

ASSOCIATION OF ENVIRONMENTAL
& ENGINEERING GEOLOGISTS
INLAND EMPIRE CHAPTER

MAY 2026 MEETING ANNOUNCEMENT

Greetings AEG Inland Empire Chapter Members

We hope you will join us for our 5th 2026 AEG Inland Empire meeting. The meeting will be held Wednesday, May 13th, at the Old Spaghetti Factory in Rancho Cucamonga. This is our “NORTH” venue of our roving AEG-IE meeting locations. Looking forward to seeing you there!

Meeting date: **Wednesday, May 13, 2026**

Location: **Old Spaghetti Factory**
11896 Foothill Blvd
Rancho Cucamonga, CA 91730

Time: 5:30 pm Social Hour
6:30 pm Dinner
7:30 pm Presentation



Cost: \$45 per person with advance online registration for AEG members, \$50 without registration (RSVP or at the door) and non-members, \$10 for students with a valid student ID and current AEG Student membership.

Food: Italian

RSVP: **Register and pay online at our website:** <https://aeg-ie.org/meeting>

Please register prior to Noon 12 p.m., Monday May 11th

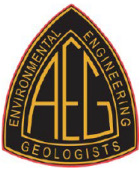
Topics and speakers:

Hunter Hager and Tandis Bidgoli, CSUSB – “Geometric and kinematic analysis of the eastern Garlock and Owl Lake faults using LiDAR-based geologic mapping, southeastern California”

Li-Chieh J. Lin and Gareth Funning, UCR – “Detection of slow landslide and infrastructure deformation using Sentinel-1 InSAR data”

Karina Ramirez and Claire Todd, CSUSB – “Quantifying and characterizing the modern evolution of debris-covered glaciers on Mount Rainier, Washington”

Jade Simoneau and Maryjo Brounce, UCR – “The distribution of critical minerals in the Salton Sea Geothermal Field”



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“Geometric and kinematic analysis of the eastern Garlock and Owl Lake faults using LiDAR-based geologic mapping, southeastern California”

Mr. Hunter Hager and Tандis Bidgoli

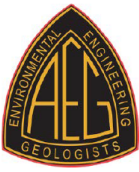
California State University San Bernardino

ABSTRACT

Southeastern California is well known for its complex network of faults that accommodate strain related to Pacific-North American convergence. Embedded in this region of predominately right-lateral strike-slip faults are the left-lateral Garlock and Owl Lake faults. The 250-km-long Garlock fault is an integral component of this network of faults, yet its overall kinematic role in accommodating plate boundary strain is poorly understood due to limited slip rate data, particularly for the eastern portion of the fault. Likewise, the ~20-km-long Owl Lake fault, which intersects the Garlock fault at its southern end, has an uncertain slip rate that allows for different interpretations of its kinematic significance and relationship with the Garlock fault. This study examines an approximately 40-kilometer stretch of the eastern Garlock fault, encompassing its intersection with the Owl Lake fault. This portion of the fault lies within the China Lake Naval Air Weapons station and the U.S. Fort Irwin boundaries, both of which have restrictions on civilian access and contain undetonated ordnance, making access poor and in some places unsafe for traditional field-based geologic mapping. The study focuses on detailed geologic mapping of these faults to determine (1) the chronology of the surficial geologic units; (2) the geometry, kinematics, and timing of the faults; and (3) slip magnitudes and rates. To overcome access limitations and establish Quaternary stratigraphy, high-resolution LiDAR (Light Detection and Ranging) and NAIP (National Agriculture Imagery Program) datasets are being used to create a detailed geologic map of the area. Preliminary analysis has recognized fifteen alluvial and lacustrine (playa) map units, differentiated by terrain analysis methods, topographic relief, and color in NAIP imagery. These units are dissected by complex EW-, E-NE, and W-NW-striking fault networks. On-going work focuses on establishing the geometry of the faults through the three-point method, documenting and measuring offset landforms, and identifying sites for Quaternary geochronology, scarp degradation modeling, and slip rate study. The resulting slip rates and fault geometries can be used to update probabilistic seismic hazard assessments for this part of California.

SPEAKER BIO

Hunter is a second year Master of Science Geology student at CSU – San Bernardino. Originally from Texas, Hunter fell in love with geology when he moved to California as a young adult. His work focuses on using remotely sensed datasets to study faults where access restrictions and rugged topography inhibit traditional field methods. In his spare time he likes to cook, garden, spend time with family, detail cars, and listen to audiobooks.



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“Detection of slow landslide and infrastructure deformation using Sentinel-1 InSAR data ”

Mr. Li-Chieh J. Lin *and* Gareth Funning

University of California, Riverside

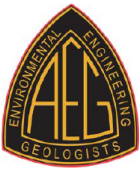
ABSTRACT

In recent decades, Interferometric Synthetic Aperture Radar (InSAR) has gradually become one of the most common geodetic tools to measure surface displacement. The popularity comes from its wide and frequent data coverage (over hundreds km² for every 12 days), high spatial resolution (~40m/pixel) and does not require high-end computing resources or field visits. Previously, the use of InSAR data was primarily restricted to research institutions or private sectors due to the non-publicly available processing software, expensive data purchases and lack of high-performance computers. Thanks to the recent developments in on-demand free processed InSAR data, the barrier has been significantly cleared and the accessibility has greatly increased which allows nonspecialists to use InSAR as a tool to study surface deformation.

