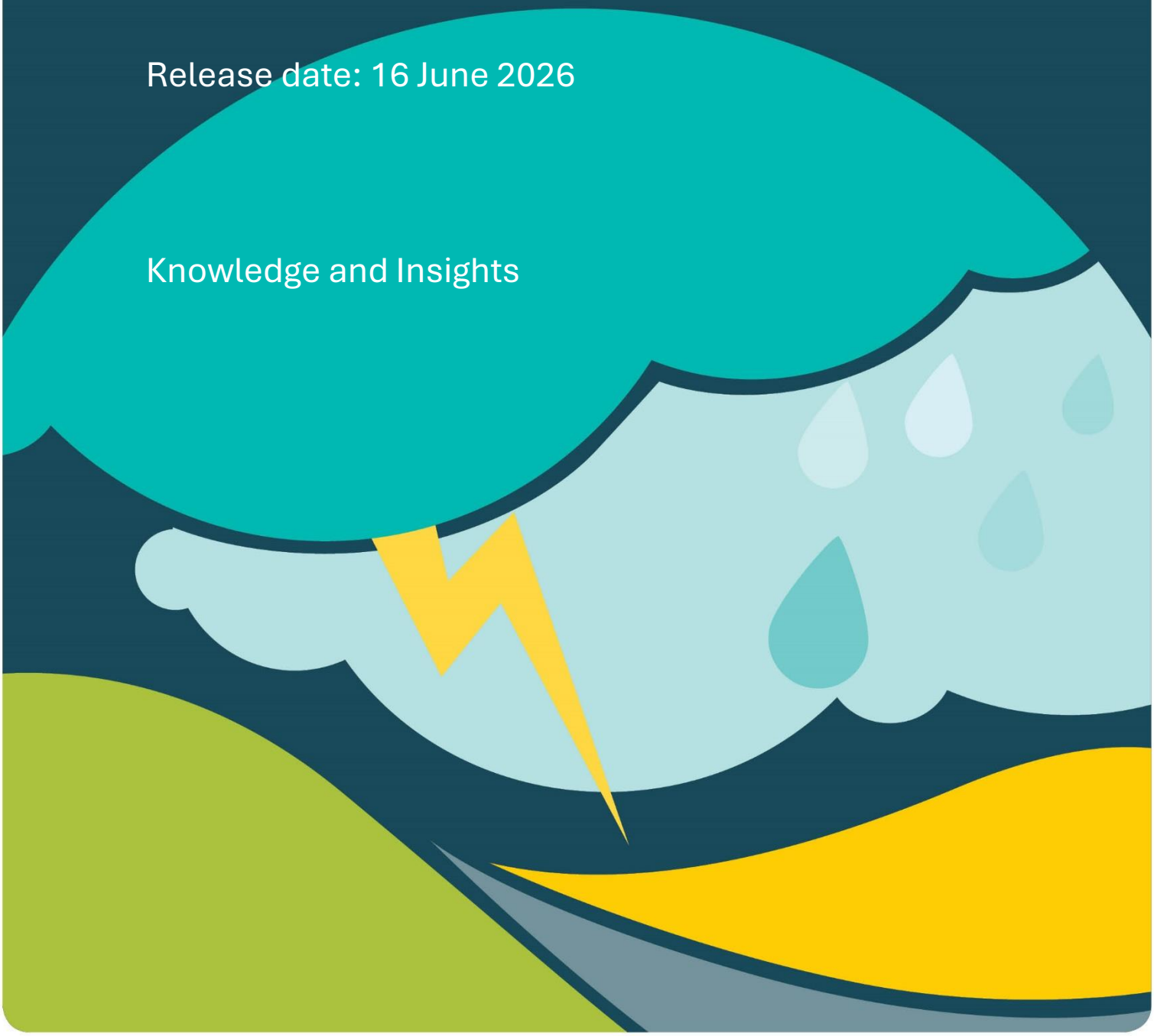
Greater Wellington
Te Pane Matua Taiao

# Climate drivers and seasonal outlook for the Wellington Region

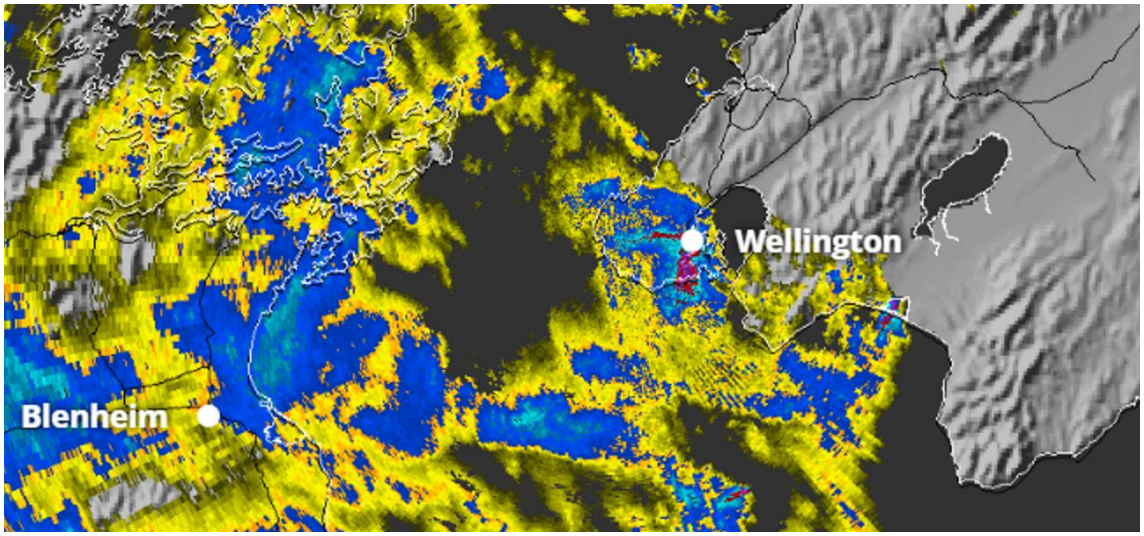
Autumn 2026 summary

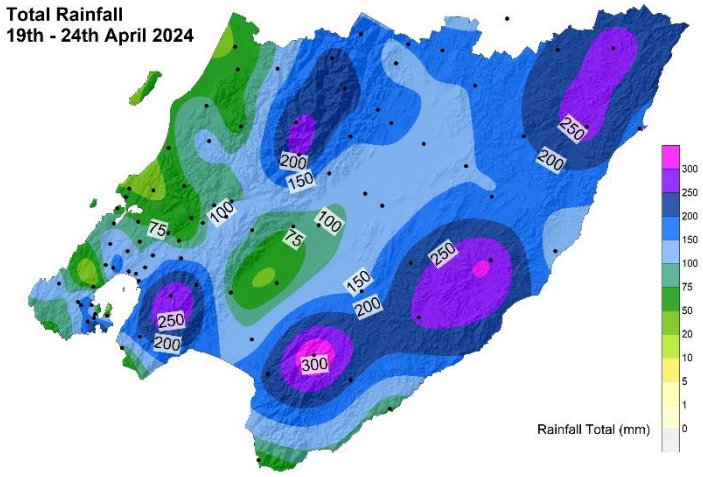
Winter 2026 outlook

Release date: 16 June 2026



Knowledge and Insights




On 20 April, Wellington city woke up to severe localised thunderstorms, causing significant flash flooding in southern parts of the city. The radar image for 4am in the morning on that day shows a slow-moving line of thunderstorms (in red) developing just south of the city (upper panel). The overall weather event, which lasted several days and triggered a red rain warning for the entire region except the Kāpiti Coast, consisted of a complex low-pressure centre over the Tasman Sea. This set up was associated with a very unstable, warm and humid air mass near the surface, and cold air aloft initially, eventually clashing with bitterly cold air being pushed from the far south, as a cold front moved through. Overall, around 300 mm of rain fell over the southern and eastern ranges, with the eastern coast and much of the Wairarapa receiving over three times the monthly average in just a few days (bottom panel), under a strong easterly flow. During the thunderstorms, intense rainfall fell in the southern city suburbs with a peak hourly total of about 85 mm measured in Berhampore, corresponding to an estimated return period of more than 200 years. Radar image courtesy of MetService, and rainfall accumulation map based on the GWRC network.

# Overview

## Autumn 2026

Autumn 2026 was mostly mild across our region, with a mixture of easterly flows and atmospheric river events, occasional southerly bursts and various weeks of constant high pressure. There were no notable temperature anomalies, with near average readings for the most part, and slightly colder than average nocturnal temperatures associated with dry and stable conditions. May was a remarkably stable month under the influence of a blocking anticyclone, with only 3 mm of rain in Martinborough and 10 mm in Masterton, corresponding to the driest May in the last one hundred years of recorded data in the Wairarapa. In contrast, a notable Tasman low in April produced three times the monthly average rainfall in large parts of the Wairarapa including the eastern coast, and thunderstorms with flash flooding in Wellington and in the Hutt Valley. As a result, the total seasonal rainfall ended up above average in eastern Wairarapa, Wellington City and Hutt Valley regardless of a record dry May. The mean wind speed was also below average across the region, reflecting the predominance of high pressure.

## Climate drivers

A new El Niño event is developing and is expected to likely be a strong event, with some models suggesting it could become one of the strongest El Niños in modern recorded history. This development will likely lead to at least some significant impacts in our region later this year and into early 2027. A positive Indian Ocean Dipole is also predicted for late winter and spring, potentially amplifying the ENSO impacts in our region.

