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SDAG Announcements

SDAG MEETING ANNOUNCEMENT

Wednesday, May 20th, 2026

6:00 pm - Social Hour | 7:00 pm - Dinner | 8:00 pm – Program

LOCATION:

Casa Guadalajara – The Garden Room

4105 Taylor Street
San Diego, CA 92110

SPEAKERS:

Danny Sims, Ph.D., CTR and Philip Neuhoff, Ph.D.

“X-ray diffraction and seismic reflection data constraints on geothermal mineral brine reservoir modeling, Salton Sea Geothermal Field, Imperial Valley, California.”

DINNER: Mexican Combo Buffet

COST: Member \$55.00 | Non-Member \$65.00 | Student \$25.00

RESERVATIONS:

Make & Pay your reservation online through the SDAG website, before **6PM FRIDAY, May 15th**

Please note, all meeting reservations require online pre-payment due to venue costs, venue contracts, and loss of money due to no shows. Refunds cannot be processed after the registration deadline.



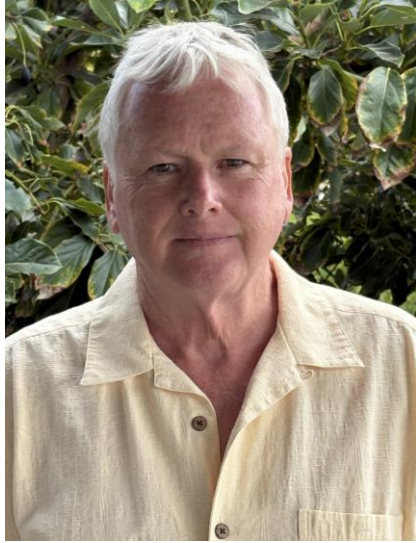
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Meet Our | Speakers & Topics



Danny earned a B.S. degree in Geology from the University of Cincinnati, and from the University of Arizona, M.S. and Ph.D. degrees in Economic and Structural Geology and a J.D. degree. Since 1987, he has mapped, interpreted and modelled structure throughout the Americas and New Guinea for geothermal and mineral exploration, geotechnical design of open pit and underground mines, and tectonics.

Phil earned a B.S. degree in Geology from The University of Iowa and a Ph.D. in Geological and Environmental Science from Stanford University. Formerly on the faculty of the University of Florida, he currently applies his mineralogical and geochemical expertise to exploration and development of geothermal and mineral resources.

In 2009, Dr. Denis Norton enlisted Phil and Danny to help with development of the Hudson Ranch geothermal power plant in the Salton Sea Geothermal Field (SSGF). The R&D team also included Dr. Satish Pullammanappallil who acquired the first SSGF 3D seismic reflection volume and many others from industry and academia contributing within their respective areas of expertise.

Drs. Norton, Neuhoff and Sims began working on the CTR Hell's Kitchen Project in 2018. In 2024, CTR brought on Baker Hughes to develop a dynamic reservoir model. Baker Hughes' predicted metal depletion rates at production wells over time differ substantially from those published by the University of Auckland and LBNL. In 2025, CTR encouraged our team and Baker Hughes to publish data and conclusions to explain the significant differences.

Danny Sims, Ph.D., CTR & Philip Neuhoff, Ph.D.

ABSTRACT:

“X-ray diffraction and seismic reflection data constraints on geothermal mineral brine reservoir modeling, Salton Sea Geothermal Field, Imperial Valley, California”

The Salton Sea Geothermal Field (SSGF) hosts eleven geothermal power plants built between 1987 and 2012 that produce 437 MW of electricity. It is estimated that the on-shore and off-shore field can support 3 GW of installed capacity and lithium extraction from geothermal brine is planned. Expansion of geothermal development and introduction of metal extraction will impact the reservoir. Brine that flows through surface facilities will be cooled and depleted of lithium and injected back into the deep reservoir. If cooled and depleted brine migrates back to production wells the enthalpy and metal concentration of produced brine will decline. Reservoir modelling is the best available technology to predict these potential declines.

