

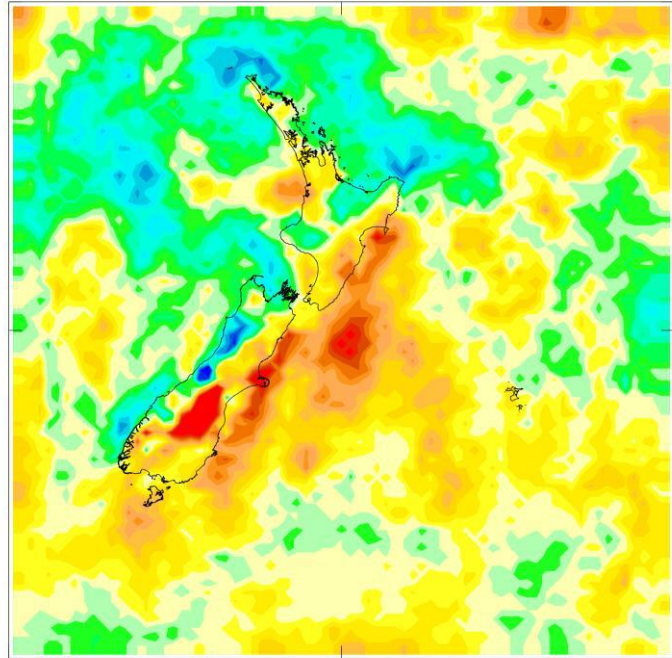
Latest climate change projections for NZ

Andrew Tait, Abha Sood, Brett Mullan, Stephen Stuart - NIWA, Wellington
and
Greg Bodeker, Stefanie Kremser, Jared Lewis - Bodeker Scientific, Alexandra

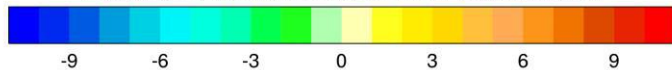
Research Aim 1: Improved Climate Projections

- Update and improve processes to generate regional-scale projections of New Zealand climate trends & variability to 2100
- Maximise the utility and relevance of update climate projections for impact modelling
- Improved climate projections will be packaged into formats relevant for modelling (Research Aims 2 & 3), enhanced decision-making (Research Aim 4), and scenario development (Research Aim 5)

Updated Climate Model Data



Percentage change in the 99th percentile of 10 m wind speed



*Domain of the NIWA RCM
(spatial resolution 28km)*

More emissions →

- AR5: **6 GCMs x 4 RCPs**

| 6 AR5 GCMs | | 4 RCPs | | | |
|------------|------------|--------|-----|-----|-----|
| BCC-CSM1.1 | CESM1-CAM5 | 2.6 | 4.5 | 6.0 | 8.5 |
| GFDL-CM3 | GISS-EL-R | | | | |
| HadGEM2-ES | NorESM1-M | | | | |

- 7 Variables

- Maximum Air Temperature
- Minimum Air Temperature
- Total Precipitation
- Relative Humidity
- Solar Radiation
- Wind Speed
- Relative Humidity

