

# **SAN DIEGO ASSOCIATION OF GEOLOGISTS**

<http://www.sandiegoeologists.org>

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## **SDAG MEETING ANNOUNCEMENT**

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**Wednesday, September 26, 2018 \*4<sup>th</sup> Wednesday\***

### **GEOTECHNICAL DISASTER PLANNING TO IMPROVE PROFITS AND MITIGATE LIABILITY**

#### **“2018 DEBRIS FLOWS IN MONTECITO, CA”**

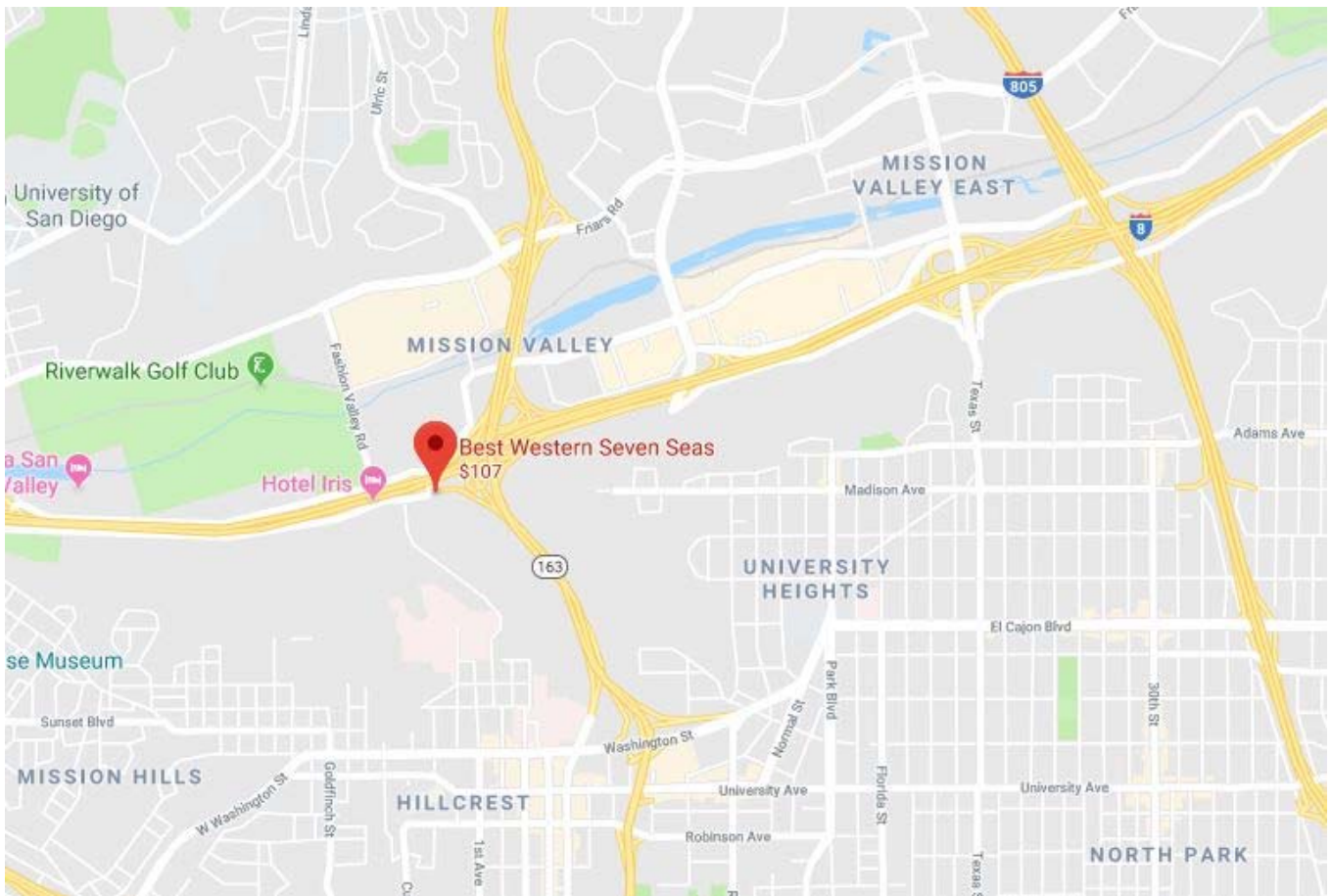
Presented by: HIGDON, WOODROW L., GEO-TECH IMAGERY INTL., P.O. BOX 2179,  
OCEANSIDE, CA 92051

