



CLIMATE CHANGE: A GUIDE FOR LAND MANAGERS

REGIONAL SUMMARY

Effects and impacts: West Coast

KEY EFFECTS

- Warmer winters, reduced frequency of frost and a longer growing season.
- Increased average precipitation in the main divide which would increase river flows throughout the region.
- An increase in frequency and intensity of high rainfall events which could increase flood risk, already high in many parts of the region.

KEY CHANGES

- The greatest gains are likely to arise from possible increases in pasture productivity due to higher temperatures and increased carbon dioxide (CO₂) in the atmosphere.
- The greatest losses are likely to arise from a possible increased flood risk.

The South Island's West Coast will become wetter, particularly in winter and spring. Average annual temperatures are likely to rise by about 1.0 °C by mid-century and 2.0°C by 2100.

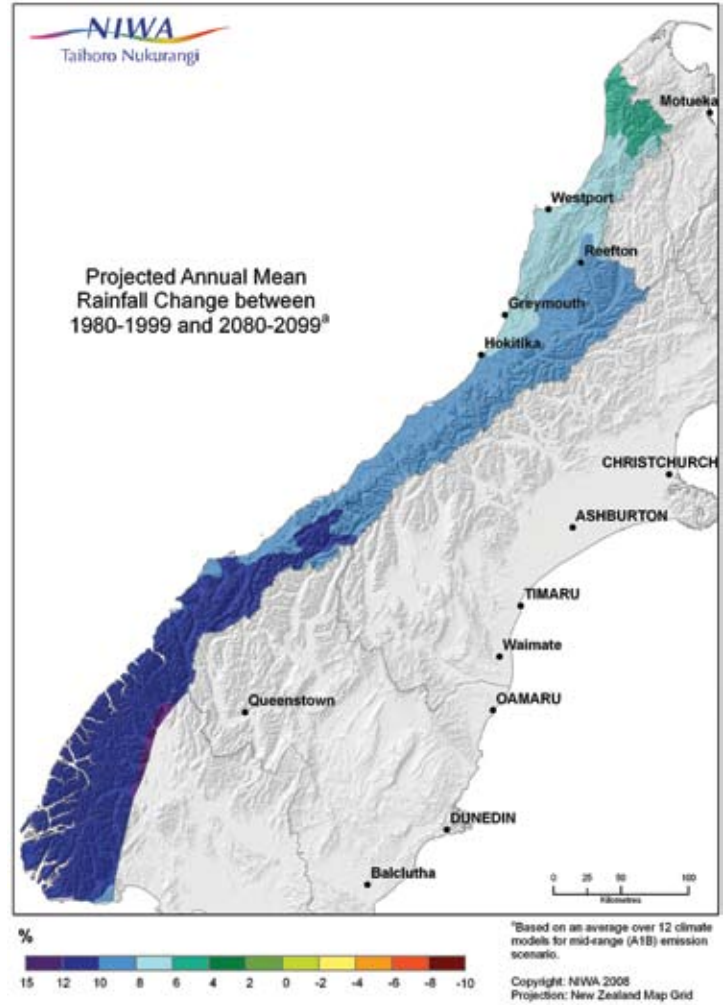
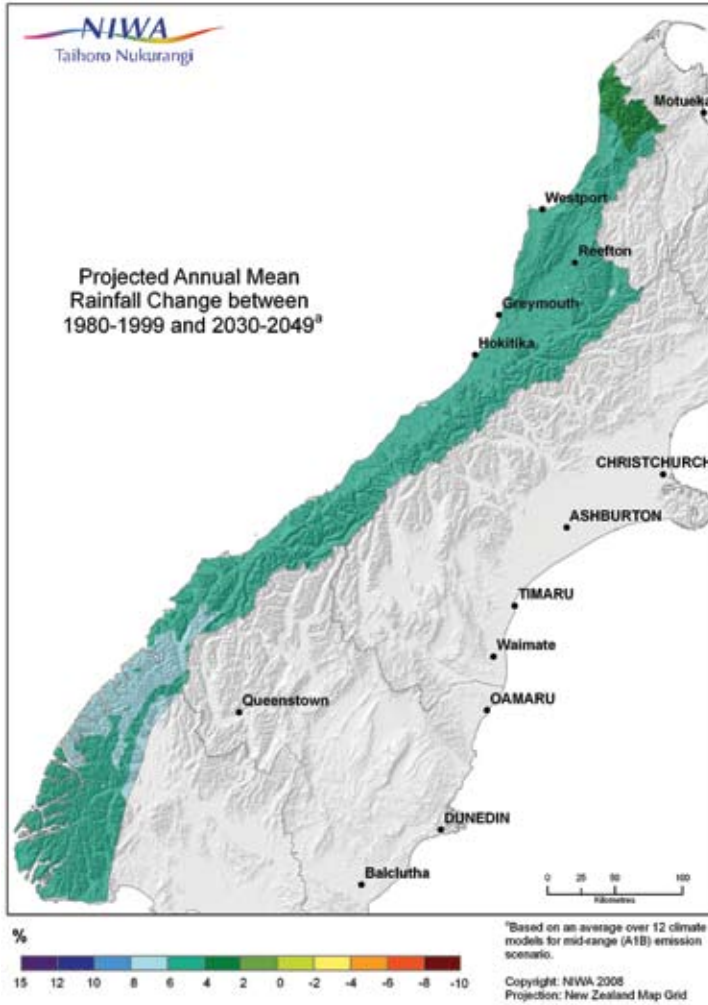
LIKELY IMPACTS AND OPPORTUNITIES

