

TEMPERATURE, CLIMATE CHANGE AND HEALTH

This factsheet presents the latest data on ambient temperature in New Zealand (NZ), and shows how it relates to health.

New Zealand is getting warmer

There is now clear evidence that the world's climate is changing. Between 1880 and 2012, the world warmed by an average of 0.85°C.¹ Climate scientists believe that the main cause of this warming is anthropogenic (human-produced) activities, rather than the earth's natural variation. In 2013, climate scientists predicted that the world will warm by between 0.3-4.8°C before the year 2100.¹

In NZ, the National Institute of Water and Atmospheric Research (NIWA) has concluded that the mean annual temperature increased by 0.96°C between 1910-2010 (Figure 1).² NIWA used temperature records from several long-standing weather stations around the country.

We used NIWA data from around the country to determine which areas have high numbers of very cold and very warm days (Figure 2). Our results from 2004-2013 show more cold days are experienced in the south than the north, while warm days are more common in several isolated territorial authorities, particularly in the east of both North and South Islands. The significance of temperature extremes is that they relate most strongly to health effects (see below). Our website shows how these temperature extremes have changed over the past 14 years, and gives more detail about the data.

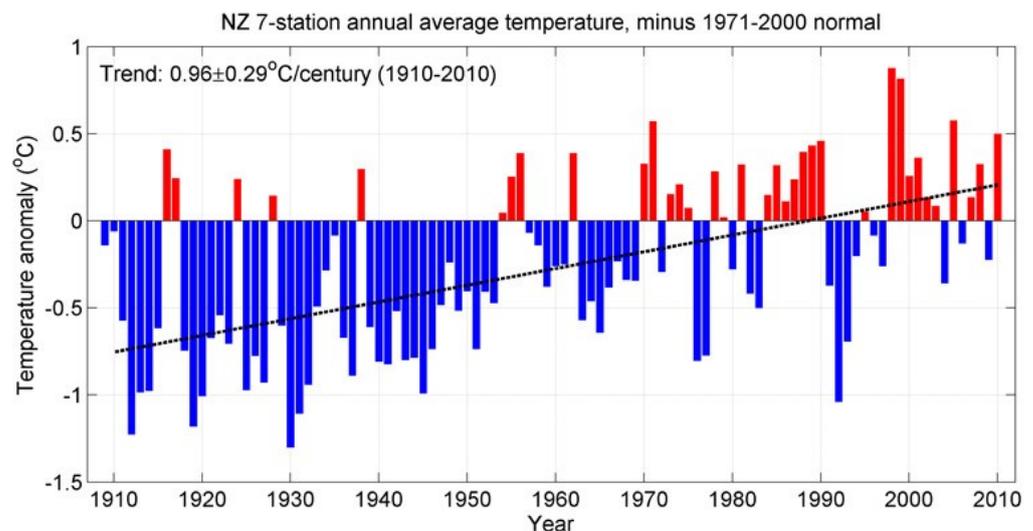


Figure 1. Mean annual temperature rose 0.96°C in the past 100 years
Source: NIWA

The temperature projections for NZ are for a 1°C rise by 2040, and a 2°C rise by 2090. It is also very likely that there will be an increase in the number of very hot days- particularly in the north and east North Island and the eastern South Island- and a decrease in the number of very cold days- especially in the South Island.³

A warmer climate will affect our health

The projected temperature changes are sufficient to affect our health.

Some temperature changes will benefit health. A decrease in the number of very cold days means fewer cold-related deaths and hospitalisations from cardiorespiratory (heart and lung) conditions.

However, any reduction in cold-related health effects is likely to be outweighed by a projected increase in heat-related death and illness.⁴ Heat can affect health in many ways, from a mild 'heat rash' to dehydration or worsening of cardiac (heart) problems. It can also worsen respiratory (lung) conditions through increasing air pollutants. Studies overseas have shown that heat waves increase death rates. For example, the south-east Australian heat wave in early 2009 was associated with an additional 374 deaths.⁵ There is also some evidence that death rates in NZ begin to increase when daily temperature increases.^{6,7}