## Climate outlook for the rest of winter 2026

International climate models agree that our winter will progressively shift to a colder, more variable south-westerly regime towards the end of the season, as a new El Niño emerges. As such, there is a greater chance of short-lived polar outbreaks and snow events from late winter to early spring. Seasonal rainfall is expected to be near normal west of the ranges and below average east of the ranges, progressively responding to the increased westerly flows. Temperatures are expected to be closer to the long-term average, indicating an overall colder experience this season, compared to previous years. The potential lack of winter water recharging in the Wairarapa could place the area under early deficit as we go into spring. Under the current projections, we estimate about 60% probability of at least some localised drought later this year or into 2027 for the Wairarapa, depending on how ENSO and local sea surface temperature anomalies unfold.

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# 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 develop into a strong El Niño event from late winter and into spring, potentially reaching its peak towards the end of the year. According to some additional international climate models, this event could be comparable to the strongest El Niños recorded in modern history.

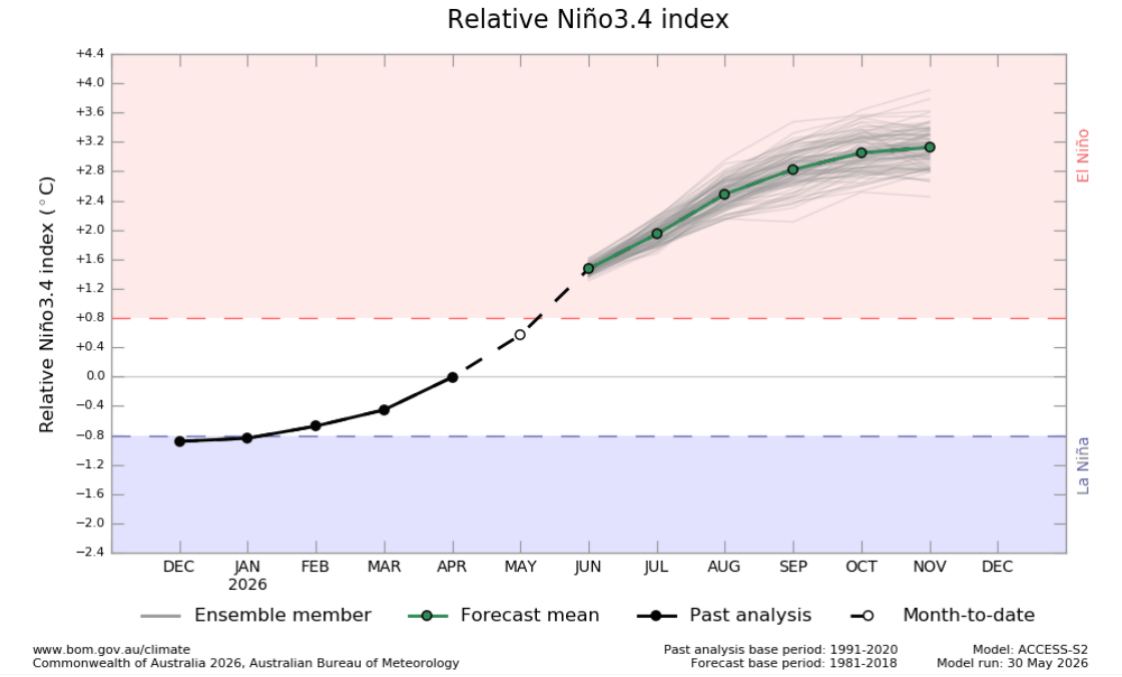



**Figure 1.1: Average modelled projections (in green) show that the ENSO phenomenon is expected to turn into a strong El Niño event later this year.** Source: Australian Bureau of Meteorology.

## 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 1 June 2026.

The overall pattern shows an emerging El Niño in the Equatorial Pacific Ocean (i.e. positive ENSO), with marine heatwave conditions still prevailing in the Tasman Sea and overall oceans north of New Zealand. Antarctic sea ice is expanding as expected for this time of the year (shown in white) but still sitting at a negative anomaly comparable to this time last year.