A reservoir model developed by the University of Auckland (Auckland) and Lawrence Berkley National Laboratory (LBNL) was used to predict significant decline in lithium concentration at production wells within the developed portion of the field within 15 years. The reservoir model developed by CTR and Baker Hughes Company differs substantially, and it was used to predict nominal metal and enthalpy decline of produced brine for the planned CTR development area over 30 years. The differences in predicted decline rates are mostly attributed to the modelled magnitude and distribution of fracture and fault permeability within the SSGF.

This presentation compares the permeability models of both groups and presents published and original data, including XRD, seismic reflection, and wellbore image logs, that inform the CTR/Baker Hughes model. The maximum stress is interpreted from fault geometry and wellbore data to be vertical. Fracture orientation and spacing in the rock mass is interpreted from image logs and 3D seismic reflection data. Fault orientation, density, thickness and permeability estimates are interpreted from seismic reflection, wellbore image data and well tests. XRD data informs modelled permeability of altered sediments from the surface to the onset of an amphibolite grade metamorphic mineral assemblage at 3 km. The presentation content expands upon a prior presentation at SDSU that explained fundamentals of our structure data collection and interpretation methods (available to view at <https://earth.sdsu.edu/fall-2025-seminar-schedule/>).

Examples of CTR/Baker Hughes model runs using permeability inputs that are similar with the Auckland and LBNL model, and those inputs consistent with our observations and interpretations, are presented to demonstrate the direct influence of permeability on modelled metal depletion.



PRESIDENT'S CORNER

Hello SDAG Members

We just had our April event; it was well attended and a lot of fun! What a fantastic meeting. Thanks to Sunbelt Publications for hosting us and giving us a generous discount on books! Marko with San Diego Mobile Bar served up some great pizza! Thanks again to Jen, CiCi and Hannah for their effort and time! The presentations were fantastic and we wish all of these students their future endeavors! It is so fantastic to see how our scholarships (and the generous donation by Shannon O'Dunn) have made an impact on the students. Thanks also going out to John Teasley for setting up the Walawender Bar and recording the presentation so if you missed the talk, you could look up the video on our website, scroll down to "Recordings of past meetings" <https://www.sandiegoeologists.org/Meetings.html> And of course, thanks to the officers and Carolyn for all their hard work.

As we discussed in our April Meeting, we have a new page on the SDAG website devoted to Scholarships (<https://www.sandiegoeologists.org/Scholarships.html>), so for the students be sure to check it out, we will be starting the process in September. For members, if you are interested in donating funds, this is also a great resource and such a positive way to give back to your community.

Coming up on May 20th, Danny Simms will present his research "X-ray diffraction and seismic reflection data constraints on geothermal mineral brine reservoir modeling, Salton Sea Geothermal Field, Imperial Valley, California." As we all know, lithium is a scarce resource so I am really looking forward to this presentation.

His abstract is provided in the Newsletter. We will be hosted by Casa Guadalajara, be ready to have some great Mexican food! I look forward to seeing you at the May 20th meeting, be sure to mark your calendar, register and pay in advance via PayPal with credit/debit cards.

We are looking forward to the September SDAG field trip being led by our very own Jasmine Peach. It is from September 25 to 27, we will be camping at the Diaz Lake Campground located near Alabama Hills. See the newsletter for more details, it looks like a fantastic trip!

It is also time to renew your SDAG membership. Annual membership is super critical to the organization, in that it helps in part to subsidize our students attending our events at a discounted price. Also, if you have not already, please consider becoming a sponsor—sponsorship includes your annual membership and provides critical support for our programs and funds our scholarships. Sponsorship levels start at \$100 and that gives you annual membership and recognition on the website and newsletter. It is not too late to sign up to be a member or be a sponsor. Though we prefer you pay your annual membership in December and January, we track membership based on the when you renew not the calendar year, so that way you get an entire year of membership!

Any questions about SDAG please feel free to reach out to me at mike@sandiegoeologicalsociety.org or at 619-677-0875.

