

Idaho: Slope Stability Monitoring

Monitor a slowly moving slope, detect any significant movement, and trigger alarms



View upslope across fissure system (foreground) to measurement station

Our customer required a data acquisition and control system to monitor a slowly moving slope, detect any significant movement, and trigger alarms to alert personnel working at the base of the slope. The system needed to withstand environmental extremes, operate from a self-contained power supply, and transmit data via radio to both an alarm control station and a computer base station. In the slope's history, catastrophic failures were precursed by gradually rising rates of slippage, so the system had to detect, record, and respond to both short- and long-term (cumulative) movements.

A CR10 Measurement and Control System and four string potentiometers were installed. The potentiometers were installed at positions straddling the main fissure system. Every minute the CR10 measured each potentiometer and compared the results against values recorded 12 hours earlier. If displacement exceeded programmed tolerances, the CR10 alerted personnel to evacuate the area. Displacement values were then transmitted to the base station computer to determine a course of action.

Case Study Summary

Application

Monitoring long-term slippage and short-term slope failures

Location

Idaho, USA

Measured Parameters

Displacement across surface fissures

Controlled Devices

Alarm system

View online at: www.campbellsci.eu/idaho-slope-stability-monitoring 