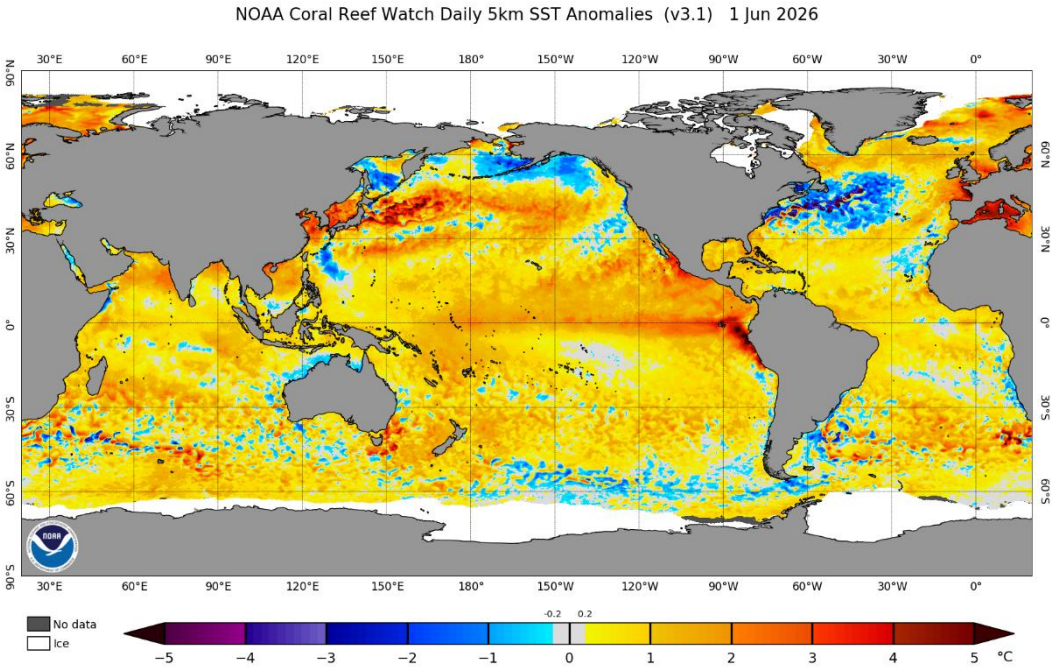



**Figure 1.2: Sea Surface Temperature (SST) anomalies as of 1 June 2026. Sea ice coverage is shown in white. The Equatorial Pacific (ENSO) shows a developing new El Niño event, while warm oceanic waters persist around New Zealand. Sea Ice Extent (in white) remains below the long-term average, like last 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 oscillated around a neutral range during March-April and turned significantly positive during May, when a large blocking anticyclone became very persistent over the country. This caused a spell of much more stable and drier air masses compared to earlier in the season. Figure 1.3 shows that the autumn average sea level pressure anomaly was characterised by a strong blocking system, with a high-pressure centre east of New Zealand and a low to the north. This synoptic set up explains the anomalous easterly flows, which included some incursions of atmospheric river events in March and April, eventually becoming dominated by high pressure in May.

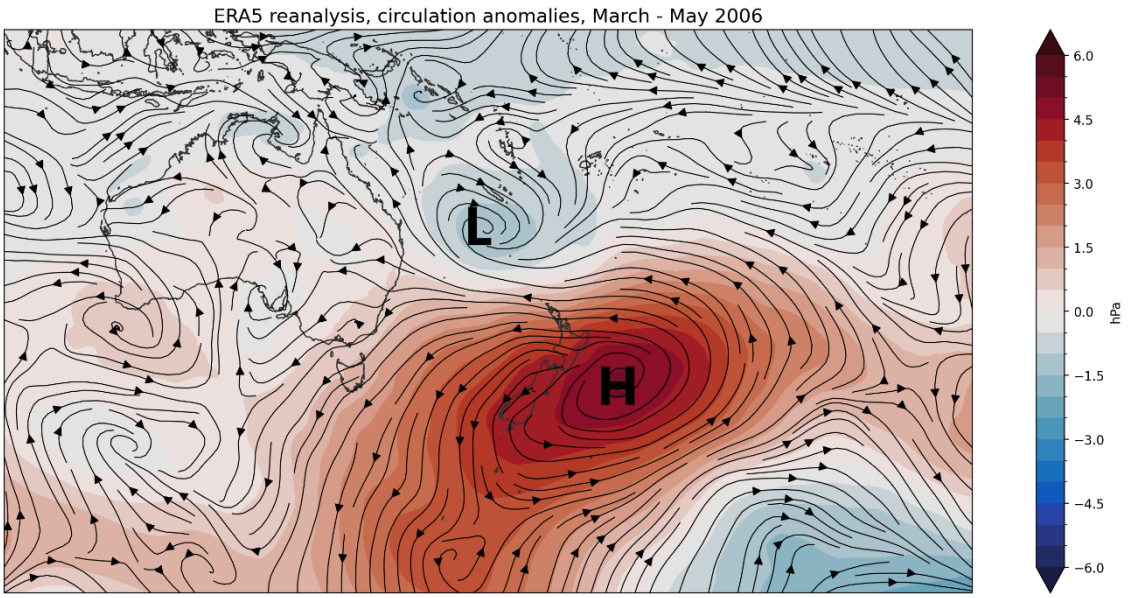



**Figure 1.3: Mean sea level pressure anomaly map (hPa) for autumn 2026. The 'H' indicates the centre of the anomalous blocking high pressure east of New Zealand, responsible for favouring a La Niña-like easterly flow. This blocking system, with the low further north, was associated with a few cases of atmosphere rivers from the subtropics being pushed onto the country, with significant flooding events in March and April. During May, however, the blocking high prevailed and most of the Wellington Region had a much more stable weather pattern.** Source: ERA5 Reanalysis, courtesy of ESNZ.