Cheers

Mike Palmer

2026 SDAG President



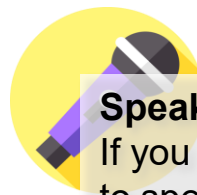
2026 Upcoming Meetings

DATE	SPEAKERS & TOPICS
May 20 th	Danny Sims, Ph.D. of Controlled Thermal Resources, and Philip S. Neuhoff, Ph.D. : “X-ray diffraction and seismic reflection data constraints on geothermal mineral brine reservoir modelling, Salton Sea Geothermal Field, Imperial Valley, California.”
June 10 th	Joint meeting with South Coast Geological Society
July 15 th	Rick Halsey of the CA Chaparral Institute: “For the Love of Rocks, Deep Time, and the Pursuit of Knowledge”
August 19 th	Monte Marshal, SDSU retired: “Exploring the depths of the Salton Trough- a great example of a transtensional rift valley.”
September	No Meeting: Annual Field Trip September 25-27th
October 21 st	Wes Danskin, USGS retired speaking on “Geology and Water Resources of the San Diego – Tijuana Area”
November 18 th	Kate Metcalf, CSUF: Title TBA
December 16 th	Annual Holiday Meeting at San Diego History Museum with Tom Demere as Speaker

2026 SDAG MEMBERSHIP

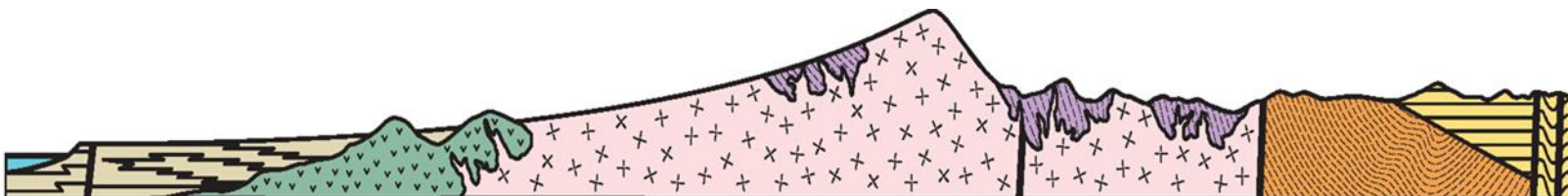
Renew or become a new SDAG Member
2026 Member Dues are Due if you have
not already done so.

On-line Payment (\$30 Member; \$10 Student) or Bring FORM to Meeting



Speakers For 2027 Meetings

If you or someone you know would like to speak at an upcoming meeting contact one of our officers!



SAN DIEGO ASSOCIATION OF GEOLOGISTS

Get Ready to **GEAR UP**

2026 SDAG FIELD TRIP

Cerro Gordo & Owens Lake Area **September 25–27, 2026**

Join us for the 2026 SDAG Field Trip exploring the geology of **Southern Owens Valley, the Inyo Mountains and the Cerro Gordo Mine**. This multi-day trip will examine the tectonic, structural, hydrogeologic, and historical geology of one of eastern California's most geologically significant regions.

LODGING

Group camping is planned at [Diaz Lake Campground](#), located near the Alabama Hills. The group site accommodates tent camping, RVs (dry camping), and car camping. An optional Thursday night stay will be available for participants who wish to arrive early. Hotel accommodations are also available in the town of Lone Pine, located a few miles from the campground.

GEOLOGIC TOPICS

- Lone Pine Fault scarp and tectonic geomorphology
- Structural geologic transect along Cerro Gordo Road
- Geology and mining history of the Cerro Gordo Mine
- Owens Lake hydrogeology and environmental geology

Additional details, including registration information and a tentative itinerary, will be announced soon.

We encourage you to mark your calendars and start thinking about joining us for this engaging field experience.



CALL FOR PAPERS

The background features the letters 'SDAG' in a large, light blue font. Overlaid on this is a yellow document icon with horizontal lines representing text.

Now Accepting Contributions to the
2026 Field Trip Road Log and **2027** Guidebook

SDAG invites anyone interested to contribute to the Official Guidebook covering the geology of the **Inyo Mountains, Cerro Gordo Mining District, Lone Pine Fault,** and **Owens Lake Area.**

We welcome contributions from all geology-related disciplines, as well as mining and cultural history of the region.

