

# **SAN DIEGO ASSOCIATION OF GEOLOGISTS**

<http://www.sandiegogeologists.org>

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## **SDAG MEETING ANNOUNCEMENT**

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**Wednesday, March 20<sup>th</sup>, 2019 \*3<sup>rd</sup> Wednesday\***

### ***Man-Made Earthquakes in the Age of Unconventional Oil & Gas Development***

Presented by: **Dr. Matthew Weingarten**

- Where:** Marina Village – Catalina Room  
1936 Quivira Way, San Diego, CA 92109 (See Map)
- When:** 5:30 pm – Social Hour  
6:30 pm – Dinner  
7:30 pm – Presentation
- Dinner:** Meat Lasagna w/ Marinara, Pasta w/ Pesto Sauce, Grilled Vegetables, Dessert.  
Cash Bar - Walawender Tavern
- Cost:** \$30 Member, \$35 Non-Member, \$20 Students.
- Reservations:** Make your reservation **online** at <http://www.sandiegogeologists.org/Meetings.html> **no later than noon, Monday, March 18<sup>th</sup>**. Reservations cannot be guaranteed after Monday at noon, but are always preferred over walk-ins. **EARLY reservations well before the deadline are MUCH appreciated.**

**Directions:**

FROM INTERSTATE 5: Take the SEA WORLD DRIVE exit. From SEA WORLD DRIVE, take WEST MISSION BAY DRIVE on your right. When you see the large green sign that says QUIVIRA ROAD, get in the farthest left of the two left turn lanes. Turn left, go one very short block and turn left again. Drive about one-half mile and MARINA VILLAGE will be on your right.

FROM INTERSTATE 8: Take the WEST MISSION BAY DRIVE exit to the right. You will be on INGRAHAM STREET for a short distance from which you will take the next exit marked WEST MISSION BAY DRIVE on your right. When you see the large green sign that says QUIVIRA ROAD, get in the farthest left of the two left turn lanes. Turn left, go one very short block and turn left again. Drive about one-half mile and MARINA VILLAGE will be on your right.

**Map:**



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## ***ABSTRACT***

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### **MAN-MADE EARTHQUAKES IN THE AGE OF UNCONVENTIONAL OIL & GAS DEVELOPMENT**

**Presented by: Dr. Matthew Weingarten**

U.S. oil fields have been producing much more water than oil for decades. This produced water is highly saline and cannot be disposed of on the surface and thus is re-injected deep below potable drinking water supplies using fluid injection wells. Here I'll discuss the relationship between fluid injection and the unprecedented seismic rate increase in the U.S. mid-continent beginning in 2009. This rate increase occurred in regions where earthquakes were generally uncommon and not predicted by the laws of natural seismicity. I'll discuss a few recent projects addressing injection-induced seismicity in Oklahoma and other regions using computational modeling and statistical approaches.

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## **UPCOMING MEETINGS**

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Meetings are usually held on the 3<sup>rd</sup> Wednesday of the month may change to accommodate the speaker and meeting place schedules. Check the SDAG website for updates

April 17, 2019 Geocon, Inc.	Student Presentations & Anne Morgan – Earthen Art/Geoglyphs
May 15, 2019	Chuck Houser - TBD
June, 2019	TBD

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## **2019 SDAG EXECUTIVE COMMITTEE**

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**PRESIDENT:** Ken Haase; [haase@geoconinc.com](mailto:haase@geoconinc.com)  
**VICE PRESIDENT:** Adam Avakian; [armenianmenace1@gmail.com](mailto:armenianmenace1@gmail.com)  
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## ***SDAG PRESIDENT'S CORNER***

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Happy March SDAG!

This year is flying by, hope everyone got to 'enjoy' the winter storms that have been blowing through San Diego. Thanks to Vic Camp from SDSU for providing a great talk about the Yellowstone hotspot. As we move to our next talk we have another speaker from SDSU, Matthew Weingarten, who will be presenting about "Man-Made Earthquakes in the Age of Unconventional Oil & Gas Development." We will be back at Marina Village on Wednesday March 20<sup>th</sup>.

If anyone has a One Stop Wonder for the group to visit, please let me know!

See everyone on March 20<sup>th</sup> at Marina Village!