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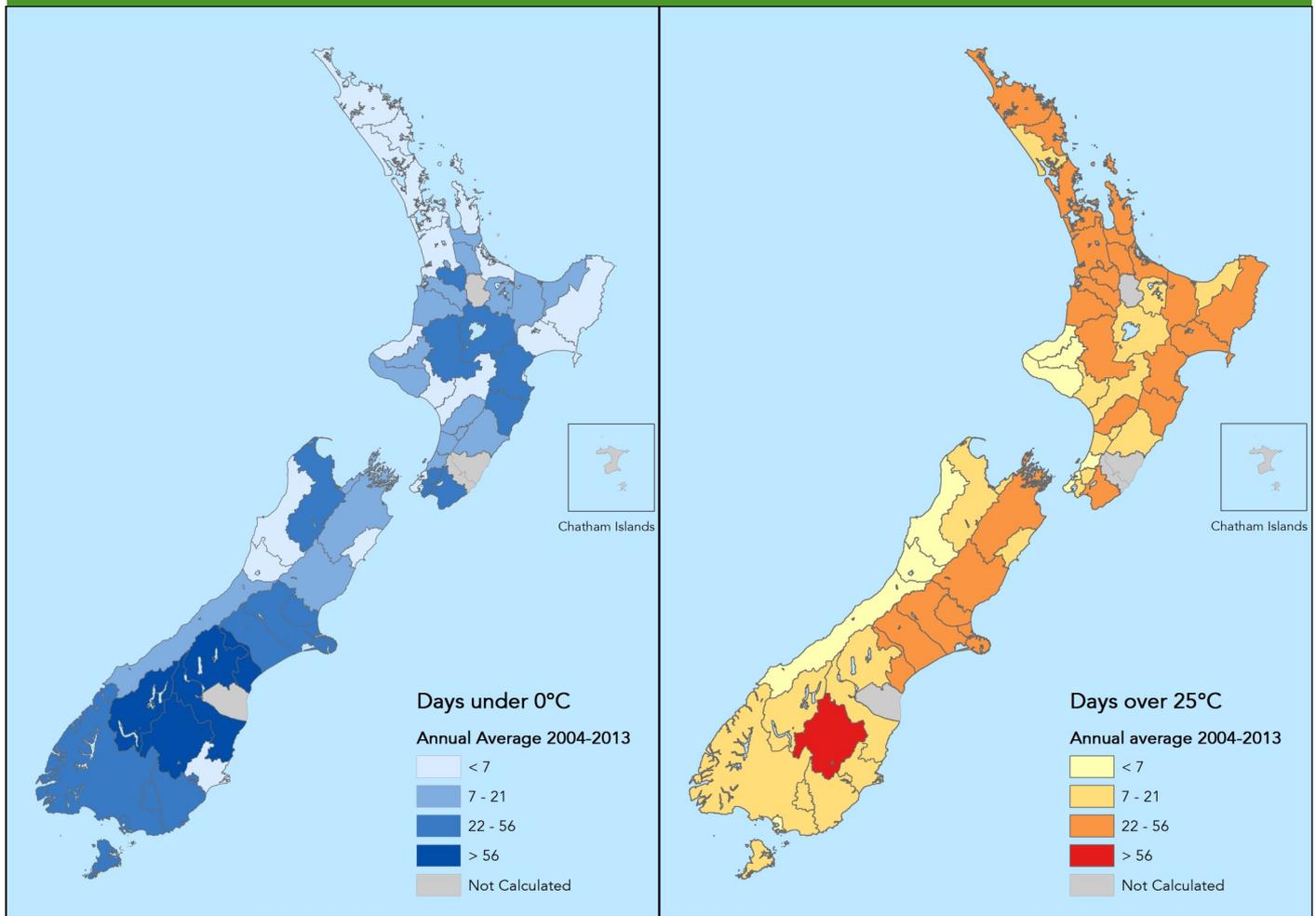


Figure 2 Annual average number of very cold (minimum temperature <0°C) and very warm (maximum temperature >25.0°C) days in NZ Territorial Authorities. Data Source: NIWA

Temperature-related deaths affect vulnerable populations the most. This includes young children, elderly people, those on low incomes, indigenous populations and those with chronic disease or disability. Combining temperature data and population data shows us that Northland, the east coast of the North Island, and parts of the Bay of Plenty are likely to be regions where people will be particularly affected by climate change.

References

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