

Utah: Road Weather Management

Rapid, reliable visibility and precipitation data from across the state



Overview

The state of Utah has unique geography that makes it challenging to employ a one-size-fits-all solution to road weather management. A wide variety of climatic conditions cause Utah to experience floods, snow drifts, landslides, avalanches, high winds, and fires.

Solution

To deal with the wide variety of weather conditions, Utah Department of Transportation (UDOT) has developed one of the most extensive Road Weather Information System (RWIS) networks in the US. Teaming up with Campbell Scientific, they have deployed 175 RWIS Environmental Sensor Stations (ESS) to capture real-time data across the state. These stations include full-RWIS, mini-RWIS, and portable trailer RWIS.

Each RWIS station measures several meteorological and road parameters that can include:

» Wind speed and direction

Case Study Summary

Application

Roadway condition data to support weather forecast operations and winter maintenance practices

Location

Utah

Products Used

CS125, CS120A, CS120

Contributors

John Markham, Campbell Scientific, Inc.
Mike Brettle, Campbell Scientific Europe

Participating Organizations

Utah Department of Transportation (UDOT)

Measured Parameters

Wind speed and direction, air temperature, relative humidity, visibility, present weather, road temperature, road condition, road grip, subsurface temperature, soil moisture, snow depth, solar radiation

- › Relative humidity
- › Visibility
- › Present weather including type (rain, snow, etc.), rate, and accumulation
- › Road temperature
- › Road condition (dry, damp, wet, slush, snow, ice)
- › Road grip
- › Subsurface temperature
- › Soil moisture
- › Snow depth
- › Solar radiation

These stations may also include a camera for visual confirmation of roadway conditions.

At the forefront of road weather management, UDOT needs the ability to develop custom stations and measurement techniques to support their weather forecast operations, winter maintenance practices, and during and post storm analysis. The Campbell Scientific Remote Processing Units (RPU) or data loggers at the heart of their systems allow UDOT to prepare for and manage even the worst storms, keeping the roads clear and the traveling public safe.

Benefits

“The Campbell Scientific systems we use are necessary to UDOT and are incredibly useful. They allow us the flexibility to use a wide variety of sensors from various providers, can be used for a variety of applications, and allow us to run sensors and organize the output data to our specific needs that a closed turn-key system may not allow.”

—Cody Opperman, UDOT Weather Operations Program Specialist

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Campbell Scientific, Inc. | 815 W 1800 N | Logan, UT 84321-1784 | (435) 227-9120 | www.campbellsci.com
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