Topics may include:

structural geology, geomorphology, hydrogeology, geochemistry, stratigraphy, basin evolution, environmental geology, and any related subjects or disciplines.

Student contributions are encouraged!

If you have an idea for a paper, short article, figure, or map, we would love to hear from you as we begin organizing for the road log and future guidebook.

Please contact **Jasmine Peach** for details.

Planned guidebook publication for **mid-2027**

SDAG | April Meeting Recap



Last month, we had the pleasure of hearing presentations from three recent SDAG student scholarship recipients, highlighting the future of our profession.

The breadth and quality of their research were evident throughout the evening. Jennifer Morton (SDSU) shared her work mapping the urban La Nacion fault zone, using a combination of historical aerial imagery and modern geophysics to better understand regional seismic activity. Cici Jobe (USD) discussed the local applications of geoscience through her community-based soil health assessments, which aim to improve urban community gardens and address food insecurity in San Diego. Finally, Hannah Lissner (USD) detailed her research in the Bahamas, examining the intra-island variability of paleosols and their use as paleoclimate proxies. It was a great opportunity to see the meaningful research these emerging scientists are conducting.



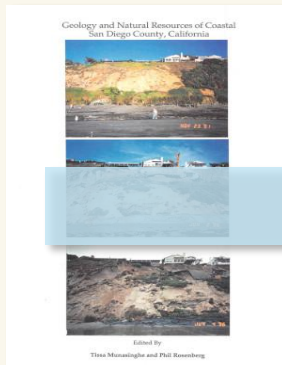


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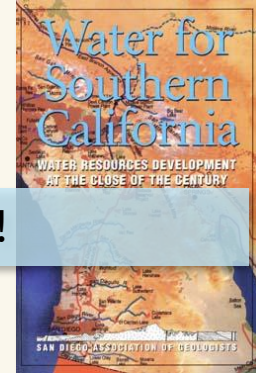
FIELD TRIP GUIDES & RESEARCH REPORTS



Geology And Natural Resources Of Coastal San Diego County, CA (1996)



Geology And Geothermal Resources Of The Imperial And Mexicali Valleys (1998)

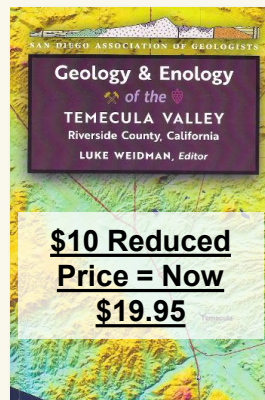


WATER FOR SOUTHERN CALIFORNIA: Water Resources Development (1999)

Now available as eBooks!

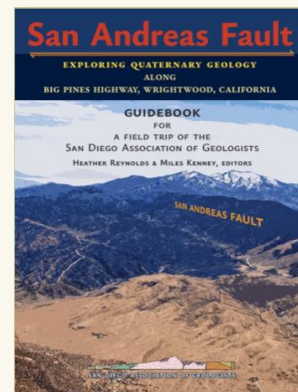


The Peninsular Ranges: A Geological Guide to San Diego's Back Country 2nd Edition



Geology & Enology of the Temecula Valley Riverside County, California 2nd Edition

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San Andreas Fault: Exploring Quaternary Geology Along the Big Pines Highway, Wrightwood, CA

FREE GUIDES AVAILABLE FOR DOWNLOAD

- [1972 Otay Mesa](#)
- [1977 SW San Diego](#)
- [1978 Coronado Islands, BC](#)
- [1979 San Diego Region](#)
- [1987 Julian Gold](#)
- [1981 Geologic Investigations of the San Diego Coastal Plain](#)
- [1982 Geologic Studies in San Diego](#)
- [1985 Eocene in San Diego](#)
- [1989 Fault Features: La Jolla - Ensenada](#)