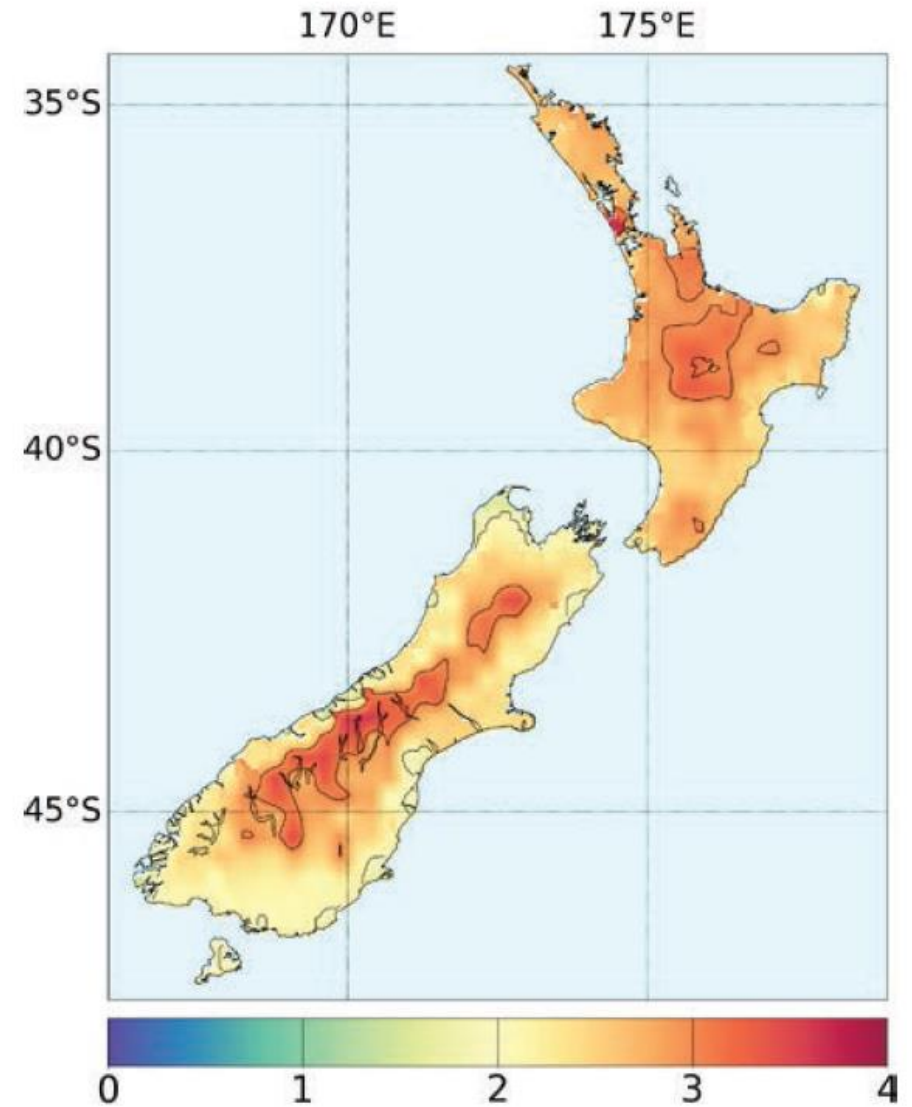
- RCM data downscaled to ~5km spatial grid (VCSN)

- Data at daily, monthly and annual time steps, 1971-2120

Updated MfE Guidance Document

<http://www.mfe.govt.nz/publications/climate-change/climate-change-projections-new-zealand>

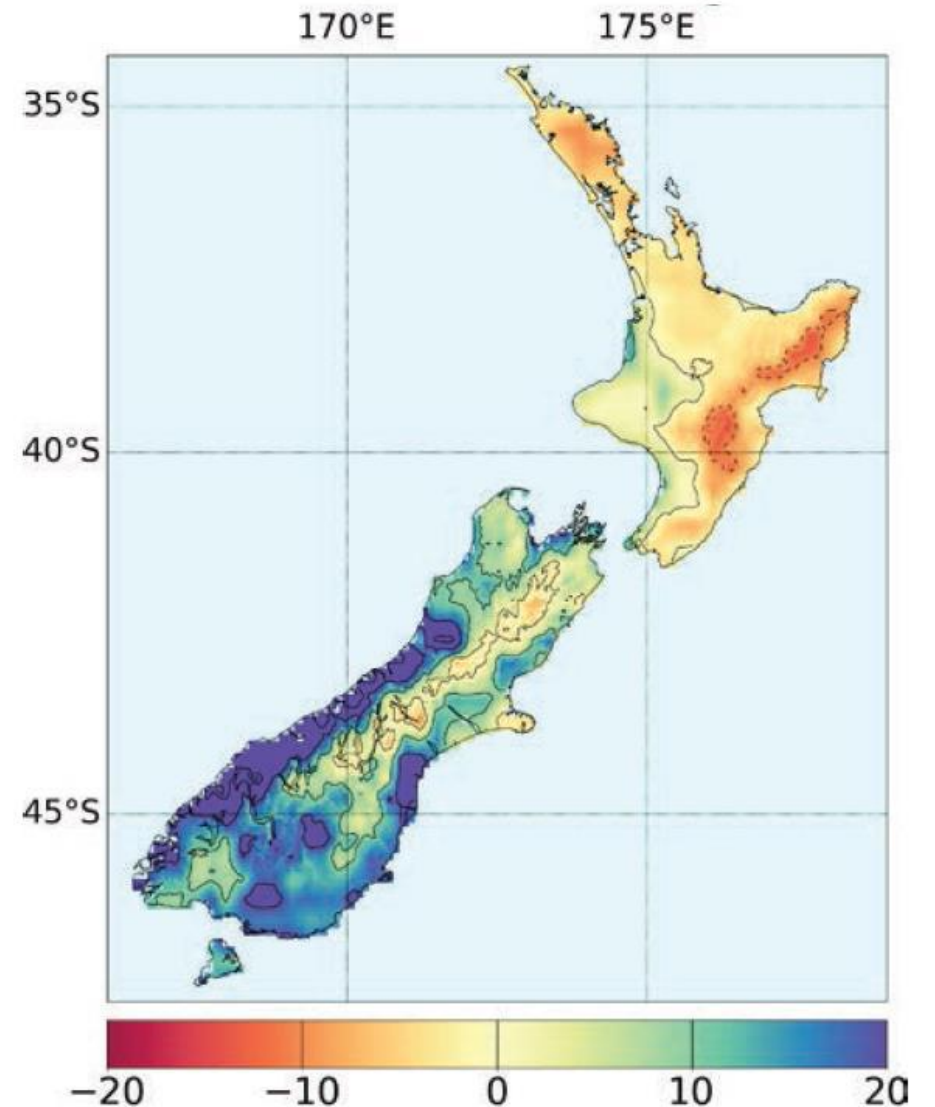
Average change in temperature (°C) by 2090 under RCP8.5