Ken Haase  
2019 SDAG President  
Geocon, Inc.

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## ANNOUNCEMENTS

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# ONE-STOP WONDER CHALLENGE!

ONE OSW A MONTH IN 2019!

BE A PART OF SDAG HISTORY!

Have an idea for a one-day or half-day field trip?

Want to share your favorite aspect of San Diego  
geology?

Contact SDAG to schedule your One-Stop  
Wonder!

Your OSW may be chosen to be included in SDAG's One Stop  
Wonder Guidebook!

Contact Monte Murbach for scheduling!

[montemurbach@gmail.com](mailto:montemurbach@gmail.com)

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## 2019 SDAG Annual Field Trip – Owens Valley, CA

Hi SDAG members. My name is Adam Avakian. I am the current secretary and future 2019 vice president for SDAG. I am very excited to be tasked with pulling together the annual field trip for 2019 and have some big shoes to fill after attending our latest trip out to the Mojave Desert (thanks to Ken and everyone involved for an amazing trip, and what an awesome group photo!). I am planning on taking us to Owens Valley / Eastern Sierras. I have a few stops in mind already but could definitely use some help on more stop suggestions and *especially any enthusiastic speakers* who have some knowledge and a love for the geology of Owens Valley. Here is a sneak peek at next year's trip:

- Owens Valley Fault - 1872 Earthquake Fault Scarp - Lone Pine.
- Alabama Hills – I was recommended a very interesting geological feature to look at here, also potential campground
- Poverty Hills Geology - Owens Valley Fault Pressure Ridge and beautiful fault scarps preserved in basalt flows - Tinemaha Dam – Big Pine
- Crowley Columns – Lake Crowley
- Bishop Tuff – Ideas??
- More ideas (basalt flows, glacial moraines etc.??)

Because it's a long drive and there is a lot to see I would like to try to start the trip Friday morning which would require participants to either get up extremely early Friday morning to drive or to camp out with the group Thursday night (my preferred option) or you can join the group midday on Friday. The bulk of the trip would be completed Friday and Saturday. I think I will plan for a half day of stops on Sunday and try to make them on the way back south towards home. Sunday would also be optional if anyone wants to get home earlier they can head out Sunday morning and skip the stops. Any help or advice would be much appreciated. Like I said, speakers are more than welcome. I'm planning to speak at Tinemaha Dam as my company has done work there but that's all I've got so far! Please send responses to [armenianmenace1@gmail.com](mailto:armenianmenace1@gmail.com)

Cheers!

Adam

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## Southern California Section of SME (SoCal SME)

### April Meeting



**Date:** Thursday, April 11<sup>th</sup>

**Time:** 6:00 pm Social\*, 7:00 pm Dinner followed by Presentation

\*Bar sponsored by Barr Engineering Co.

**Location:** Dave & Buster's Conference Room (4821 Mills Circle, Ontario, Ca 91764)

**Cost:** RSVP: Professional \$35, Students \$10 (first 10 to register get free admission sponsored by Gene Dewey)

**At Door:** Professional \$40, Students \$20

**RSVP:** Todd Ririe: [todd@gtririe.com](mailto:todd@gtririe.com) by Wednesday April 3

**Speaker:** Dr. Don Buchanan, Professor of Geology-retired

Please join the **Society for Mining, Metallurgy & Exploration** for our meeting on Thursday, April 11th, 2019 at 6:00 PM to be held at Dave & Buster's, Ontario CA. We are hosting Dr Don Buchanan, retired Professor of Geology, for his presentation: **"Making Minerals Rock-Unearthing the Human Element"**

#### Meeting Information

##### Abstract:

Minerals are an important component in everyday life although most of the public is not aware of the critical role mining plays in supplying minerals needed to maintain a growing economy. To help educate the public on the importance of minerals the San Bernardino County Museum opened a new exhibit on July 5, 2018 entitled "Making Minerals Rock-Unearthing the Human Element." Minerals are all around us in modern life; they are a critical component of our cellphones, roadways, and toothpaste, yet these same minerals can have significant global impact. San Bernardino County has a rich history in mineral production and still has approximately 100 active mines including the largest rare earth element mine outside of China: sand and gravel, limestone (for cement), decorative rock, gold, trona and other saline minerals, talc, and clay including specialty clays used in cosmetics. The "Minerals Rock!" exhibit illustrates how vital minerals are to San Bernardino County from the colorful history of exploration and scientific discovery, to the mining industry that fuels economic prosperity, to the numerous products that benefit our everyday lives, and the ways in which our choices in the dispersal of these products can have significant impact on our environment.

