



# LOS ANGELES BASIN GEOLOGICAL SOCIETY

June 2025 Newsletter – Highlighting our  
Scholarship Awardees

## Earthquake tears through Myanmar, leaving military and political uncertainty, and a growing crisis

Thomas L. Davis, PhD, Geology

**Wednesday June 18<sup>th</sup>**

***Attitude Adjustment 6:00 PM, Talk begins around 7:00 PM***

Four Sons Brewing, 18421 Gothard Street, Suite 100

Huntington Beach

The Barrel Room – opposite side of the bar & eating area

*For Out-of-Towners, a Virtual Attendance Option is Available – See Below!*

### **Abstract**

Large natural disasters can alter the political and military structure of nations already weakened by civil war and fragile economics. The 2023 Syrian Earthquake and the Assad Regime collapse in late 2024 come to mind. On March 28, 2025, a magnitude 7.7 earthquake ruptured the Sagaing Fault, devastating Myanmar's demographic and economic heartland and undermining the already weakened foundations of the ruling Junta. As of April 18, nearly 3,900 deaths, 5,742 injuries, and 441 missing persons have been reported. In the Junta-controlled area, over 48,000 residential buildings were destroyed, along with thousands of schools, pagodas, offices, and health facilities. Key infrastructure, including highways, railways, and bridges, was also heavily damaged, disrupting logistics, military command-and-control, and recovery efforts. Myanmar's pre-earthquake condition was already dire. The economy shrank 18% following the 2021 military coup and remains 10% below pre-coup levels. Inflation ranges from 12–18%, poverty has doubled, and

more than three million people were already displaced by civil war. The economic toll is projected to be catastrophic: a normal distribution of a USGS estimate shows losses from \$10 to \$140.8 billion, with a mean of \$75.4 billion (Myanmar's pre-earthquake GDP was \$64.9 billion). Even the low-end estimate rivals or exceeds the costs of the devastating 2003 Iran, 2015 Nepal, and 2021 Haiti earthquakes.

Several geologic factors amplified the Myanmar earthquake's severity, especially in the area under Junta control: 1) The quake originated at a shallow depth (~10 km) along the north-south Sagaing strike-slip fault. Surface rupture was over 500 km through densely populated and economically key central Myanmar. 2) Much of the energy was funneled through the eastern-edge of the Central Burma Depression, a 10–20 km-thick sedimentary basin, which amplified and prolonged shaking due to resonance effects. This created a north-south oriented, oval-shaped zone of extreme shaking intensity (~30 km wide), with Modified Mercalli Intensity levels of IX–XIII. 3) Rupture directivity, from the mostly southward propagation of the fault rupture, further focused destructive energy into military and economic areas critical to the Junta. The Junta's military doctrine relies on centralized infrastructure and mobility, both now severely disrupted by proximity to the fault. If opposition forces can unify and capitalize on this vulnerability, and if international actors shift support away from the Junta's inefficient and corrupt aid apparatus, the crisis could open a pathway to political transformation.

Myanmar is at the intersection of several pathways: 1) A failed state with internal conflict and the potential for an immense humanitarian crisis. 2) A government- or military-backed, peaceful accommodation with the Opposition and tacitly approved by the Chinese. 3) A transition towards a unified and stable democratic government, favored by the international community, seems unlikely without China's tacit consent. China remains the only external power with the proximity, capacity, and motive to shape Myanmar's future. Its strategic interests, especially safeguarding the China–Myanmar Economic Corridor and desire for regional stability, will determine its approach. While China will not intervene militarily, it may support a reshuffle of Junta leadership, but a fully democratic government will be seen as too U.S.A.-leaning. Regardless of who governs, an urgent need now exists to establish coordinated, protected aid corridors. Without substantial external relief and recovery efforts, the impact of Myanmar's earthquake is beyond the capacity of its Junta and Opposition and poses a broader risk to regional stability. The cost of inaction could be profound.