Updated MfE Guidance Document

<http://www.mfe.govt.nz/publications/climate-change/climate-change-projections-new-zealand>

Annual average change in rainfall (%) by 2090 under RCP8.5



Updated MfE Guidance Document

[http://www.mfe.govt.nz/
publications/climate-
change/climate-change-
projections-new-zealand](http://www.mfe.govt.nz/publications/climate-change/climate-change-projections-new-zealand)

Waikato Region highlights (2090, RCP8.5)

- Increase in mean temperature (°C): Summer 3.3; Autumn 3.2; Winter 3.1; Spring 2.7
- Change in mean precipitation at Ruakura (%): Summer +3; Autumn -3; Winter +5; Spring -6
- Increase in “hot days” (Tmax ≥ 25°C): Present 23.6 days/yr; Future 84.0 days/yr
- Decrease in “cold nights” (Tmin ≤ 0°C): Present 15.2 nights/yr; Future 1.9 nights/yr
- “Dry days” increase by 5-10 days/yr
- 99th percentile rainfall amount increase by 5-10%
- 99th percentile wind speed decrease by 0-5%
- Increase in PED (amount of water needed for irrigation) by 50-100mm/yr (25-35%)

Latest climate projections (maps and charts)

<http://ofcnz.niwa.co.nz>

The screenshot displays the NIWA website interface for climate projections. At the top, the NIWA logo and the text 'Our Future Climate New Zealand' are visible. Below this is a navigation menu with links for 'Home', 'National maps', 'Local charts', 'Additional information', and 'Contact us'. A green banner contains the text: 'Our Future Climate New Zealand. Welcome to Our Future Climate New Zealand. This interactive website has been designed to give you the ability to look at a number of climate change projections for New Zealand.'