- Where:** **Best Western Seven Seas**  
411 Hotel Circle South, San Diego, CA 92108 (See Map)
- When:** 5:30 pm – Social Hour  
6:30 pm – Dinner  
7:30 pm – Presentation
- Dinner:** Something Edible
- Cost:** \$30 Member, \$35 Non-Member, \$20 Students.
- Reservations:** Make your reservation **online** at <http://www.sandiegoeologists.org/Meetings.html> later than noon, Monday, September 24<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: If you are heading south on the I-5 take the I-8 east for 2.2 miles. Take the Hotel Circle E exit. Turn left on Hotel Circle. The Best Western will be on your right just before you cross under the freeway.

FROM INTERSTATE 8: Take the I-8 West to exit 4B for Hotel Circle W. Turn right onto Hotel Circle N which has you heading back east. Slight right onto Hotel Circle S. Best Western will be on your left just past the freeway bridge.

**Map:**



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## **ABSTRACTS**

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### **GEOTECHNICAL DISASTER PLANNING TO IMPROVE PROFITS AND MITIGATE LIABILITY**

#### **“2018 DEBRIS FLOWS IN MONTECITO, CA”**

Presented by: **HIGDON, WOODROW L., GEO-TECH IMAGERY INTL., P.O. BOX 2179, OCEANSIDE, CA  
92051**

In the Geotechnical world, it is well known that "IN DISASTER THERE IS PROFIT", and the Montecito, CA. debris flows are one of the more recent examples. Major Debris Flows that are related to one of the largest Wild Fires in State history. Early detailed Geotechnical visual documentation is the key to cost effective marketing, project acquisition, preliminary field investigations, and long term predictions of future related damages. Visual images are still the most useful, most accurate, and most reliable form of data, and evidence in all aspects of hazard investigations, and legal procedures.

Geotechnical firms planning for events like the Montecito Debris Flows should start well in advance of these types of events, and the firms should be ready to start full documentation protocols upon occurrence, to improve their chances of acquiring work on such projects. The visual documentation should be in Stereo, and GPS based, for ease of use in GIS software's. This will substantially reduce short and long term investigation cost, and expand uses of the imagery in related work areas, such as litigation, which is highly probable in Geotechnical Disaster events.

Firms that do this type of investigation work in the long term face many unseen hazards and risk, not all of which are geotechnical. Many are legal, and some of those risk are directly related to Public Corruption that is mostly hidden from the public, and operated for the financial advantage of Law Enforcement Public Agencies, and Insurance Companies.

2D and 3D images flown immediately after the Debris Flow and Wild Fire events will be utilized to highlight various aspects of damage documentation, investigation enhancements, and prediction of future threats. If you have Anaglyph 3D (Red/Blue filter glasses) bring them along, if not I will bring a stack of glasses for use by attendees. Various FREE and easily obtainable image viewing and GIS software programs will be utilized for this presentation.

760-754-8423

[www.geo-tech-imagey.com](http://www.geo-tech-imagey.com)

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

## **Speaker Bio:**

Mr. Woodrow "Woody" Higdon  
Geo-Tech Imagery Intl.

Mr. Woodrow L. Higdon (Woody) has been an AEG, SCGS, and SDAG member since the mid 1970's. Woody has degrees in Marine Geology - Oceanography from Cypress College, a Geology degree from Cal State University Long Beach, and worked for Leighton and Associates as a staff geologist from 1975 thru 1979.

In 1979 Woody left L&A to concentrate on developing and expanding Geo-Tech Imagery, which has specialized in Land Use Imagery for the past thirty 38 plus years. He did post graduate studies in remote sensing imagery through Harvard University in 1981. Woody plans, generates, analyzes, and reproduces all types of 2D and 3D images, based on Geotechnical issues, (aerial, ground, and underwater in both photography and video), for all aspects of land use. Starting from pre-acquisition, through Geotechnical investigations, grading and construction, litigation, and marketing, to final sale documentation.

GTI has over 250,000 frames (+) of standard color, false color infrared, black and white, and side scan radar imagery, in its GIS cataloged image library, covering 1928 to the present. One of the few photo libraries in the world with 35+ years of Stereo aerial vertical, aerial oblique, and ground photography. Woody has sold GIS Software and Data, consulted, trained, and utilized GIS software since the 1960's.