##### Biography:

Dr. Don Buchanan received a B.S. Degree in Geology from University of Missouri and completed a one-year Air Force Meteorology Training program at the University of Texas. He also has a MSc in Oceanography/Climatology from the Naval Postgraduate School in Monterey, CA and Doctorate in Education from USC. His career included meteorological work and doing research and applied Earth Sciences for the USAF and other branches of the military until retirement in July 1989. His second career included, teaching meteorology for Embry Riddle Aeronautical University. Additionally, he taught geology at several community colleges including San Bernardino Valley, Crafton Hills and Victor Valley. Don has been serving as President of Southern California Friends of Mineralogy Chapter of the nationwide Friends of Mineralogy since January 2015 developing symposiums and field trips around the state of California and into Nevada and Arizona.



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**Groundwater Relief** has received an information request from a hydrogeologist who is currently volunteering at an orphanage located close to Tijuana on the US/Mexico border (Approximate Latitude: 32.2 Longitude: -116.9)

The orphanage receives water via water trucking. The hydrogeologist is seeking to assess the feasibility of drilling a water well for the orphanage. One borehole has been attempted unsuccessfully in the past however other successful boreholes do exist within the local area.

The hydrogeologist is requested for information or local data that might be available to help support the siting and tendering of drilling works.

If anyone has data or experience working in or near this locality then please get in touch.

Best wishes,

The Groundwater Relief Team

**Groundwater Relief (Charity Number: 1167458)**

*Providing hydrogeological support to humanitarian and development organizations*

[www.groundwater-relief.org](http://www.groundwater-relief.org)

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## **ASCE Geo-Institute Technical Presentation**

***Tuesday, March 12th, 6:00 PM to 8:30 PM***

Please join us on Tuesday, March 12th for our monthly technical presentation. This month's presenters are Hans van de Vrugt, C.E.G., P.G., Principal Geologist/Geophysicist at Southwest Geophysics, Inc., and Emil Rudolph, P.E., G.E., VP Engineering and Construction with SCST. The presentation title is "*Assessing Ground Improvement through Deep Dynamic Compaction (DDC) using Non-Destructive Geophysical Methods*".

The meeting will be held at Rock Bottom Restaurant (8980 La Jolla Village Dr., La Jolla, CA 92037) from 6:00 PM to 8:30 PM.

Registration Link :

<http://events.r20.constantcontact.com/register/event?oeidk=a07eg4ma621f928f808&llr=n8ruf8oab>

For registration questions, please contact:

Matteo Montesi (Matteo.Montesi@wsp.com<mailto:[Matteo.Montesi@wsp.com](mailto:Matteo.Montesi@wsp.com)>) or  
Congpu Yao (congpy@grouppdelta.com<mailto:[congpy@grouppdelta.com](mailto:congpy@grouppdelta.com)>)

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## The “Lindavista” Fm: Marine Terraces to Terrestrial Terraces and all Plants in Between

by Eleanora (Norrie) Robbins, PhD (USGS-retired; SDSU-retired)

I have several specialties, one of which is iron bacteria. So anytime I see red rocks I wonder if iron bacteria had a role in their formation. Recently I've been fixated on the red sandstones at the top of the cliffs at Cabrillo, Torrey Pines, Crest Canyon, and along Highway 52. Tom Rockwell teaches that these red rocks were all Pleistocene marine terraces that have been uplifted to become terrestrial terraces in the past 1.5 or so million years. He and his predecessors have mapped seven old terraces and thirteen very old terraces. In general, the red sandstones on these terraces are called “Lindavista” Fm.