# 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.

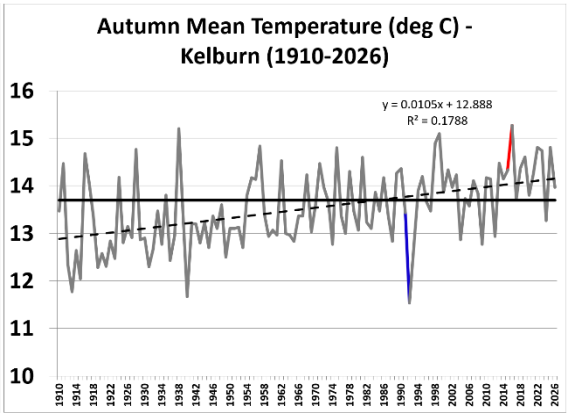
The key climate variables shown are mean temperature, total sunshine hours, mean wind, total rainfall, and total number of rain days (above 0.1 mm). Temperature measurements go back to the 1910s, allowing for a meaningful analysis of climate change trends. Most other variables also have long periods 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.

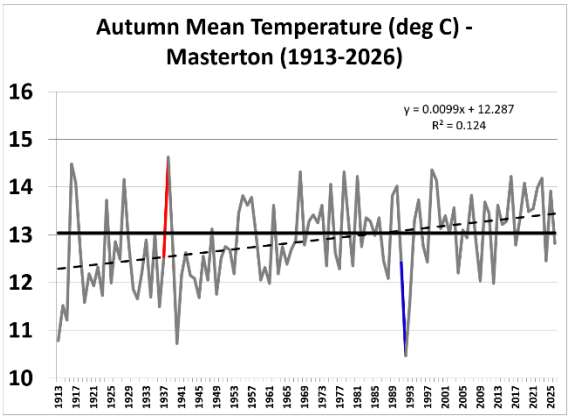
The red and blue bars show the extreme years of the entire measurement period. Red indicates seasons that were warmer, drier, sunnier, and windier than average, and blue indicates seasons that were colder, wetter, cloudier and less windy than average. The reference climatological average (1981-2010)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

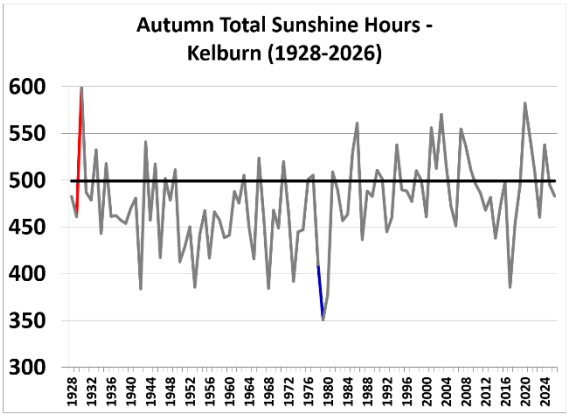
An analysis of linear trends associated with climate change is plotted onto the graph only when the trends are statistically different from zero at the 99% confidence level.

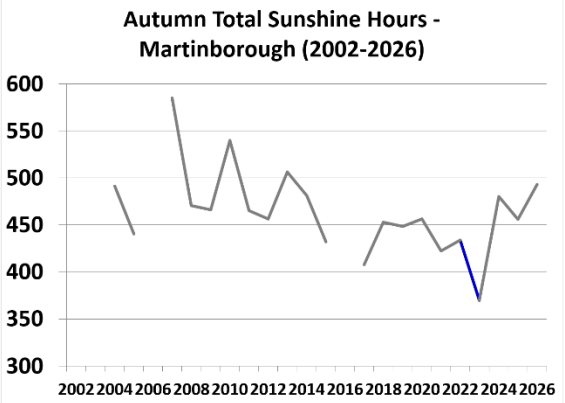
The climate change and variability summary for autumn 2026 is as follows:

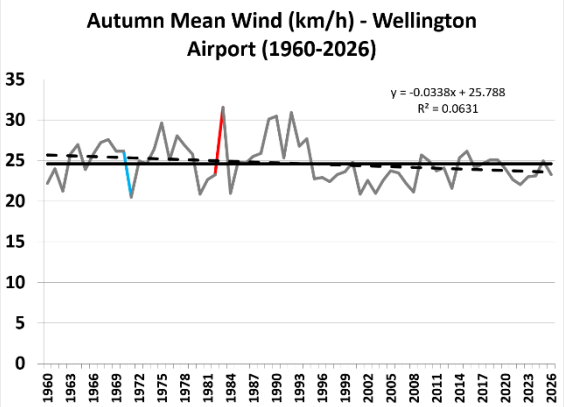
- Statistically significant trends were seen only for temperature and wind, meaning that autumn is getting warmer and less windy due to ongoing climate change. The long-term historical warming trend is about one degree per century for both Wellington Masterton;
- Autumn 2026 mean temperatures were slightly above the long-term average for Wellington and slightly below for Wairarapa;
- Sunshine hours were below average for Wellington and near average for Wairarapa (where records are still too short for a 30-year climatology);
- Seasonal average wind speed was below average for both Wellington and Wairarapa;
- Total seasonal rainfall was above average for both Wellington and Wairarapa;
- Total seasonal rain days were below average for both Wellington and Wairarapa.

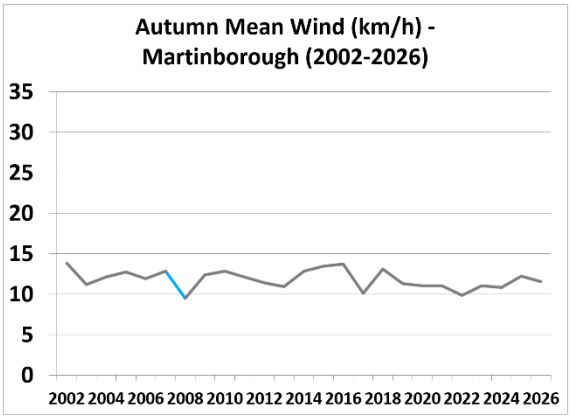

Autumn Mean Temperature (deg C) - Kelburn (1910-2026)
y = 0.0105x + 12.888
R² = 0.1788


Autumn Mean Temperature (deg C) - Masterton (1913-2026)
y = 0.0099x + 12.287
R² = 0.124


Autumn Total Sunshine Hours - Kelburn (1928-2026)


Autumn Total Sunshine Hours - Martinborough (2002-2026)


Autumn Mean Wind (km/h) - Wellington Airport (1960-2026)
y = -0.0338x + 25.788
R² = 0.0631


Autumn Mean Wind (km/h) - Martinborough (2002-2026)

