

Portable road weather information system: fabrication and uses of autonomous weather stations deployed for atmospheric data collection

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The collection of accurate real-time atmospheric data is of paramount importance when working in an operational setting. Both the current and historic state of the atmosphere greatly affect the decision making process of avalanche and weather forecasting, rescue operations, and mining and construction projects, as well as addressing sighting concerns for future permanent weather station installations. In some areas, permanent weather stations exist and pertinent weather information can either be directly obtained or extrapolated to a given location. In other situations, cost, access and permitting issues can make having a permanent fixture prohibitive. With this in mind, four stand alone portable weather stations (PWS) were manufactured by Utah Department of Transportation's (UDOT) Weather Operations Group. These PWS can be transported to a sight specific location, produce their own power and come fully equipped with communication packages capable of broad band data dissemination. In addition, UDOT's PWS are designed to be set up quickly and with ease by one individual. This paper will outline the research, design and fabrication process of constructing these weather stations, a brief cost analysis, and the use and benefits of these systems in an operational capacity.