- Higher temperatures will generally be of benefit to pastoral farming throughout the West Coast.
- Changes in pasture composition could take place, particularly in the north of the region, with a potential increase in the incidence of sub-tropical pasture species such as paspalum.
- Animal health may be affected over time, particularly with warmer and more humid conditions in the north of the region.
- It is likely that plant pests will become more of a problem with higher temperatures and increased rainfall.
- West Coast communities are located along narrow coastal and river strips beneath mountain ranges; hence they are very exposed to increased risks of storms, flooding and landslides. The projected increased rainfall may pose a more immediate threat to those farms without any flood protection works and to those farms that may not be able to afford to maintain/improve existing flood protection works.
- Higher rainfall will increase the risk of problems with soil management such as compaction and nutrient run-off.
- Increased rainfall will have consequences for local and regional infrastructure including: land drainage; flood protection; culverts and bridges, and erosion control.



ANNUAL AVERAGE RAINFALL

The maps below show the projected trend in annual-average rainfall that could be expected by 2050 and 2100, compared to the average for 1980–1999.



2050: Fiordland annual rainfalls increase by 6–8 percent by mid-century, Westland rainfalls by 4–6 percent, and northern Buller rainfalls by less than 4 percent.

2100: Rainfall in the southwest increases by more than 10 percent, with an 8–10 percent increase in Westland.

RANGES OF UNCERTAINTY IN TEMPERATURE AND RAINFALL PROJECTIONS

In the table below, the first number in each case is a mid-range estimate of what the change will be and the figures in brackets give the modelled range within which the change could lie. Mean [lower, upper].

For example, the average summer temperature on the West Coast is likely to increase by 2.2 °C by 2090, but estimates of the expected temperature increase range between 0.9 and 5.3 °C.

CHANGE IN TEMPERATURE °C	SUMMER	AUTUMN	WINTER	SPRING	ANNUAL
WEST COAST					
2040	1.0 [0.2, 2.4]	1.0 [0.2, 2.1]	0.9 [0.2, 1.8]	0.7 [0.1, 1.7]	0.9 [0.2, 1.8]
2090	2.2 [0.9, 5.3]	2.1 [0.7, 5.0]	2.1 [0.6, 4.9]	1.7 [0.4, 4.5]	2.0 [0.7, 4.9]
CHANGE IN RAINFALL %					
HOKITIKA					
2040	0 [-22, 19]	3 [-13, 18]	1 [1, 24]	5 [-1, 18]	5 [-2, 20]
2090	-1 [-44, 32]	3 [-28, 26]	21 [5, 52]	8 [-11, 46]	8 [-5, 31]

SOURCE

Ministry for the Environment (2008). *Preparing for climate change: A guide for local government in New Zealand*.