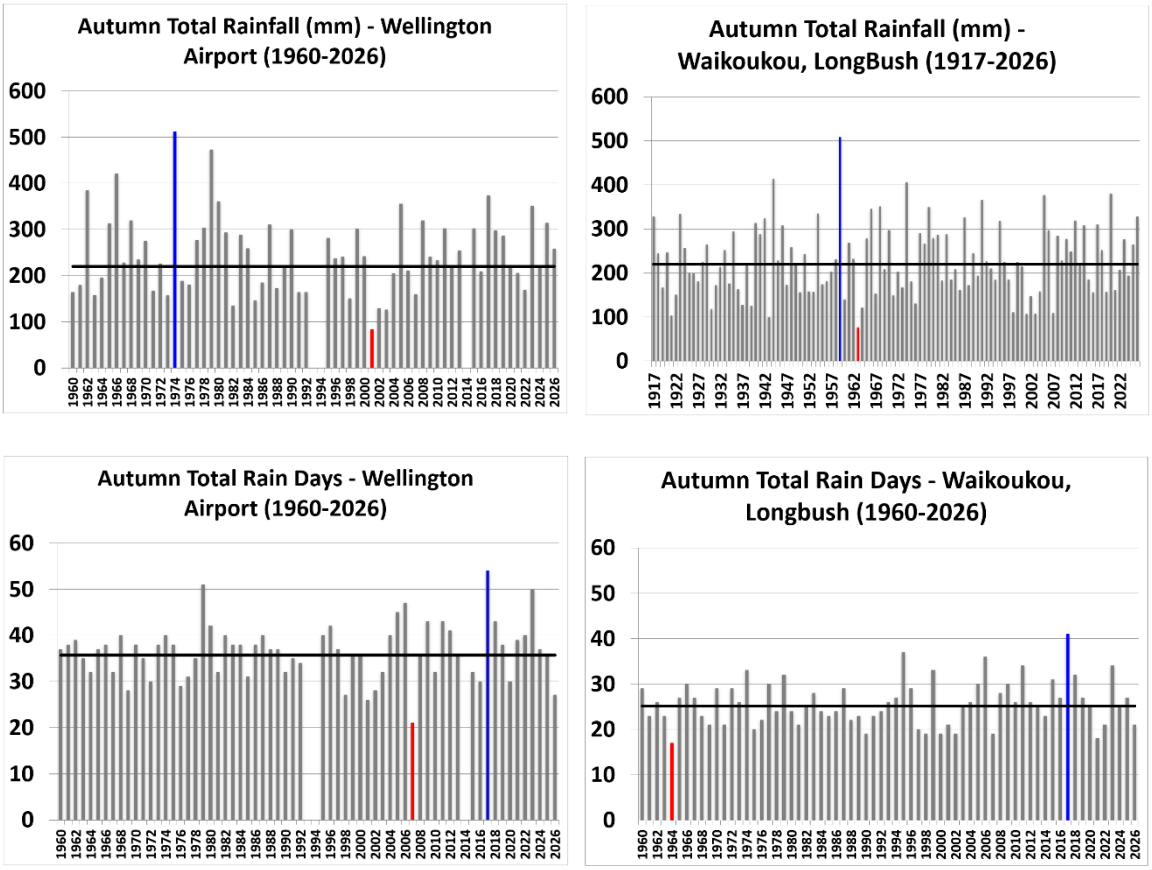



**Figure 2.1: Climate change and variability graphs for autumn in Wellington and the Wairarapa. The thick horizontal line shows the 1981-2010 average (where available), and the dashed line shows the linear trend. Trends are plotted only when statistically significant at 99% confidence level. For all 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 El Niño developing mid-to-late winter and spring, with potentially significant impacts later in the year
- Transition from humid and mild to colder and drier later in the season, with south-westerly flows and large variations in temperature
- Higher likelihood of heavy rainfall events early in the season and then progressively decreasing
- Near normal rainfall west of the ranges and drier in the Wairarapa
- Short-lived polar outbreaks with snow likely late winter and early spring

| Whaitua* | Variables | Climate outlook for winter 2026* |
|---|---|---|
| Wellington Harbour & Hutt Valley | **Temperature:** | Near normal for the seasonal average, with large variations as south-westerly flows develop |
| | **Rainfall:** | Around average. Higher chance of extreme rainfall events early in the season |
| Te Awarua-o-Porirua | **Temperature:** | Near normal for the seasonal average, with large variations as south-westerly flows develop |
| | **Rainfall:** | Around average. Higher chance of extreme rainfall events early in the season |
| Kāpiti Coast | **Temperature:** | Near normal for the seasonal average, with large variations as south-westerly flows develop |
| | **Rainfall:** | Around average. Higher chance of extreme rainfall events early in the season |
| Ruamāhanga | **Temperature:** | Near normal for the seasonal average, with large variations as south-westerly flows develop |
| | **Rainfall:** | Below average, but higher chance of extreme rainfall events early in the season |
| Wairarapa Coast | **Temperature:** | Near normal for the seasonal average, with large variations as south-westerly flows develop |
| | **Rainfall:** | Below average, but higher chance of extreme rainfall events early in the season |

*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

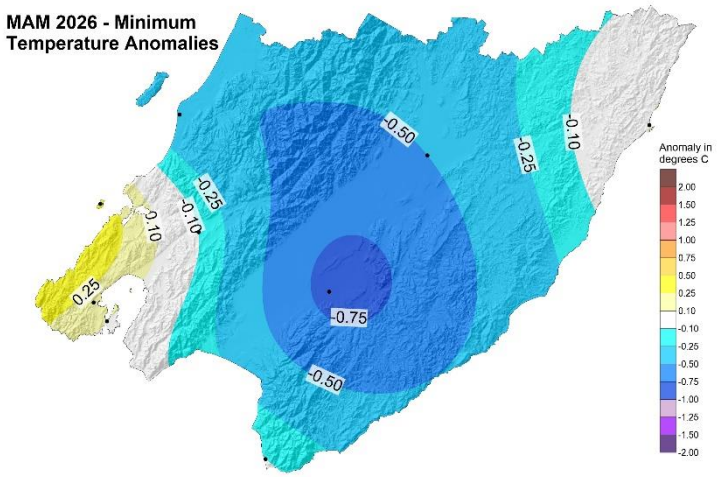
**Table 1: Temperature anomalies (°C) for autumn (MAM) 2026 relative to the 1991-2020 climatology. Significant positive and negative anomalies (greater than 0.5°C magnitude) are highlighted in red (warmer than average) or blue (colder than average).**