If you drive to Torrey Pines, you've seen the large vertical structures that start in the Lindavista and continue down into the Torrey Sandstone. I am fascinated with Pat Abbot's hypothesis that these large structures might have been mineralized tree roots. That got me thinking about the plant communities that would have colonized the marine sediments when they were uplifted into the terrestrial environment. The first plant community growing on uplifted marine sands had to have been coastal salt marsh; then I presume fresh water marsh, forested wetland, grassland, and now the rocks are colonized by coastal sage scrub and Torrey pines. Using this as my model, I am trying to unravel the post-depositional history of these rocks.

Lithified but never buried, the “Lindavista” is cemented with iron oxide. What was the source of reduced iron that could be oxidized? My working hypothesis is that the sediments contained iron monosulfides and pyrite that formed during the marine and coastal salt marsh phases. I am thinking that with uplift, the iron sulfides were oxidized by iron bacteria to ferrihydrite. If the sediments then went through a salinity phase (i.e., sea level rise), ferrihydrite would dehydrate to hematite; but using reflected light, I rarely see hematite in any of the rocks.

Another fascinating characteristic of the “Lindavista” are Mn-rich soil concretions and nodules. In Virginia, I worked in a wetland that was actively forming these; there, iron bacteria were active in the subsurface where the concretions formed. In places, the “Lindavista” concretions form vast accumulations at the surface, where we call them rollers because they are easy to slip on (ask Joe Coronas). I presume that they are residual lag deposits from sediments and rocks that have eroded away.

Thinking as a paleoecologist, I've started tromping around our coastal salt marshes: Tijuana, Sweetwater, South Bay, Los Penasquitos, and all the coastal lagoons. In these, I'm searching for sedimentary structures, distinctive shells, and sediments with iron sulfides.

There's more to the story, such as the abundance of magnetite in the rocks. The magnetite is perfectly black under the microscope, not rimmed red. I don't understand its provenance and its role. And where are the shell fossils from the marine history? The only shells that have been collected are from the base of the Lindavista, only inland, where it sits on calcareous rocks.

I've been taking the students I mentor out in the field with me, seeing if I can interest some of them in these rocks. But they need a funded professor to move forward with XRD and thin sections; I'm retired. I do welcome anyone who wants to tromp with me on the red sandstones or in the stinky marshes.

See Next Page For Pictures:



Lindavista at Miramar (49) Joe on concretions



Torrey Pines LV with Natasha Rodriguez (9) big concretions in Torrey Ss

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## **Geology Education Rule Making Notice – Board of Professional Engineers, Land Surveyors and Geologists**

On November 30, 2018 the Board for Professional Engineers, Land Surveyors, and Geologists (Board) published the Geology Education Rulemaking Notice. The Board proposes to adopt Title 16, California Code of Regulations sections 3022, 3022.1, 3022.2, and amend Title 16, California Code of Regulations section 3031.

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### **Software Info from Woody Higdon's September 2018 Talk**

Hi All. For those of you who were not at the September meeting, Woody Higdon discussed his methods and programs he uses for taking amazingly detailed photos in stereo and with gps coordinate attachments. He showed us examples of his from the 2018 debris flows in Montecito. Below are links to free software where one can do more than get their toes wet in this type of work. Thanks again to Woody for the interesting talk!

The GIS software can be found at [qgis.org](http://qgis.org)

The canon file display software is called Canon Map Utility and is available on the Canon Camera site.

The image viewing program is called Stereo Photo Maker, and available at [stereo.jpn.org/eng/](http://stereo.jpn.org/eng/).

**WOODROW HIGDON**

**GEO-TECH IMAGERY INTL.**

**760-754-8423**

[woody@geo-tech-imagery.com](mailto:woody@geo-tech-imagery.com)

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## Support SDAG/SDGS using AmazonSmile



### What is AmazonSmile?

AmazonSmile is an automatic way for you to support the **“San Diego Geological Society”** (SDGS) SDAG’s 501(c)(3) as your favorite public charitable organization every time you shop on Amazon at no cost to you at [smile.amazon.com](https://smile.amazon.com).

### How do I select a charitable organization to support when shopping on AmazonSmile?

On your first visit to AmazonSmile [smile.amazon.com](https://smile.amazon.com), you need to select a charitable organization to receive donations from eligible purchases before you begin shopping. Please select the **San Diego Geological Society**. Amazon will remember your selection, and then every eligible purchase you make at [smile.amazon.com](https://smile.amazon.com) will result in a donation to SDGS (SDAG).