Woody is a former Recon Marine with specialized training in Airphoto Interpretation, Combat Photography, and Underwater Photography from Naval Diving Schools. Upon discharge from the Marines, he became a police officer for the cities of Santa Ana and Garden Grove, California, which included forensic photography, as part of his patrol duties. GTI's Photography and Video support skills include Naval Diving Schools certifications, PADI Diving Instructor Certification, and Helicopter Pilot Certifications, with more than 40 years of experience.

GTI's in-house support capabilities include high resolution digital image scanning, digital image editing, GIS encoding and image rectification, non-linear real time digital video editing, 3D computer based image analysis, and high resolution large and small format print reproduction. Woody can be reached at Geo-Tech Imagery at 760-754-8423, or you can visit his web site at: [www.geo-tech-imagery.com](http://www.geo-tech-imagery.com)

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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

October 12th – 14th, 2018	No Meeting – Annual Field Trip! Please sign up on the website.
November, 2018	Student Presentations
December, 2018	Tom Demere

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## **2018 SDAG EXECUTIVE COMMITTEE**

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**PRESIDENT:** Chris Livesey; [liveseychris@yahoo.com](mailto:liveseychris@yahoo.com)  
**VICE PRESIDENT:** Ken Haase; [haase@geoconinc.com](mailto:haase@geoconinc.com)  
**SECRETARY:** Adam Avakian; [adam.avakian@aecom.com](mailto:adam.avakian@aecom.com)  
**TREASURER:** Heather Reynolds; [heather.reynolds@tetrattech.com](mailto:heather.reynolds@tetrattech.com)  
**PUBLICATIONS:** Lowell Lindsay; *Sunbelt Publications*; Ph: (619) 258-4911, x111;  
[llindsay@sunbeltpub.com](mailto:llindsay@sunbeltpub.com)

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## SDAG PRESIDENT'S CORNER

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September 2018,

Hello SDAG readers,

I wanted to thank Jen Morton (past SDAG president) for leading a great One Stop Wonder trip over the holiday weekend. If you were not able to attend the trip, you might be able to recreate the adventurous day in the upcoming One Stop Wonder guidebook (publication date TBD)! I am really excited about the guidebook and all who have participated thus far. You too have a chance to be a part of written history by leading your own expedition. Are you unsure how to lead a trip? Come on down to our September meeting to kick around the dirt with our members. We are generally a bunch of helpful geologists and enthusiasts!

As 2019 becomes ever closer, SDAG is asking for anyone considering to become an officer to contact myself ([liveseychris@yahoo.com](mailto:liveseychris@yahoo.com)) or Adam Avakian ([adam.avakian@aecom.com](mailto:adam.avakian@aecom.com)).

My daughter's pre-school is asking for rocks to help teach the kids. I do not think they understood my clarification of "rock types".....sedimentary, igneous, metamorphic, mineral (common or precious quality), sand-gravel-cobble-boulder size, I really could go on, but you get my drift. I am unloading some of my personal stockpile and if anyone else wanted to get rid of your paperweights, they would appreciate the donation. Our September meeting is not until late in the month, so please email me ([liveseychris@yahoo.com](mailto:liveseychris@yahoo.com)) before you exert too much effort.

Sincerely,

Chris Livesey

SDAG President-2018

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## ANNOUNCEMENTS

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ONE-STOP WONDER CHALLENGE!

ONE OSW A MONTH IN 2018!

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

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## **2018 SDAG Field Trip**

**Friday October 12, 2018 through Sunday October 14, 2018**

From our Vice President Ken Haase:

Hello SDAG. The field trip details are being finalized and the signup form is ready to go! Please get your signups in early, we have a great trip planned. Sign up sheets can be printed off the SDAG website and either mailed in or taken to the Treasurer at the next meeting. We will also have sign up sheets at the meeting.

Our trip this year will take place from Friday October 12<sup>th</sup> through Sunday October 14<sup>th</sup>. Our first stop will be Blue Cut in San Bernardino County and we will venture north from there. Saturday has a few short, flat hikes that provide a wealth of geologic knowledge. We will close out the trip with a tour of Calico Ghost town. If you have any questions about the signup form email Ken Haase at [haase@geoconinc.com](mailto:haase@geoconinc.com). We also need Honda 2000 generators for the field trip so we can provide early morning power to the campsite. If you have a spare generator to loan please email Ken Haase. Hope to see you on the trip!