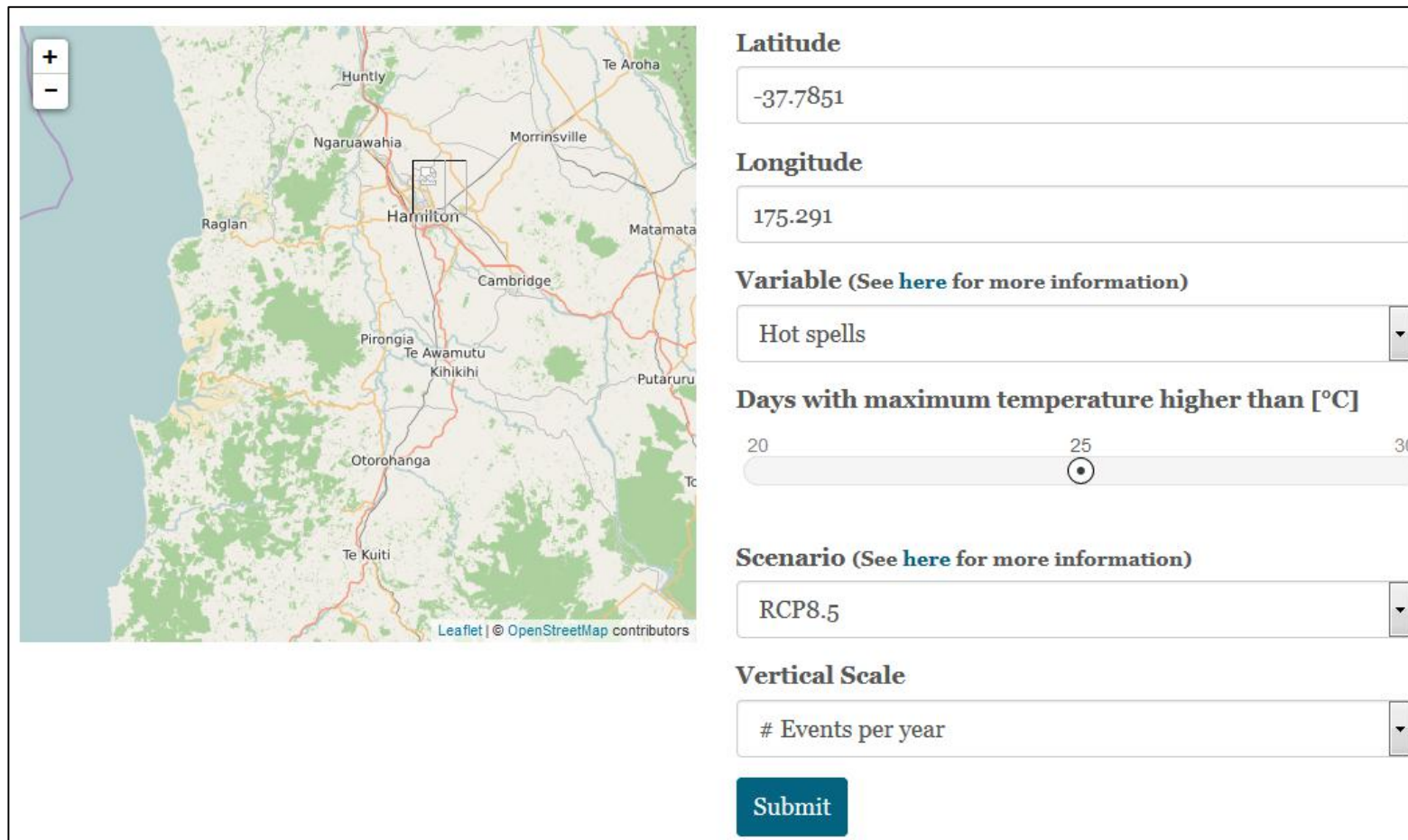
The main content area is divided into two sections:

- National Maps:** This section features a topographic map of New Zealand with color-coded projections. Three specific locations are labeled: WESTPORT, NELSON, and WELLINGTON. Below the map is the text 'Explore a range of temperature and rainfall projections for New Zealand.' and a button labeled 'Explore Maps'.
- Local Charts:** This section displays a line chart with the y-axis labeled 'mm' ranging from 600 to 2.0K. The chart shows two fluctuating lines representing projections over time. Below the chart is the text 'Explore temperature and rainfall projections over time for a selection of locations around New Zealand.' and a button labeled 'Explore Charts'.

At the bottom of the page, a footer contains the text: 'Our Future Climate New Zealand © 2014 NIWA. Version 1.00 Terms and Conditions'.

Future Extremes web tool

<http://futureextremes.cci.org.nz/>



Latitude
-37.7851

Longitude
175.291

Variable (See [here](#) for more information)
Hot spells

Days with maximum temperature higher than [°C]
20 25 30

Scenario (See [here](#) for more information)
RCP8.5

Vertical Scale
Events per year

Submit

Thanks very much!

Andrew Tait, Abha Sood, Brett Mullan, Stephen Stuart - NIWA, Wellington
and
Greg Bodeker, Stefanie Kremser, Jared Lewis - Bodeker Scientific, Alexandra