



UNIVERSITY TRANSPORTATION CENTER

RESEARCH BRIEF

Hammer Time: Using the Schmidt Hammer to Improve the Rockfall Activity Index (RAI) Forecasting Accuracy

Margaret Darrow, PhD



Background

Rockfall represents a significant hazard to the public traveling along transportation corridors, especially in the Pacific Northwest (PNW), an area of high topographic relief and precipitation. As part of previous PacTrans-funded research, our research team modified the Rockfall Activity Index (RAI) to account for rockfall attenuation after earthquakes, another parameter that increases rockfall risk in the PNW. On-going work includes modifying the procedure to estimate the RAI activity rate based on in situ rock strength testing with a Schmidt hammer, a well-established and easy-to-use field instrument for assessing rock strength in the field. This project will complement the on-going work by measuring the accuracy and repeatability of Schmidt hammer data to determine rock strength and weathering conditions.



Research Project

The tasks in this project include: 1) determining in situ rock strength and weathering conditions for Alaska and Oregon field sites; 2) conducting unconfined compressive strength tests for selected rock samples; 3) performing a statistical analysis of the Schmidt hammer results as related to lithology and rock slope classifications; and 4) summarizing the pros and cons of using a Schmidt hammer in the field. A graduate student will be responsible for performing the work, and this project will represent a key component of her thesis. The results will be incorporated into the RAI procedure to conduct “hotspot” mapping, thus improving the accuracy of the RAI methodology.



ABOUT THE AUTHORS

The research team consisted of Margaret Darrow of the University of Alaska Fairbanks.

ABOUT THE FUNDERS

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EXPECTED DATE OF COMPLETION

March 2023

FOR MORE INFORMATION

<https://depts.washington.edu/pactrans/research/projects/hammer-time-using-the-schmidt-hammer-to-improve-the-rockfall-activity-index-rai-forecasting-accuracy/>