

# Road safety taken to a **new level** in New Zealand

*The New Zealand MetService's new, innovative real-time weather reporting model is helping travelers on the Central Plateau to drive safely, even in the most demanding weather conditions.*

Developed by MetService, the Road Weather Station Network features 12 weather stations using Vaisala road and meteorological sensors that provide up-to-date weather and road information for the central North Island. The solution won the road engineering category of the annual New Zealand Road Safety Innovation and Achievement Awards in 2008.

According to Peter Fisher, MetService Senior Market Manager, the Network is aimed at making the region's roads safer for all users. "In 2007, we were contracted by the

NZ Transport Agency to devise a system that would provide their road contractors with real-time road and weather observations, as well as site-specific forecasts, at 12 key locations around the Central Plateau, where severe weather and icing conditions have traditionally caused problems."

## **First of its kind in New Zealand**

Following Vaisala's thermal mapping of the State Highway network, as arranged by the NZ Transport

Agency, Vaisala designated climatic domains representing regions of similar climatology. Twelve road weather stations, each reporting key road and weather information every minute, were designed, based on World Meteorological Organization standards, and installed at key locations within each central North Island climatic domain from September 2007 to July 2008.

"The Network, which is the first of its kind in New Zealand, provides contractors with real-time road weather information as well as



forecasts up to 65 hours in advance. Therefore, contractors will know the best times to carry out road maintenance work and road de-icing in winter,” Mr. Fisher explains.

Being able to plan around the weather also helps to minimize road disruptions and increases road safety. “The Road Weather Network aims to save time, resources and, ultimately, people’s lives.”

The wireless road weather stations provide real-time air and road information from each location. The MetService then makes use of these observations to add value to the hourly wind speed and direction, air temperature, dew point, relative humidity, rainfall, pressure, solar radiation and cloud cover forecasts at each location. Sensors embedded in the road at these 12 points simultaneously convey information about the road conditions.

“Access to this information allows the roads to be kept open for longer and enables the traveling public to have confidence that the roads are safer to travel and are being maintained in a safe and efficient manner,” Mr. Fisher says.

## No more guesswork

Prior to the Network’s introduction, road contractors had no official weather monitoring or forecast service in place, other than the MetService’s generic forecast and a single weather station at the Desert Road summit. Therefore, contractors had to rely on a combination of intuition, basic weather knowledge and some non-networked observation points to be able to carry out their work.

“In preparing for an ice event, road contractors would sometimes apply expensive CMA (Calcium Magnesium Acetate) to roads which helps to keep them clear of ice for up to five days. But if it rained shortly afterwards, the CMA would be washed away. Alternative ice management procedures would then have to be considered, meaning



*Weather sensors located in South Waiouru.*

further traffic delays for drivers.” Being able to access current information has changed all that.

“By providing real-time road and weather observations from each of the 12 locations, the Road Weather Station Network gives contractors more control over ensuring safe driving conditions during icy periods.” Contractors also benefit as they used to have to travel long distances, often early in the morning, to determine the meteorological conditions at a site. “Now they can just log into their MetService MetConnect weather information website from their home, truck or office and view the real-time and forecast road weather conditions, which saves time and money.”

## Proud to be saving lives

Not surprisingly, Mr. Fisher is proud of the Road Weather Network and the award it has won. “This initiative is the first of its kind in New Zealand and we’ve developed it specifically for our environment and conditions. Feedback from users continues to be exceptionally positive.”

While it’s still too early to say if the Network has reduced the number

## The wireless road weather stations provide real-time air and road information from each location.

of weather-related vehicle accidents in areas where the automated weather stations are operating, Mr. Fisher says they are confident the system has the potential to save lives. MetService is also keen to widen the scope of the ice prediction system from site-specific reporting and forecasting to network-wide ice prediction, and to expand the Network to other parts of the country, such as Central Otago and Inland Canterbury.

### Further information:

[www.vaisala.com/weather/applications/traffic](http://www.vaisala.com/weather/applications/traffic)