder of the year.

*Whaitua are the whole catchment areas (https://www.gw.govt.nz/environment/freshwater/protecting-the-waters-of-your-area/).

Refer also to the drought monitor for our catchments: https://www.gw.govt.nz/environment/environmental-data-hub/climate-monitoring/drought-check/

Appendix 1 – Seasonal temperature and wind anomalies for selected stations

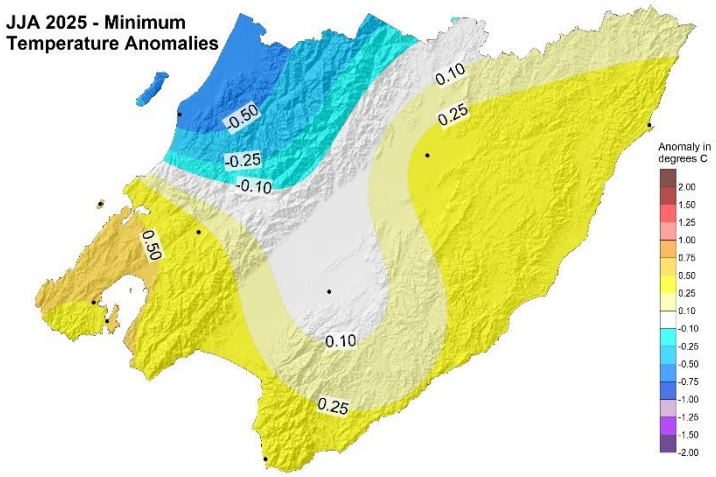
Table 1: Temperature anomalies (°C) for winter (JJA) 2025 relative to the 1991-2020 climatology. Significant positive and negative anomalies (greater than 0.5°C magnitude) are highlighted in red (warmer than average) or blue (colder than average).

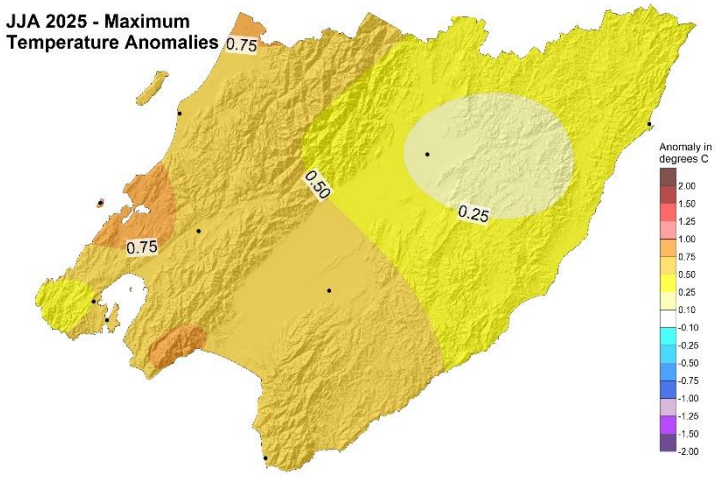
Jun-Jul-Aug 2025	Min T	Max T
Castlepoint	0.4	0.3
Kelburn	0.5	0.5
Masterton	0.3	0.2
Ngawi	0.4	0.6
Paraparaumu	-0.6	0.6
Wellington Airport	0.5	0.6
Martinborough	0.0	0.7
Mana Island	0.6	1.0

Table 2: Wind anomalies (%) for winter (JJA) 2025 relative to the 1981-2010 climatology. Significant positive and negative anomalies (greater than 5%) are highlighted in red (windier than average) and blue (calmer than average).

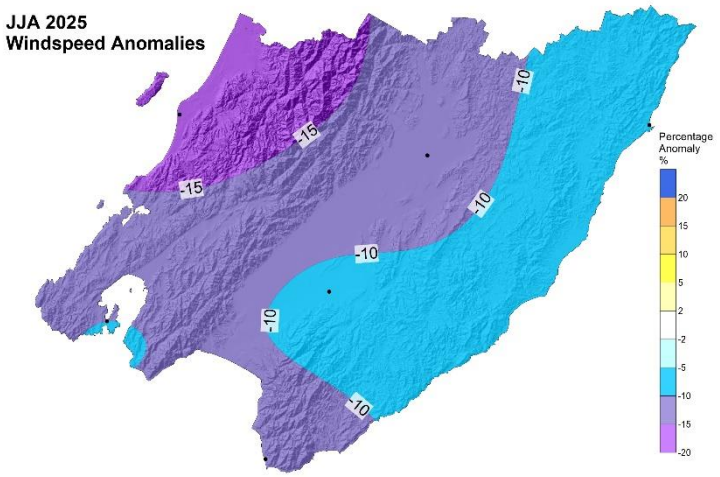
Jun-Jul-Aug 2025	Wind %
Castlepoint	-5.3
Masterton	-12.5
Ngawi	-12.2
Paraparaumu	-18.2
Wellington Airport	-10.0
Martinborough	-9.2

Appendix 2 – Seasonal anomaly maps relative to the long-term average (1991-2020)

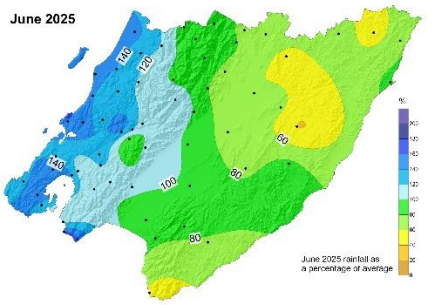


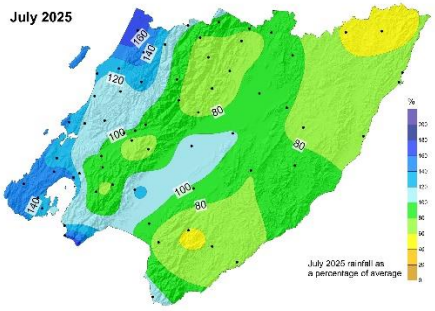


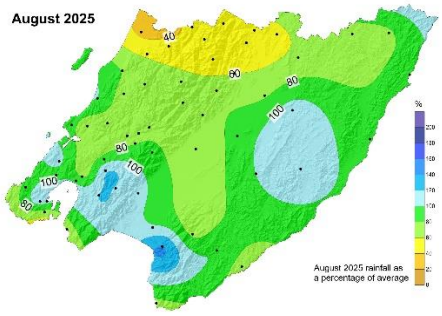
Min and Max Temperature anomalies (°C)

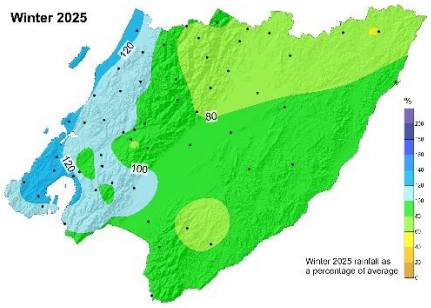


Wind anomalies (%)









Rainfall anomalies (%)

GWRC's climate science tools

- **Seasonal climate hub**
  https://www.gw.govt.nz/environment/environmental-data-hub/climate-monitoring/

- **Daily climate maps**
  https://graphs.gw.govt.nz/envmon/daily-climate-maps?view=rainfall-table

- **Drought Monitor**
  https://www.gw.govt.nz/environment/environmental-data-hub/climate-monitoring/drought-check/

- **Climate change impacts (reports and mapping tools)**
  https://www.gw.govt.nz/environment/climate-change/impacts-on-our-region/

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