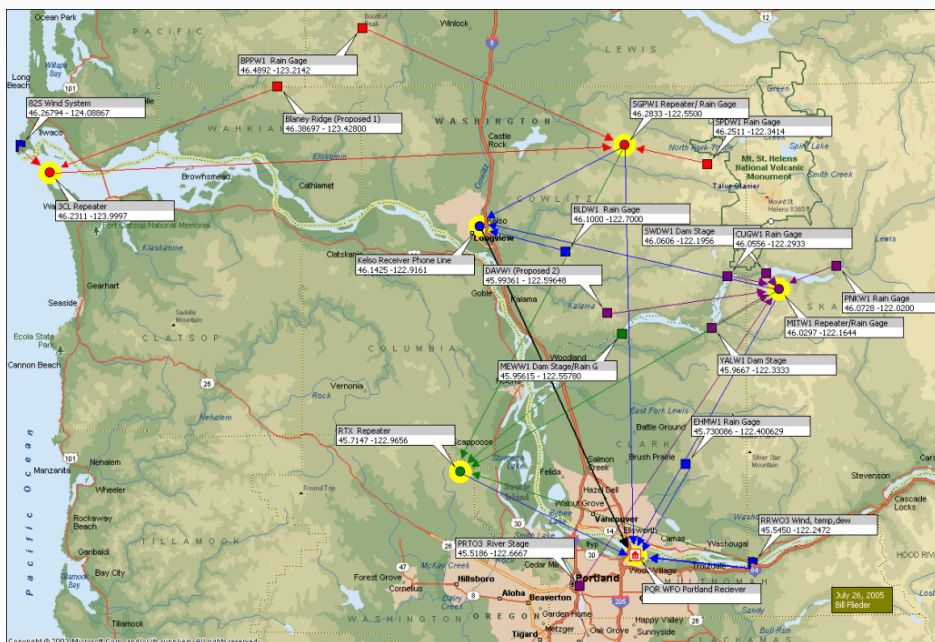


## Washington: ALERT Station Retrofit

*ALERT stations updated and upgraded with Campbell Scientific data loggers*



*Portland ALERT gauge 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

### Case Study Summary

#### Application

ALERT flood warning system

#### Location

Mount St. Helens, Washington

#### Products Used

CR200X, RF500M

#### Contributors

Joseph Hannon, NWS

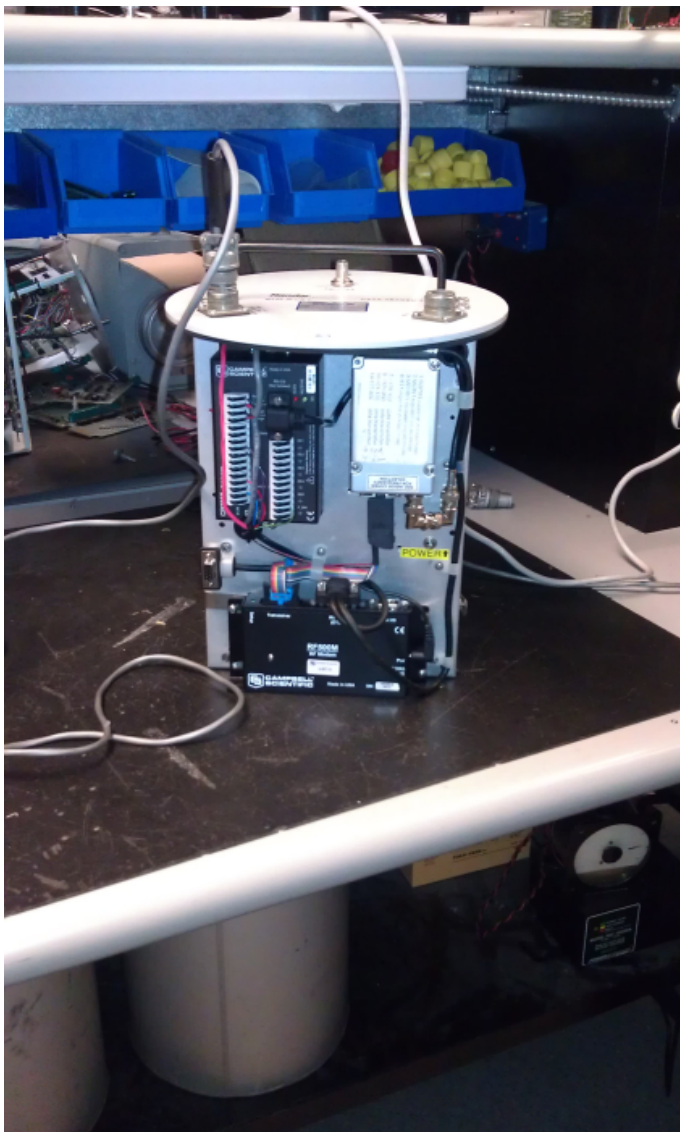
#### Participating Organizations

National Weather Service (NWS),  
Portland, Oregon

#### Measured Parameters

Rainfall and battery voltage

capabilities of the RF500M will make two-way communication available in addition to the one-way ALERT transmission.



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