A detailed itinerary will follow in late August or early September.

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### **Free Back Issues of California Geology**

Free back issues of California Geology will be brought forth at this month's meeting. Several years are organized in binders, going back as early as 1967! Also, some paleontology texts, yours for the taking. See Todd Wirths at the meeting. Rock on!!

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### **Absolution by the Sea - Now Open For Business!!**

Long time SDAG member and past president, Cari Gomes, has assisted in opening a new brewery-restaurant called Absolution by the Sea, from Absolution Brewing Company. The restaurant is located at 7536 Fay Avenue, La Jolla, CA 92037. Phone 619-202-4152. Come enjoy great craft beer and food with your fellow geologists!

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**OSW ANNOUNCEMENT**  
**Observing the Entire Sulfur Cycle in the San Diego River**

Leader: Dr. Norrie Robbins

Date: Saturday September 15<sup>th</sup>

Time: 1pm

Place: Parking lot of Armstrong Nursery (10320 Friars Rd.).

This is a general invitation to you and your students/colleagues to see the entire, amazing, sulfur cycle, on display right now in the San Diego River. I've only seen this in two places on this Earth before (York S spring in PA, and the Iowa fens). Sulfur oxidizers (white, purple, green), sulfate reducers (black), and anoxyphotosynthesizers are all out right now because the river is anoxic except for the top mm, which is suboxic. This is typical of July and Aug in the River; I've never seen it in Sept. It will completely disappear as soon as it rains, and then will not reestablish until next July.

This is under the Friars Rd bridge, near San Diego Mission. I am willing to take everyone interested, whenever. Don't contact me after it rains, because the sulfuretum will be gone. Afternoon is best so you can see it in sunlight. It's a very short walk, trip won't take a whole hour, and bring a baggie/vial/whatever if you want to collect the sulfuretum and watch it develop on a sunny windowsill at home. Pass on my invitation.

Dr. Norrie Robbins

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**Previous OSW – Encinitas Copper Mine – Write Up**

**by Jennifer Morton**

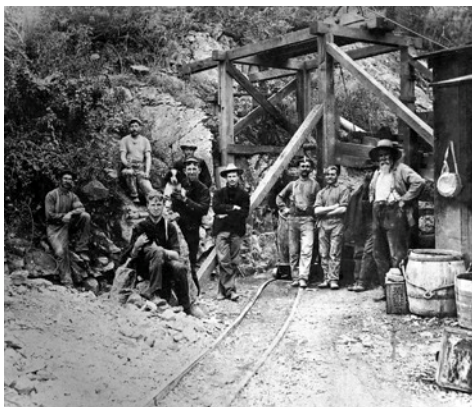
See following pages:

Encinitas Copper Mine (a.k.a. Danes Lea Mine)  
N33.081651  
W117.208037  
Rancho Santa Fe Quadrangle

*Directions:*

*Take I-5 to La Costa Avenue, head east. Turn left onto Rancho Santa Fe Road and right onto San Elijo Hills Road. Bear right at the roadway to a closed landfill and park on the side of the road. Head south on the easternmost dirt path, next to the landfill building. Arrive at the head of Copper Creek trail. Follow this trail until you reach the waterfall and remnants of the mine workings.*

On September 1, 2018, SDAG visited the site of the Encinitas Copper Mine in the La Costa Preserve. The old mine was situated along what is now known as Copper Creek. According to *County Report 3, Geology and Mineral Resources of San Diego County, California*, published by the California Division of Mines and Geology in 1963, the mine was discovered in 1887 and was worked until 1917.



*Miners in the early 1900s at the Encinitas Copper Mine. Courtesy Richard Bumann.*

We were joined by Richard Bumann, local author/historian and a descendent of one of the founding families of Olivenhain. Mr. Bumann's uncle owned the copper mine from the 1920's through 1940's, and he shared some of the history of the mine and boyhood stories of exploring the mines and at one time lowering himself into one of the shafts! Mr. Bumann confirmed that the mine consisted of two shafts, one on either side of the canyon through which Copper Creek flows. The mine was worked sporadically until 1917, producing a low-grade copper ore which would now cost more to extract than it would be worth! Piles of light-green rocks - the remaining mine tailings - give

away the locations of each of the shafts, which have since been blasted shut for safety. The shaft on the east side of the canyon consisted of two horizontal tunnels terminating at a 140-foot deep vertical shaft, and the shaft on the west side was reported to be a vertical 400-foot shaft. The shafts tend to flood with groundwater, and Mr. Bumann's uncle spent many months pumping out water and restoring the shoring in 1925, but the mine was never again worked.

