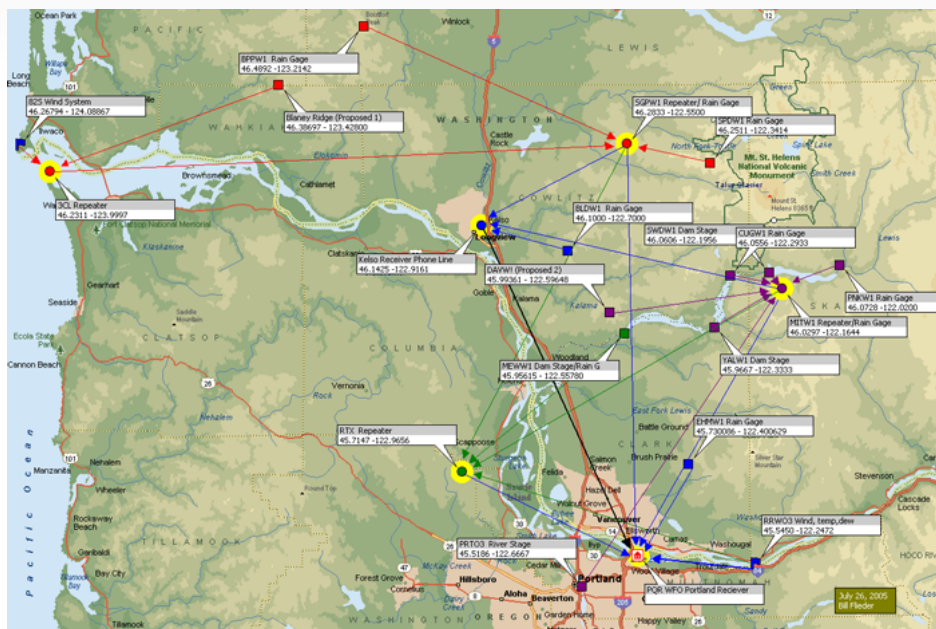# CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

Washington: ALERT Station Retrofit

ALERT stations updated and upgraded with Campbell Scientific dataloggers

Portland ALERT gage map

The National Weather Service (NWS) operates a network of automated flood-warning stations around Mount St. Helens. Many of the sites were originally installed as seismic monitoring stations shortly after the volcanic eruption. The stations were later repurposed for flood warning.

The stations in the network measure rainfall and use the ALERT radio protocol for telemetry. The original hardware is aging and spare parts are no longer available. Data from the network is important since there are over 30 years of historic data, which is used for calibration of NWS rainfall forecast models.

Campbell Scientific equipment was chosen to retrofit the original ALERT flood-warning equipment. Campbell Scientific was chosen for modularity and flexibility. The flexibility allowed providing additional capabilities while maintaining backward compatibility with the existing ALERT radio network. Modularity allowed reusing canister-style enclosures from old Handar transmitters, providing cost savings. New hardware used is the CR200X datalogger, RF500M radio modem, and Midland radios.

The new transmitters are able to internally log data, providing a continuous record of measured and transmitted data. Each can serve as an ALERT repeater.

Five retrofitted cans are installed in the field and working without issue alongside the older ALERT stations. Five more are in preparation for deployment in the this fall. All 20 stations of the network will be upgraded with Campbell Scientific equipment as funding becomes available. As the network is upgraded, the dual communication capabilities of the RF500M will make two-way communication available in addition to the one-way ALERT transmission.

Case Study Summary

Application
ALERT flood warning system

Location
Mount St. Helens, Washington

Products Used
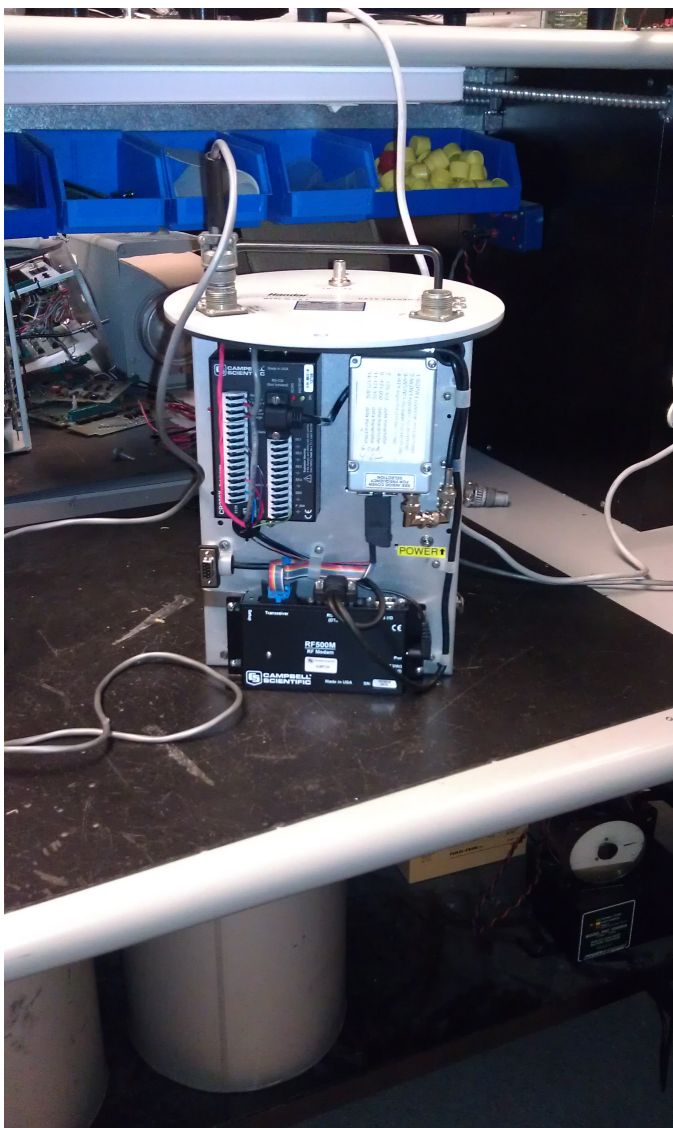CR200X, RF500M

Contributors
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Participating Organizations
National Weather Service (NWS), Portland, Oregon

Measured Parameters
Rainfall and battery voltage

View online at: **www.campbellsci.com/alert-retrofit**