## Biography

Thomas L. Davis is a California State registered geologist (#4171) and owner of Thomas L. Davis, PhD Geologist. Davis's work deals with structural geology, mapping, oil and gas exploration and field development. More recent work has expanded to include the energy transition, including carbon and hydrogen storage in depleted oil fields, development of natural gas in South Asia, and geothermal resources. Geographic focus is the hydrocarbon basins of central and southern California, Nevada, Colombia, Venezuela, Mexico, and South Asia (Bangladesh, Pakistan, Sri Lanka, and Myanmar aka Burma). Davis is also the founder and CEO of the nonprofit Geologic Maps Foundation, Inc. Education: BS Geology-UCLA, PhD Geology-UCSB.

<https://thomasldavisgeologist.com/>

<https://geologicmapsfoundation.org/>

## **Dinner & Voluntary Donation**

**Order & pay for your food and drink directly from the Four Sons menu.**

*The LABGS Executive Committee respectfully requests a \$10 per person donation to the Society at the Dinner Meeting. Students are exempted from the donation request.*

Your donation allows LABGS to fund our annual scholarship fund and continue our monthly meetings and activities for the benefit of the membership. The Pacific Section AAPG matches our scholarship contributions which results in significant annual support for geology majors – to help defray or cover costs for field camp, tuition, rent, etc.

Our Scholarship Chair, Karla Tucker, will be happy to explain the details of the annual event of awarding the scholarships to grateful students – just ask!

Reservations are required by noon, June 16<sup>th</sup>, at [labgs.org/meeting\\_info.html](http://labgs.org/meeting_info.html) or directly contact LABGS Secretary Joseph Landeros at (626) 497-1710 or [landerosjd@gmail.com](mailto:landerosjd@gmail.com).

## **Attend Virtually on Zoom**

A virtual option will be available for those who cannot attend our meetings in person. We plan to offer Zoom for all talks in the foreseeable future.

To Join the Zoom Meeting: <https://csulb.zoom.us/j/88206836217> Meeting ID: 882 0683 6217

## **Various Works In Progress – Take Note**

The executive committee is preparing to hold an earthscience teaching-oriented meeting in July – stay tuned! We will also have a meeting outside this year – perhaps at the beach!? Plans for a 2026 Pacific Section AAPG and Western Region SPE (Society of Petroleum Engineers) joint meeting to be held in Bakersfield are taking shape now, watch for updates and a call for papers. The Petroleum History Institute will hold their annual meeting in Bakersfield in 2026. If you like deep dives on interesting aspects of local and national petroleum history, this could be of interest.

## **Instagram!**

The LABGS Executive Committee would like to acknowledge the efforts CSULB '24 Geology BS alumni Jennifer Sanchez for getting us started on Instagram (IG) and Facebook. Our first posts are imminent – you can find us [@labasin\\_gs](https://www.instagram.com/labasin_gs) or by searching our full name within IG. Find and follow us! This social media step is exciting as these digital channels will be effective billboards for our Society. A range of post types are envisioned, from lay-level geologic information of regional application to detailed posts on a narrow subject of interest, all oriented around (gasp) the geology of the Los Angeles Basin. Jennifer connected to us through Daniel Rice, our Treasurer, thank you both!

## **The LABGS Scholarship Recipients!**

by Karla Tucker, Scholarship Chair

This year LABGS in partnership with PSAAPG gave four scholarships. Three awards were made to undergraduate geology students: two from CSU Long Beach (CSULB) and one from CSU Fullerton. The award money will help with their summer field class expenses. One graduate student from CSULB received an award which will support his ongoing Master's degree effort.

In their own words, the recipients describe below their favorite experiences within the realm of geology.



Carlos Aldana

One of the moments of geology that I really enjoyed was my trip to Lake Isabella. Our goal of the trip was to describe rock units, map the shear zone and note shear sense indicators. I had a chance to observe signs of ductile deformation, just as I saw it in my structural geology textbook. Even though my tent got flipped and flooded, I still think of this trip as an overall positive experience.