### How much of my purchase does Amazon donate?

The AmazonSmile Foundation will donate 0.5% of the purchase price from your eligible AmazonSmile purchases.

### How can I learn more about AmazonSmile?

Please see complete AmazonSmile [program details](#).

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## SDAG Research Tool

**SDAG RESEARCH TOOL** - A comprehensive listing of all papers published by SDAG, whether as annual field trip guidebooks or special publications, is now available on our website. Entries are sorted by primary author, or chronologically by date of publication, starting with our first guidebook in 1972, from Coast to Cactus in 2014, and finally on the Julian 'Road to Gold' in 2017. These can be accessed or downloaded as .pdf files. They are fully searchable in Adobe Reader or Acrobat, so if you are researching a topic, "oikocryst" for example, you can search for that keyword. This listing will be updated as new books are published. Thanks to Greg Peterson and Hargis + Associates, Inc., for making this possible. See the links below:

[http://www.sandiegogeologists.org/SDAG\\_Pubs\\_authors.pdf](http://www.sandiegogeologists.org/SDAG_Pubs_authors.pdf)

[http://www.sandiegogeologists.org/SDAG\\_Pubs\\_chronological.pdf](http://www.sandiegogeologists.org/SDAG_Pubs_chronological.pdf)

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## **Interactive Fault Map for San Diego - Tijuana**

As part of the update for the San Diego-Tijuana Earthquake Planning Scenario, Working Group No. 1's "Fault Map Subcommittee" completed the first publicly available bi-national active and potentially active fault map ([http://sandiego.eeri.org/?page\\_id=265](http://sandiego.eeri.org/?page_id=265)). This interactive GIS map includes the first publicly available active and potentially fault map locations from the City of San Diego. The map also integrated the faults south of the border for a bi-national cross border view. This map is an on-going project as our knowledge increases about local active and potentially active faults.

You can expand the map legend on the left side to select layers that can be turned on or off for the map view. You can also select from 1 of 12 base maps at the base map icon. You can click on the fault line in your map layer view to see the meta-data source. In addition, the City of San Diego Seismic Safety Study Geologic Hazards & Faults Maps are available in the layer titled "GeoHaz SD City." Please note that the City "Zone 12 Potentially Active" fault layers was not included in this data, therefore you will need to use the City Maps to find Zone 12.

The Fault Map link is available at: [http://www.sandiegogeologists.org/Faults\\_map.html](http://www.sandiegogeologists.org/Faults_map.html)

Please contact Diane Murbach ([dianemurbach@gmail.com](mailto:dianemurbach@gmail.com) 619-865-4333), Chair for the SDTJ Earthquake Scenario Working Group #1 - Earth Science, if you have any questions, or see any errors on this new fault map.

I would like to thank Carolyn Glockhoff for her endless GIS work, Jim Quinn and the City for providing their data and time, Jerry Treiman with CGS for his time preparing the Surface Rupture and providing their new State fault data layer, and Luis Mendoza at CICESE for providing the faults south of the border. Please contact Diane Murbach ([dianemurbach@gmail.com](mailto:dianemurbach@gmail.com)), Chair for the SD-TJ Earthquake Scenario Working Group #1 - Earth Science, if you have any questions, or see any errors on this new fault map.

**Diane Murbach** (619) 865-4333

Engineering Geologist, C.E.G.

[www.murbachgeotech.com](http://www.murbachgeotech.com)

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## Request for 2019 SDAG/SDGS Publication Sponsors

On behalf of the San Diego Geological Society, Inc. (SDGS), a public benefit 501(c)3 nonprofit educational corporation, we would like to request tax deductible Donations for our San Diego Association of Geologists (SDAG) group. The list of paid Sponsors and the forms to become a Sponsor are located on the SDAG web site at: <http://www.sandiegogeologists.org/Sponsors.html>.