SOURCES

MINISTRY OF AGRICULTURE AND FORESTRY

[WWW.MAF.GOV.TZ](http://www.maf.govt.nz)

- *The EcoClimate report: Climate change and agricultural productions* (2008). Available on the Ministry of Agriculture and Forestry website www.maf.govt.nz/climatechange
- Kenny, G (2008) *Adapting to climate change in the kiwifruit industry*. Available from www.maf.govt.nz/climatechange

MINISTRY FOR THE ENVIRONMENT

[WWW.MFE.GOV.TZ](http://www.mfe.govt.nz)

- *Preparing for Climate Change: A guide for local government* (2008). Available from www.mfe.govt.nz; Ref: ME534
- *Climate Change: Impacts on New Zealand* (2001). Available from www.mfe.govt.nz; Ref: ME396
- *Likely impacts on New Zealand agriculture* (2001). Available from www.mfe.govt.nz; Ref: ME412

- *Regional summaries of climate change*; Available from www.mfe.govt.nz/issues/climate/
- *Climate change effects and impacts assessment: A guidance manual for local government in New Zealand* (2008). Available from www.mfe.govt.nz; Ref: ME870

OTHER

- *The International Global Change Institute's CLIMPACTS programme: Examining the sensitivity of the New Zealand Environment to Climate Variability and Change*. Available on the University of Waikato website www.waikato.ac.nz
- *Adapting to climate change in eastern New Zealand* (2005). Published by Earth Limited.org on their website www.earthlimited.org

FOR MORE INFORMATION

- For general information on climate change for land-based sectors visit the Ministry of Agriculture and Forestry website www.maf.govt.nz/climatechange
- For more information on climate change in New Zealand visit www.climatechange.govt.nz or the Ministry for the Environment's website www.mfe.govt.nz/issues/climate
- For more information on animal health visit www.biosecurity.govt.nz/regs/animal-welfare
- For more information on insect and plant pests and diseases visit www.biosecurity.govt.nz/pests/surv-mgmt
- For a popular guide to the IPCC reports, visit the website of the United Nations Environment Programme www.grida.no/publications/climate-in-peril
- Information on droughts, floods and emergencies, land and water resources, irrigation practices and adverse events can be found in the Rural New Zealand section of the MAF website www.maf.govt.nz
- Information on projects under MAF's Sustainable Farming fund targeting climate related issues can be found in the Sustainable Farming section of the MAF website www.maf.govt.nz
- Your local council may also have information on climate change. Visit www.localcouncils.govt.nz for a list of council websites.

The following websites provide a range of resources and publications related to climate change adaptation.

INDUSTRY

- Dairy NZ www.dairynz.co.nz
- Fert Research www.fertresearch.org.nz
- Foundation for Arable Research www.far.org.nz
- Horticulture NZ www.hortnz.co.nz
- Meat and Wool New Zealand www.meatnz.co.nz
- NZ Kiwifruitgrowers Inc. www.nzkgi.org.nz
- NZ Forest Owners Association www.nzfoa.org.nz
- Organics Aotearoa NZ www.oanz.org.nz
- Sustainable Winegrowing New Zealand www.nzwine.com

CROWN RESEARCH INSTITUTES

- AgResearch www.agresearch.co.nz
- GNS www.gns.cri.nz
- Landcare Research www.landcareresearch.co.nz
- NIWA www.niwa.co.nz

THIS REGIONAL SUMMARY IS ONE OF EIGHT FROM THE RESOURCE PACK: CLIMATE CHANGE: A GUIDE FOR LAND MANAGERS. TO VIEW OTHER MATERIAL IN THIS RESOURCE PACK VISIT WWW.MAF.GOV.TZ/CLIMATECHANGE OR PHONE 0800 CLIMATE TO REQUEST A HARD COPY.

Published by Ministry of Agriculture and Forestry
PO Box 2526, Wellington 6140.
Freephone: 0800 008 333
Web: www.maf.govt.nz

DISCLAIMER

While every effort has been made to ensure the information in this publication is accurate, the Ministry of Agriculture and Forestry does not accept any responsibility or liability for any error of fact, interpretation or omission.

