



San Joaquin Geological Society

VIRTUAL MEETING

Date: Tuesday, November 10, 2020

Time: 6:30 PM Virtual Lecture

Place: Zoom link to follow

Our virtual lecture will be held via Zoom. Meeting link and access code to follow!

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<http://www.SanJoaquinGeologicalSociety.org/>

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Shallow landslide and debris flow activity in San Diego County, early April, 2020

Presented by: Paul Burgess

Abstract: In early April 2020, a large regional storm-induced landslide event affected multiple communities in northern San Diego County. In particular, early on the evening of Friday April 10, a large debris flow impacted a beloved local tennis club, residential community, assisted-living facility, and charter school in Encinitas and caused upwards of \$1 million in damage. In late April, Burgess traveled to the impacted area and made field observations. UAS-based imagery was obtained from the tennis club, and subsequent work with Alex Morelan (Engineering Geologist, CGS) was essential for performing change detection and slide volume calculations within the inundation zone of the debris flow. Approximately 2,500 cubic meters of debris traveled approximately one kilometer from its source; luckily the bulk of the debris (approximately 2,000 cubic meters) was contained by tennis court fencing, which saved the downstream area from more significant damage. The importance of characterizing the debris flow and other landslides as completely as possible led to the additional gathering of meteorological data for the storm event. Stefani Lukashov (Engineering Geologist, CGS) provided analysis of available regional and local precipitation data for the storm event, which successfully documented triggering rainfall conditions responsible for the landslide and debris flow activity. In all, more than 40 separate landslide events, including the debris flow, occurred within an approximate 48-hour period of time during and immediately following the largest recorded rainfall on record in northern San Diego County. The cataloging of these landslide events has added a robust collection of new data to the CGS Recent Landslides database, demonstrating the utility of this innovative data product.

Biography: Paul Burgess is an Engineering Geologist in the California Geological Survey's Regional Geologic and Landslide Mapping Program, where he arrived in October 2018. Prior to joining the CGS, Burgess worked in the geotechnical engineering world in Los Angeles. He earned a MS in Geology from the University of California, Los Angeles focused on studying active faulting and tectonic geomorphology in the northeastern Indian Himalayan foothills. Prior to his time at UCLA, he earned his BS in Geology at the University of Houston in Texas, where he first became fascinated in geology after participating in geologic fieldwork in the far northwestern Nepal Himalaya. Since coming aboard the CGS, Burgess has been especially grateful to steadily grow his knowledge of mapping landslide geomorphology and processes.