Your donation will further the SDGS mission to promote geology and related fields in the greater San Diego region, operating through the San Diego Association of Geologists (SDAG), a committee of SDGS. To achieve our primary educational objective, we organize frequent field trips and maintain a program of monthly meetings featuring speakers on current geological topics. We also publish field trip guidebooks and other publications related to geology and natural history. We encourage scholarship and research by awarding scholarships from the elementary through graduate levels. With your \$100 "EMERALD" donation, your name/business will be listed as a sponsor on the SDAG web site (<http://www.sandiegogeologists.org/>) and in the monthly SDAG meeting newsletters. With your \$500 "RUBY" or \$1,000 or more "DIAMOND" level donation, your business card will also be included on the SDAG web site and in the monthly SDAG meeting newsletters. In addition, as a "\$1,000 or more DIAMOND" level donation you will be presented with a thank you plaque.

Should you have any questions regarding a Sponsorship, please contact our non-profit SDGS Secretary (Diane Murbach) at 619-865-4333.

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## Call for Articles

SDAG invites members to submit articles on their current research or an interesting project they are working on for publication in the monthly newsletter. The article should be no more than 1 page in length. Photos are welcomed; too. Please submit articles to the SDAG secretary via email.

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# Geo Job Listings

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**GEI Consultants, Inc.** is a leading consulting engineering and environmental firm ranked #92 in the ENR top 500 (2018), with over 800 employees in multiple offices throughout the U.S. and Canada. We serve hundreds of government, energy, industry and institutional clients, and have completed 50,000 project engagements throughout the United States, Canada, and more than 20 other countries. Our technical experts are involved in dozens of specialty services emanating from our core solutions in water, energy, buildings, infrastructure and industrial.

We are seeking a full-time **Senior Engineering Geologist** for our Carlsbad, CA office. Experience in geologic investigations for dams and other water infrastructure projects is a plus.

## Essential Responsibilities & Duties

- Manage the technical, financial, and client relationship aspects of a variety of geologic/geotechnical engineering projects throughout the country, with a geographic emphasis in California.
- Prepare technical scopes of work and budgets for proposals, and prepare requests for proposals for subcontractor services.
- Plan and lead the implementation of geologic/geotechnical site assessments and subsurface investigations, which include: field mapping, aerial photograph interpretation, rock and soil borings, surface and downhole geophysics, LiDAR analysis, preparation of technical reports, and providing technical oversight of subcontractors including review/approval of invoices and work proposals.
- Participate actively in professional organizations and conferences; deliver presentations, and write technical papers.
- Generate new business.
- Prepare and deliver technical presentations to clients and regulators.
- This position has a field component; travel, and some overnight travel are required.

## Minimum Qualifications

- B.S. in Geology; M.S. is a plus.
- P.G. and C.E.G. with registration in California.
- 10+ years of previous professional experience in engineering geology.
- Excellent technical report writing and communication skills.
- Willingness and ability to travel on short-term assignments as needed.
- Valid U.S. driver's license.

GEI is an EEO/AA/M/F/Vet/Disability employer

Apply here: <https://jobs.ourcareerpages.com/job/396913>

For other opportunities within GEI, go to: <https://geiconsultantsinc.ourcareerpages.com/>

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Trevet is an Environmental and Engineering Consulting Firm headquartered in San Diego, CA. We are seeking a **full-time staff level Geologist or Environmental Scientist**. Two to five years of experience preferred. At a minimum a bachelor's degree in geology, engineering, or a related scientific discipline is required. Must be eligible to work in the United States, and on Department of Defense installations. Ability to travel for extended duration (2 to 3 weeks) is required. The ideal candidate will possess great attention to detail, excellent written and verbal communication skills, and ability to work independently and within a team.

Duties will include a combination of field and office related tasks.

**Field experience should include:**

- Installation of soil borings using multiple drilling methods
- Describing soil using the USCS and ASTM classification systems
- Installing and abandoning groundwater monitoring wells
- Field sampling of groundwater, soil, and soil gas
- Remediation system operation and sampling

Field work may be performed at project sites with environmental media (e.g., soil, sediment, groundwater, surface water, etc.) that has been impacted with hazardous substances and/or hazardous wastes.

**Office experience should include:**

- Field data collection, analysis, and interpretation
- Preparation of data in visual, graphical, and tabular formats
- Technical report writing

**Other Requirements**

Familiarity with CERCLA/RCRA requirements

OSHA 40-Hour HAZWOPER Training with current 8-hour refresher class preferred.

