



Media release

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Heat alert project aims to help reduce health impacts from warming climate

A new heat alert pilot project in place this summer is a first step towards supporting communities at greatest risk from health impacts related to climate change.

The heat alerts are a first in New Zealand and have been developed and produced by MetService, the Climate Change Research Institute (CCRI) at Te Herenga Waka—Victoria University of Wellington, and the Institute of Environmental Science and Research (ESR).

As part of the pilot, MetService will monitor heat alerts for 22 locations across Aotearoa. When a significant heat event is forecast for one of the locations, a heat alert banner for the affected area will appear on the forecast page on metservice.com.

Emma Blades, Customer Relationship Manager at MetService hopes the trial of heat alerts will support the need of sectors most prone to high heat weather events.

“As New Zealand’s official provider of severe weather warnings, our role at MetService is to help Kiwis make informed decisions based on the weather. We are proud to work with our partners to develop and deliver this trial product, and with the Canterbury DHB, to support those most at risk from high summer temperatures.”

The Canterbury District Health Board (CDHB) will trial the heat alerts this summer.

Extreme heat events are worsening in response to human-induced climate change.

Recent research found all New Zealand regions have seen increases in high summer temperatures in response to half a degree of global warming. Some regions across New Zealand have experienced more than a five-fold increase in the frequency of extreme hot days. Temperatures are currently rising by about 0.25°C per decade globally.

Despite New Zealand's relatively cool climate, ample research has found exposure to relative extreme temperatures, even in milder climates, can lead to significant adverse health outcomes.

ESR Senior Scientist Dr Annette Bolton has been working on adaptation planning for climate-related health impacts.

"Having an early warning system is a really important step towards reducing the impacts of heatwaves. It is only going to get warmer and more uncomfortable for many. The pilot will be a success if we can reduce the number of people suffering heat-related illnesses and going to hospital, or even increased awareness."

The heat alert thresholds were calculated by Dr Luke Harrington, Senior Research Fellow at Te Herenga Waka—Victoria University of Wellington's CCRI, as part of the *Whakahura* project, funded by the Ministry of Business, Innovation and Employment's Endeavour Fund.

Dr Harrington explained, "In New Zealand, a lack of targeted monitoring means we have less data relating to the health impacts of extreme heat than other countries. While these monitoring systems are being improved, we have opted to select thresholds for heat alerts that are conservatively high, by international standards."

"Specifically, we identified periods of relative extreme 'feels like' temperatures on a city-by-city basis, such that each alert threshold has only been exceeded a handful of times over the past 30 years," Dr Harrington stated.

For cities such as Christchurch, this means monitoring weather forecasts for predictions where the hottest daytime "feels like" temperatures will exceed 28 degrees for two or more days in a row.

For Gisborne, this threshold is closer to 31 degrees, while thresholds of between 28 and 30 degrees set the benchmark for most centres across the top half of the North Island.

Hamish Sandison, Emergency Preparedness Coordinator, Community and Public Health, at the Canterbury DHB, said, "Heatwaves are dangerous to everyone, especially for

particular sections of the community such as infants and children, the elderly, pregnant women, outdoor workers, and people with pre-existing medical conditions.

“The rise in morbidity and mortality because of very warm weather follows sharply, so we regard the pilot heatwave alert system as being essential to early activation of our heatwave response plan, giving Canterbury DHB a window of opportunity to take effective action, which will prevent illness and save lives.

“Overseas research shows that concurrent heatwave and COVID-19 events present additional challenges for health professionals, so the timing of the pilot is ideal in facilitating effective planning for that too.”

In the future, the team from ESR, the CCRI and MetService hope to work with other sectors that can help our populations adapt to extreme temperatures.

ENDS

Notes to editors:

Strong evidence shows that extreme heat and heatwaves have negative impacts on health. Extreme heat can cause illness and death, but effective planning and actions can reduce its effects on health. Because effects of heat are associated with relative rather than absolute temperatures, even in New Zealand’s temperate climate people can experience negative health effects with modest increases in seasonal temperature.

Everyone is vulnerable to extreme heat. However, babies and infants, older people, those with pre-existing medical conditions or on certain medications are more at risk.

The heat alert pilot will run for a three-month period from December 2021 through to the end of February 2022. The intent is to take the learnings from the heat alert scheme this summer, to then refine and improve the service for the 2022/23 summer period.

To define temperature thresholds for the 22 locations selected for the trial, hourly observation data was used from MetService weather station locations nationwide to calculate the daily maximum “feels like” temperature. The “feels like” temperature is calculated using the standard MetService calculation, which includes humidity and wind. The hourly data for each location has been recorded since 1993.

Using this hourly data, the group ran 1-day, 2-day and 3-day periods across the entire 28 years available of data for each weather station. To extract the top-ranked heat "events" for each location, the event definition was the daily maximum "feels-like" temperature averaged over each of the running 1-, 2- and 3-day periods. Once three lists of ranked "feels-like" temperatures, each considering different levels of event persistence were developed, the group combined this information to select a threshold temperature that, for each station, was rarely exceeded for two or more days in a row.

The thresholds set for the 22 locations in the trial are shown below:

Location	2-day threshold	Location	2-day threshold
Gisborne	31	Whakatane	28
Hamilton	30	Rotorua	28
Napier	29	Taupo	28
Timaru	29	Tauranga	28
Ashburton	29	Blenheim/Woodbourne	28
Lower Hutt	29	New Plymouth	27
Whangarei	29	Queenstown	26
Dunedin	28	Nelson	26
Auckland	28	Oamaru	26
Christchurch	28	Invercargill	26
Palmerston North	28	Hokitika	24

An example of an alert matrix provided daily to the Canterbury District Health Board:

Maximum Feels Like Temperature	Heat Alert Threshold	Tue 23 Observed	Wed 24 Observed	Thu 25 Observed	Today Forecast	Sat 27 Forecast	Sun 28 Forecast	Mon 29 Forecast
Christchurch	28	16	20	21	26	17	16	21
Ashburton	29	17	22	28	24	14	17	19

Threshold met for day or within 1°C for 2+ days	Heat Alert Threshold met for 2+ days
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