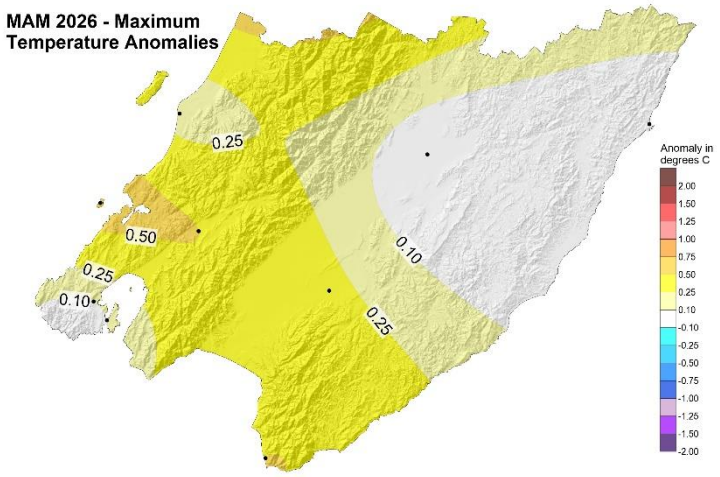
| Mar-Apr-May 2026 | Min T | Max T |
|---|---|---|
| Castlepoint | 0.1 | 0.0 |
| Kelburn | 0.2 | 0.1 |
| Masterton | -0.5 | 0.0 |
| Ngawi | -0.1 | 0.5 |
| Paraparaumu | -0.4 | 0.2 |
| Wellington Airport | 0.1 | 0.1 |
| Martinborough | -0.8 | 0.3 |
| Mana Island | 0.3 | 0.6 |
| Upper Hutt | -0.1 | 0.5 |

**Table 2: Wind anomalies (%) for autumn (MAM) 2026 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).**

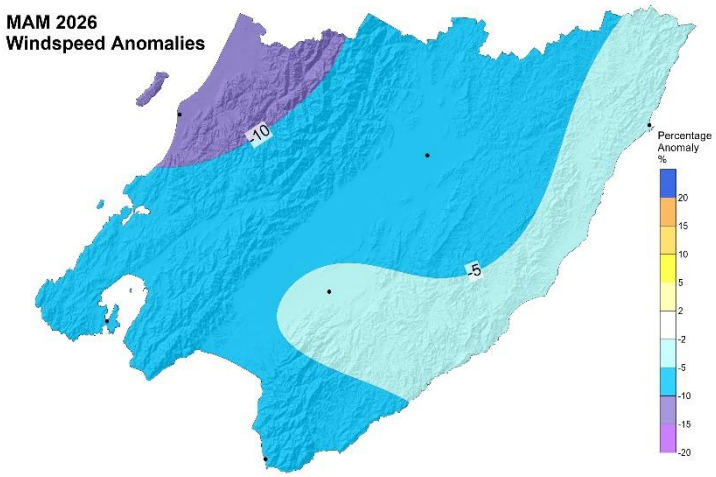
| Mar-Apr-May 2025 | Wind % |
|---|---|
| Castlepoint | -3.4 |
| Masterton | -7.7 |
| Ngawi | -7.1 |
| Paraparaumu | -11.6 |
| Wellington Airport | -5.4 |
| Martinborough | -4.5 |

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

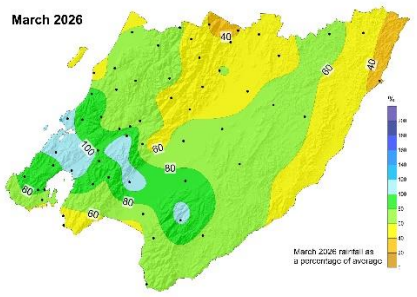


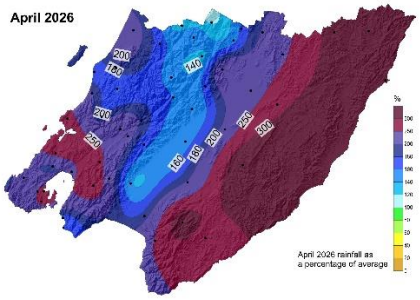



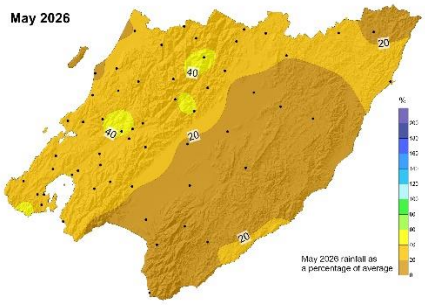

**Min and Max Temperature anomalies (°C)**

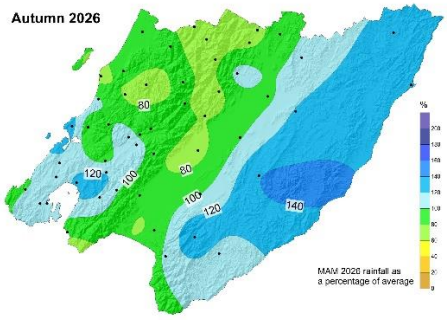



## Wind anomalies (%)




## 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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