Trevet is an Equal Opportunity Employer

**Please apply at**

<http://www.trevetinc.com/>

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TITLE: EARTH SCIENCES (OCEANOGRAPHY/GEOLOGY) INSTRUCTOR - TENURE TRACK

LOCATION: GROSSMONT COLLEGE

To apply or refer someone the direct link is: <https://jobs.gcccd.edu/applicants/Central?quickFind=52102>

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**STAFF GEOLOGIST**

Helenschmidt Geotechnical, Inc. seeks a full-time staff geologist for its office in Carlsbad, California. Requirements: Bachelor's degree in geology or engineering geology (Master's degree preferred), strong technical and writing skills ability to work as a team player. Competitive salary and benefits package. EOE. Email resume in confidence to [engineering.hgi@att.net](mailto:engineering.hgi@att.net).

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## Entry-Staff Hydrogeologist

### OVERVIEW:

Hargis + Associates, Inc. (H+A) is an environmental consulting and engineering firm founded in 1979 with a commitment to providing high-quality, cost-effective services for our clients. We are headquartered in San Diego and have offices in Sacramento, CA, and Phoenix and Tucson, AZ. Our practice focuses on large facility investigation and remediation projects for Fortune 500 clients where we provide responsive, practical and innovative solutions for the treatment of soil, vapor and groundwater contamination. H+A also provides hydrogeologic and engineering services for groundwater resources assessment, stormwater management, and environmental regulatory and litigation support. H+A employs a staff of approximately 60 hydrogeologists, geologists, engineers, industrial hygienist, and project support personnel.

We are currently seeking an entry-staff level hydrogeologist to join our San Diego office supporting environmental investigation and remediation projects located throughout Southern California. These projects are primarily focused on the characterization and remediation of soil, vapors, and groundwater impacts at large industrial sites. In addition to implementing fieldwork for site investigations, the position will also involve data entry, interpretation, and technical report writing for various soil and groundwater monitoring programs.

### RESPONSIBILITIES:

- Implement/and support field investigations for soil sampling, groundwater sampling, borehole drilling, and well installations.
- Complete tasks requiring utilization of critical-thinking skills, scientific, geologic, and engineering analytical techniques.
- Assist in the preparation of reports, work plans, sampling and analysis plans, remedial investigation reports, and groundwater monitoring reports under the direction and guidance of a Senior Geologist/Engineer/Scientist.
- Follow corporate health and safety and quality management plan standards.

### REQUIREMENTS:

- BS degree in geology, hydrogeology or related technical discipline is required.
- 1-3 years of field experience in environmental consulting is preferred.
- Experience with geologic, engineering, scientific, or general environmental projects and data interpretation.
- Field experience with drilling, sampling (soil and groundwater), and well installations is a plus.
- OSHA 40-hr. HAZWOPER, current refresher preferred; training provided.
- General computer knowledge (Microsoft Office, Email); GIS and other environmental software experience is a plus.
- Excellent organizational and sound written/oral communication skills.
- Local candidates only; must be eligible to work in the United States.

### PHYSICAL DEMANDS:

- Ability to drive, travel and/or perform field work approximately 50% of the time; some overnight and extended travel.
- Ability to lift 45 pounds.
- Must be able to perform the following actions while conducting fieldwork: stooping/kneeling/crouching, standing for long periods of time, pulling/pushing and lifting equipment and supplies, walking on uneven terrain.
- Ability to work in outdoor environments and hot/arid conditions.
- Ability and willingness to work long hours and in proximity to loud noises and hazards (i.e., proximity to moving mechanical parts, moving vehicles, and exposure to chemicals, fumes, odors, dusts, and gases).