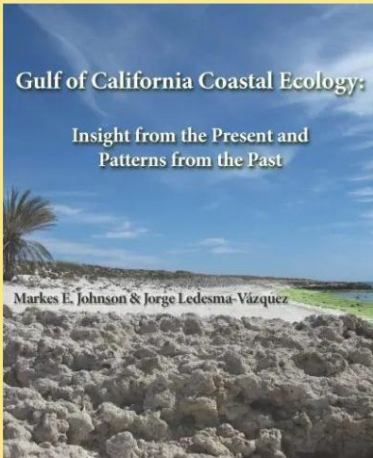


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Gulf of California Coastal Ecology

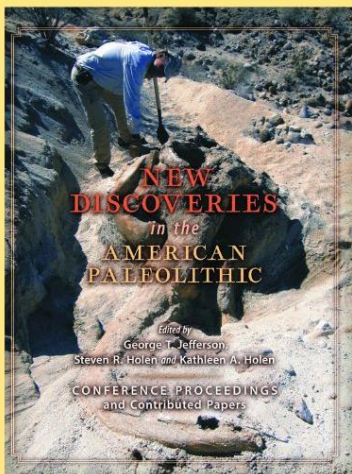
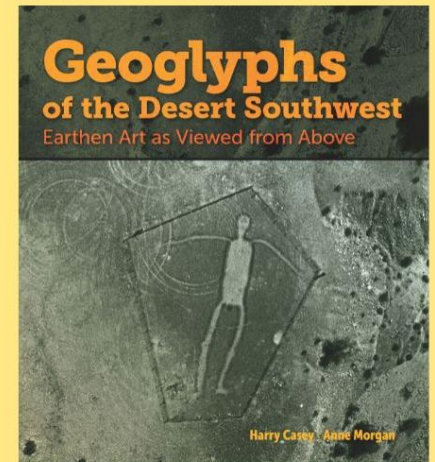
ISBN: 9781941384183
\$19.95

The Sea of Cortés has a rich ecosystem that has survived and thrived for over 12 million years, in some ways shifting dramatically and remaining almost unchanged in others. That extensive natural history is carefully documented and explored by this handbook, making connections and providing a broad but thorough overview of the geography, geology, and ecology of the area. Readers of all knowledge levels will be able to use it as an invaluable resource when exploring the coastline of the Gulf of California.

Geoglyphs of the Desert Southwest

ISBN: 9781941384503
\$19.95

The American southwest has one of the largest concentrations of geoglyphs in the world, outside of the Nazca Lines in Peru. These ancient works of art are often made at such a large scale that they are all but invisible unless viewed from above. In the 1970s, photographer Harry Casey, along with archaeology professor Jay von Werlhof and his students, embarked on a quest to find and record these awe-inspiring sites before human activity could damage them anymore.

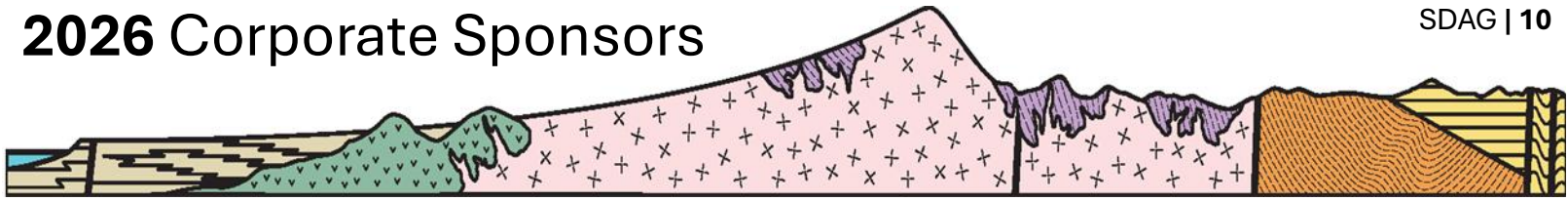


New Discoveries in the American Paleolithic

ISBN: 9781941384640
\$29.95

The common assumption is that humans began populating the Americas around 16,000 years ago, but recent discoveries have thrown that number into question. Evidence has surfaced that the true timeline may have been hundreds, or even thousands of years earlier still.

This book is a compilation of papers and proceedings from a conference held in January of 2019 about this exact subject; all together, this book presents compelling evidence that throws into question everything we currently know about the timeline of humanity in the Americas.



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