



Ontario: Road Weather Network

RWIS in Canada is enhanced with Mini-RWIS stations, without busting the budget



The Ministry of Transportation Ontario (MTO) is responsible for monitoring and managing the province's road network. Given Ontario's size, population dispersion, and variety of microclimates, an advanced road-weather information system (RWIS) is necessary to ensure public safety along Ontario's roads.

The Challenge

Ontario's RWIS network is considerably more dense in the south where most of the province's population resides, but there are critical roads throughout the province. MTO needed access to more geo-relevant road weather data, but traditional stations were infeasible due to siting restrictions and the expense of running ac power to remote locations. In search of an alternative, MTO experimented by attempting to use solar energy to power traditional stations. The performance of these stations, however, was unpredictable and they were unable to provide consistent, accurate data.

Case Study Summary

Application:

Adding stations to RWIS in sparsely populated area

Location:

Ontario, Canada

Designed and Installed Stations:

Campbell Scientific Canada

Sponsoring Organization:

Ministry of Transportation Ontario (MTO)

Contributor:

John Markham; Campbell Scientific

Products Used:

CR300 data logger, CCFC camera

Measured Parameters:

Road-surface temperature, air temperature, relative humidity, photographs from camera

More info: 435.227.9120

www.campbellsci.com/rwis



MTO, like many rural roadway operators, faced a true road-weather challenge.

The Solution

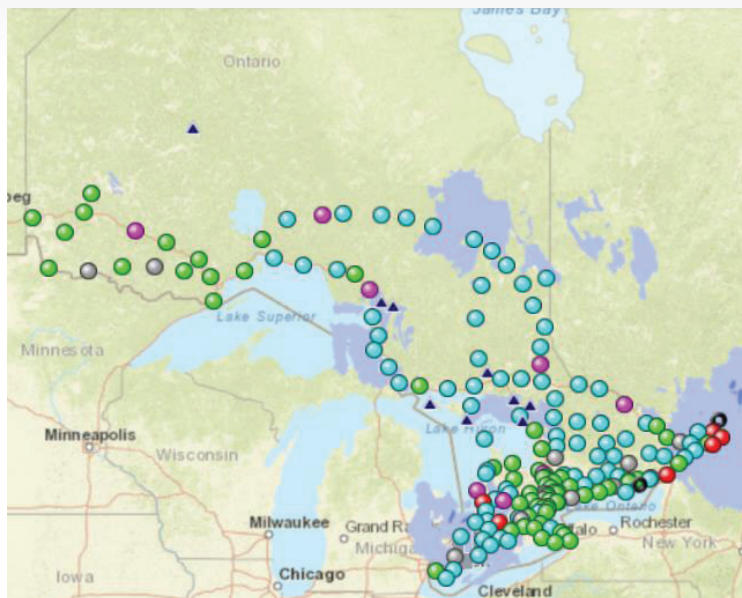
To confront this challenge, MTO initiated a Mini-RWIS pilot project. Mini-RWIS stations use low-power remote processing units (RPU) to collect basic RWIS data and images from a subset of RWIS sensors. The careful selection of low-power components allows the Mini-RWIS stations to be reliably solar powered, and their small footprint allows deployment in places inaccessible to traditional RWIS stations.

After a thorough site assessment, 11 locations were selected. Due to their simple configuration and footprint, a two-person team installed all 11 Mini-RWIS stations in 5 days throughout rural Ontario.

The Results

These Mini-RWIS stations have successfully demonstrated to MTO that solar-power stations are capable of providing reliable data even in difficult circumstances. Mini-RWIS will allow MTO to create a dense RWIS network province-wide, while remaining fiscally responsible.

With microclimate data from even the most remote regions of the province, MTO can better forecast for condition-based maintenance activities and create safer roadways for the traveling public.



Triangles are Mini-RWIS weather stations and circles are traditional RWIS weather stations.