Matthew Peraza Garcia

We camped next to Anne Lake, located in the central Sierra Nevada Mountains, north of the Sierra National Forest, from mid-July to mid-August 2022. Every morning for weeks, weather permitting, we would set out from camp in pairs and begin the day of exploring our mapping area (around 20 sq. km), hiking for miles in pursuit of mapping contacts between the different members of the JLP (Jackass Lakes Pluton) and collecting rock samples for analysis back on campus. This mapping expedition wasn't all smooth sailing, with wildfire smoke and occasional hail/thunderstorms, but it was such a rewarding experience, and one that I will always remember fondly. I will always be grateful to Dr. Memeti for giving me the opportunity to tag along with her students on this amazing field experience.



Aaron Martin

My favorite geology experience, which I believe is shared amongst many others, was my summer field camp with CSULB during 2023. Four weeks filled with camping, hiking, and mapping, all while sharing this experience with friends we have made along the way. We were fortunate to split our four weeks into four different mapping areas, with each having their own unique scenery: near Goblin Valley State Park in Central Utah, Flaming Gorge near the Utah-Wyoming border, within the Carson Range between South Lake Tahoe and Gardnerville, and Lily Lake just southwest of Lake Tahoe. These four weeks I spent with my class have created everlasting memories that I hold dear to my heart. From marching through the desert sands in high heat to getting consistently rained out at 4 PM for 3 days straight. From being absolutely caked with dirt from a week's worth of work (I know, only a week) to taking one of the most memorable showers of my life. From hiking all day to playing campfire songs with my friends all night. I can go on and on. I believe summer field class is what makes this major so unique and special, where you not only get the chance to improve yourself as a geologist, but you get to create lifelong memories with those around you.

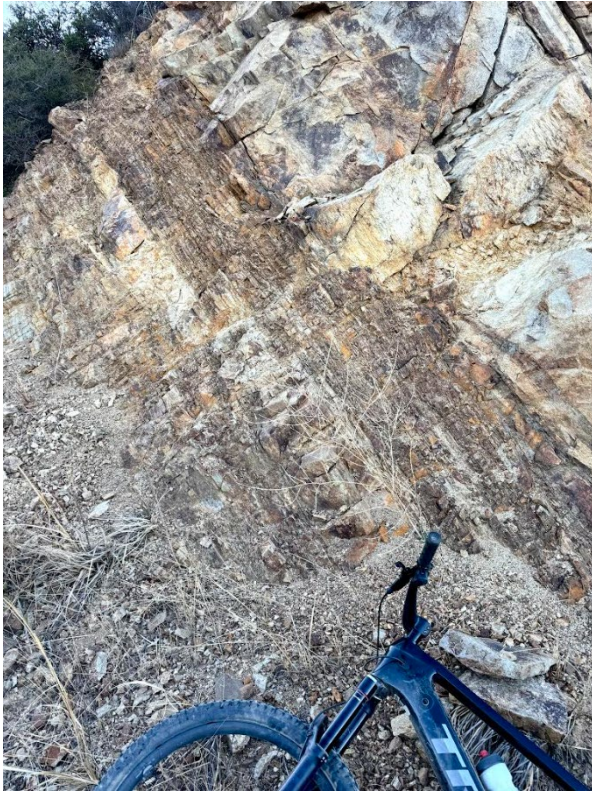
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"This isn't right, this isn't even wrong."

- *Wolfgang Pauli (1900 – 1958), upon reading a young physicist's paper*



## FIELD REPORT



Proterozoic(?) granulitic gneiss resembling deepwater clastic deposits in color and orientation. Note the recumbent fold in the center of the right picture, glove for scale. Found along the Big Tree Cucamonga Truck Trail in the eastern extremity of the San Gabriel Mountains, November 2024.

## LABGS Board Members

President: Dan Steward, (424) 634-6740, [daniel@ironhorseenergy.com](mailto:daniel@ironhorseenergy.com)

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