Those who seek to apply may submit a cover letter and resume via email to [hargisinfo@hargis.com](mailto:hargisinfo@hargis.com)

**All qualified applicants will receive consideration for employment without regard to race, color, national origin, ancestry, sex, gender, gender identity, gender expression, age, sexual orientation, religious creed, physical or mental disability, medical condition, genetic information, marital status, veteran status, or any other classification protected by applicable federal, state, or local law.**

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**MP Materials, Mountain Pass, CA**

Seeking Industrial Hygienist/Radiation Safety Officer

Please contact:

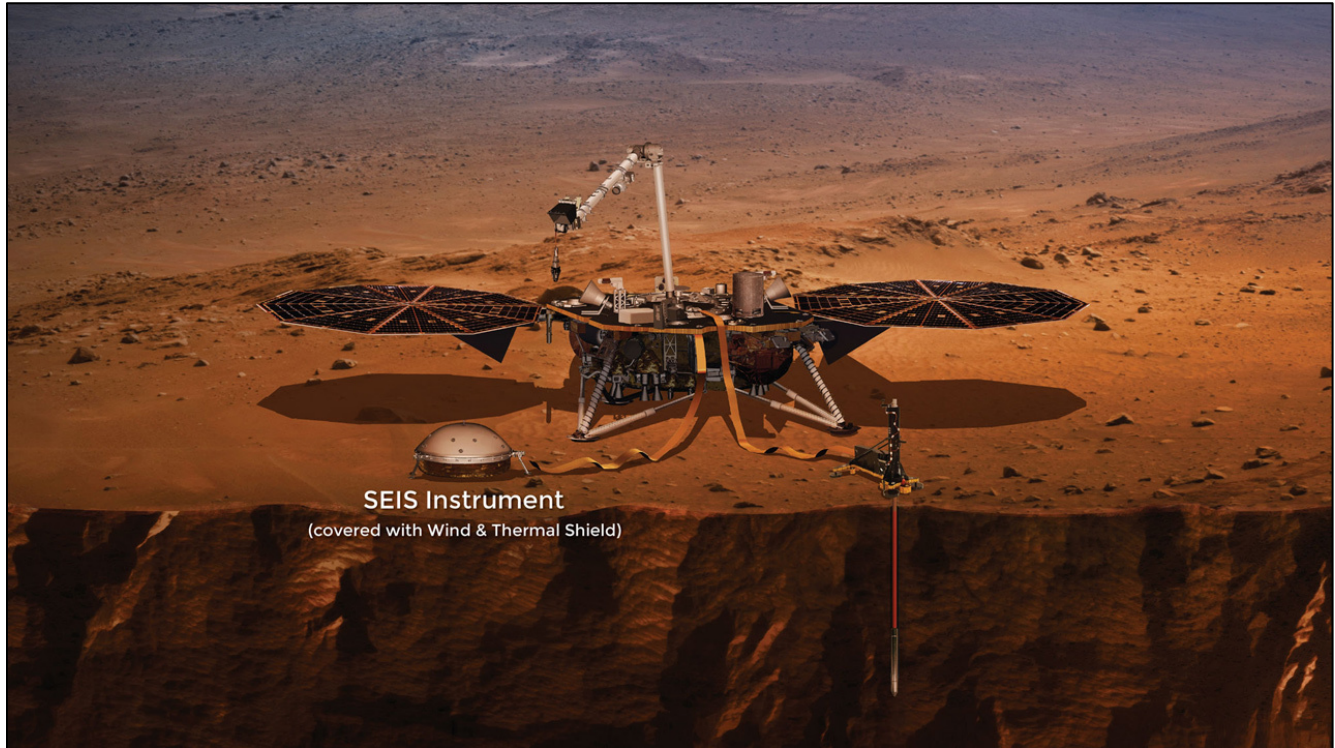
Chris Baker  
Senior Environmental Specialist  
m: 562.331.4507  
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## PHOTO OF THE MONTH

If you would like to submit a photo, email them to [secretary@sandiegogeologists.org](mailto:secretary@sandiegogeologists.org) and I will try and put them in the newsletter. Provide a short description of the picture.



Topic: **Measuring the Pulse of Mars**

Source: **NASA, MARS InSight Mission**

“We’ve been waiting for this moment for a long time. It’s been 130 years since the first seismic record on Earth and almost 50 years since a seismometer was placed on the Moon during the Apollo program. What we learn from SEIS will shed light on how Mars formed and evolved.”

– Philippe Lognonné

*Principal Investigator*  
Institute of Earth Physics of Paris  
University Paris Diderot Paris, France

Full Article: <https://mars.nasa.gov/insight/spacecraft/instruments/seis/>



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