RP 276 –Monitoring Snow Temperature Conditions Leading to Avalanches in State Highway 21

- Project Description:
  The temperature conditions within the snowpack along Idaho highways, in particular HW21 ("Avalanche Alley"), control the rate of settlement of new snow, the rate of strengthening of the snowpack, and the formation of weak layers that cause destructive avalanches that reach the highway. The purpose of this project is to develop and test a real-time system for monitoring temperature conditions throughout the snowpack with the goal of improving estimates of the stability of slopes affecting the highway, providing information about the formation of weak layers and monitoring of the snow conditions needed to predict changes in snow strength.

- Project Objective:
  The main objective of this project is to develop and pilot test a real-time snow temperature monitoring system, which measures snow temperatures every 5cm throughout the snowpack (0-2.5 meters), with an accuracy of better than 0.1 deg C. Preprocessing software will be developed to process the raw temperature data and compress it, as well as software to communicate with a satellite modem to transfer the compressed data. Once developed, researchers will test the real-time processing and telemetry, along with the visualisation software. The software will then be improved based on feedback from ITD forecasters, and the results of this study will be used to develop a recommendation for operational use of the system at the end of the project.

- Estimated Completion Date: August 31, 2020
- Budget: $45,000
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