In this presentation, I will briefly review how InSAR measures the surface displacement and how to interpret an interferogram. For the application, I will use examples we’ve done at the Baldhill dam (North Dakota) and the Barker dam (Texas) to investigate the slope failure due to freeze-thaw process and lateral spreading due to cracking, respectively. Results show that it is possible to monitor such deformation despite the two localities having very different weather conditions and deformation sizes. With the forthcoming NASA’s NISAR mission, with different viewing angles and different radar wavelengths, our capability of detecting such surface deformation is promised to be greatly enhanced.

SPEAKER BIO

Li-Chieh Lin received his bachelor’s and master’s degrees in geography at the National Taiwan University where he studied the human-land interaction as well as InSAR applications on different anthropogenic and tectonic processes. After receiving his master’s degree, he joined Dr. Gareth Funning’s group and began his PhD study at the University of California, Riverside. He has been working on the kinematic creep model of the central San Andreas fault and the monitoring of infrastructure damages with InSAR data. His research focuses on using InSAR to study various surface deformation and relates such deformation signals to physical kinematic models.



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“Quantifying and characterizing the modern evolution of debris-covered glaciers on Mount Rainier, Washington”

Ms. Karina Ramires *and* Claire Todd

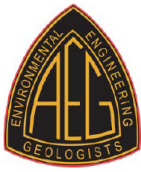
California State University San Bernardino

ABSTRACT

Mount Rainier, WA holds 10% of the glacial ice in the conterminous United States. Out of its 28 glaciers, 19 have supraglacial debris cover, particularly towards their termini. This study quantifies changes in supraglacial debris cover area on glaciers in Mount Rainier. We focus on Emmons, Winthrop, and Carbon Glaciers, the largest by area. These glaciers contribute to the Puyallup watershed, which services over 500,000 citizens and supports local agriculture and salmon runs. Debris cover plays a role in the net mass balance of a glacier, as thinner debris accelerates ablation and thicker debris insulates ice from solar radiation, reducing melt; previous research has suggested that Emmons Glacier advanced in the late 20th century due to a large rockfall. By tracking changes in debris cover area, we can inform predictions of continued glacier mass loss; for example, expansion of debris cover can result in a layer of thin debris which may accelerate melt near debris cover margins. Utilizing National Agricultural Imagery Program (NAIP), we mapped individual debris units on each glacier surface over multiple years, creating a time series of supraglacial debris cover area. To determine the potential effects on glacier mass balance, we compare these supraglacial debris unit maps to maps of glacier surface lowering created by digital elevation model (DEM) differencing. On Emmons Glacier, we use direct measurements of debris cover thickness to infer the potential impacts on mass balance. This work will help to determine the dominant depositional processes affecting supraglacial debris cover on Mount Rainier's largest glaciers.

SPEAKER BIO

Karina Ramirez is a first year Master of Science Geology student at CSU - San Bernardino. Transferring from Riverside City College, she started her glacial research with Claire Todd at CSUSB in 2023, focusing on debris-covered glaciers on Mount Rainier and their evolution with our warming planet. She plans to graduate in Spring 2027 and achieve a PhD to continue her research on the cryosphere.



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***“The distribution of critical minerals in the Salton Sea
Geothermal Field”***

Ms. Jade Simoneau *and* Maryjo Brounce

University of California, Riverside

ABSTRACT

The Salton Sea Geothermal Field (SSGF) hosts an array of “critical minerals”, resources that are essential to the manufacturing of emerging technologies which have supply chains that are not certain to meet demand (e.g., Li, Zn, Mn, Rb, and Sr). Specifically, the metalliferous geothermal brines within the SSGF that are already exploited for geothermal energy production contain, on average, ~209 ppm Li, ~507 ppm Zn, and ~1500 ppm Mn, which makes them a potential target for direct extraction. To quantitatively predict the reservoir response to direct extraction, the mineral hosts of these elements and their partitioning behaviors must be assessed. Here we present major and trace element compositions of key minerals such as chlorite, biotite, actinolite, and epidote in rocks from the California State 2-14 scientific drill core and cuttings from commercially drilled wells across the field.

SPEAKER BIO

Jade Simoneau is a second year PhD student in Earth and Planetary Sciences at the University of California, Riverside. Her interests include igneous and metamorphic petrology and trace element geochemistry. At UCR, she studies how trace elements behave in active hydrothermal systems, with a focus on the Salton Sea Geothermal Field. Her work combines analytical petrology and geochemistry to better understand how critical minerals are stored and move through the subsurface.