Colorado Scientific Society

Lecture Announcement

Thursday, July 16, 2020, 7:00 p.m.
Virtual presentation via Zoom
See CSS website for link to meeting, https://coloscisoc.org/

Historic avalanches in Hinsdale County, Colorado: Impacts to Lake City, old mining dams, and new evidence for the association of snow-and-rock avalanches as a means of forming rock glaciers

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Abstract: During late winter of 2019, Hinsdale County (and other areas of Colorado) experienced unprecedented avalanche activity. Hundreds of avalanches were of a size and destructive power beyond anything previously recorded in Colorado. Most of the avalanches ran along established paths but were wider and longer than previous events. Some occurred in areas without previous activity, carving through mature timber, shaving trees and soil down to bedrock, and forming impact features either high up opposite sides of valleys or comingled with avalanches originating from the other side. In 2019, avalanches filled both Henson Creek and the Lake Fork of the Gunnison River above Lake City, CO, with debris fields consisting of a morass of trees, soil, and rock packed in snow and ice. Henson Creek also contains two historic, concrete dams constructed in the 1880's and early 1900's (the Ute-Ulay and Hidden Treasure dams). The potential for catastrophic flooding and/or debris flows into Lake City led Governor Jared Polis to issue three emergency declarations. Analysis of the dams and the potential impacts from debris led to the partial removal of the Hidden Treasure dam. Evaluation of the natural draining characteristics of the debris/ice mixtures concluded that construction of debris-flow barriers was not necessary. At least one snow avalanche was comingled with a massive rock avalanche. That case demonstrates a clear link between snow and rock avalanches and provides evidence for a potential mechanism in the formation of high-mountain rock glaciers.

Jon Lovekin is an engineering geologist with the Colorado Geological Survey in Golden, Colorado, specializing in geologic hazards and their potential impacts to planned development. He provides technical input for projects in geologically difficult terrain and responds to requests from the Colorado Office of Emergency Management or local governments for specific hazards that may impact public safety. He provides technical assistance and presentations about risks related to rockfall, landslides, debris flows, accelerated erosion, avalanches, and post-wildfire geologic threats. Jon received a BA in Geology from the University of Colorado in 1982 and a Master of Engineering (Geological Engineer) from the Colorado School of Mines in 2007. He also has experience interpreting stratigraphy and sedimentology in oil and gas exploration, assessing environmental problems related to historic mining, and evaluating geologic hazards related to urban development projects. He has been a rockfall mitigation specialist on projects in the San Juan Mountains and throughout the United States.