According to the 1963 County Report, the deposit is a northwest-trending zone of



*View of the mine tailings from the west side of the creek looking northeast.*

copper-bearing mineralization, approximately one mile long and 10 to 50 feet wide. The 1939 *California Journal of Mines and Geology, Quarterly Chapter of State Mineralogist's Report XXXV* describes the vein as a yellowish and black gouge between walls of dark-colored porphyry, and notes that the ore is chalcopyrite associated with pyrite.

Steven Jacobs provided a great overview of the formation of porphyry copper deposits. These types of deposits typically form as the result of hydrothermal activity. In the case of the Encinitas Copper Mine, as the magma body of the Western Peninsular Ranges Batholith intruded the Santiago Peak volcanics hydrothermal fluids circulated through preexisting rocks, altering these rocks and depositing metals in the matrix or as a coating in fractures on the surface of surrounding rocks.

Monte Marshall was on hand to discuss the formation of the Santiago Peak Volcanics. These are subduction-related volcanoes, similar to the Andes or the



*Outcrop of Santiago Peak Volcanics along the old mining road.*

Cascades. He noted that a visible outcrop near the mine consisted of a volcaniclastic deposit – one of three types of structures typically seen associated with the Santiago Peak Volcanics. Others include flows and feeder dikes with vertical foliation.

Thank you to everyone who made this a successful OSW!

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## California Board for Professional Engineers, Land Surveyors, and Geologists California Specific Exam Occupational Analysis Survey

The California Board for Professional Engineers, Land Surveyors, and Geologists (BPELSG) is undertaking a comprehensive research project of the professional geology profession referred to as an Occupational Analysis. You are invited to participate in an online survey that will validate the tasks and knowledge that are important to the work performed by geology professionals as it applies to the definition of geology and the authority to practice in California.

In accordance with §7841 (d) of the Geologist and Geophysicist Act, the California Specific Exam is one of three exams required to obtain the California Professional Geologist practice authority license. As you take this survey, please keep in mind that the California Specific Exam is a SUPPLEMENT to the National Association of State Boards of Geology (ASBOG) Fundamentals of Geology (FG) and Practice of Geology (PG) exams. The California Specific Exam is intended to address the areas of geologic practice that are specific to the State of California, and therefore not addressed by the ASBOG exams. The California Specific Exam IS NOT intended to duplicate general geologic practice tasks common to all geologists nationwide that are covered by the national ASBOG FG and PG license exams.

The results of the study will be used to update the Geology California Specific Exam and will also provide BPELSG with valuable information regarding the work performed by geology professionals. The Occupational Analysis is completed every five to seven years and is the source for determining the content of the licensing exams. This analysis is an essential step in keeping the California Specific Exam current and practice-related.

Your participation is critical to ensuring the success of the study. As part of this study, we need your assistance in completing an online survey. Please consider filling out the survey that takes approximately 45 minutes to complete and can be saved and completed in multiple sessions.

### INSTRUCTIONS FOR PARTICIPATION:

If you previously signed up for the Occupational Analysis email list, we thank you. In order to avoid duplication, licensed geologists on the email list are encouraged to use the link sent via email. If you did not sign up or receive an email, you are invited to participate the in online survey using the link provided below.

<https://www.prometricsurvey.com/se/123C457B2D2B599601>

The following contact information is provided if you encounter any technical difficulties with completing the survey online or have questions regarding the survey content. Please be sure to identify the survey you are taking (Geology California Specific Exam Occupational Analysis 2018). Email: [julie.morby@prometric.com](mailto:julie.morby@prometric.com) or Telephone: (801) 541-9738. You will receive a response within 24 hours, Monday through Friday (except holidays).

**Your completed survey should be submitted on/by October 31, 2018 (11:59 PM PST).**

Thank you in advance for your participation in this survey and ongoing support of the program.

Regards,

The Board for Professional Engineers, Land Surveyors, and Geologists and Prometric

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## **SAVE THE DATE!**

### **National Association of State Boards of Geology**

### **ASBOG® 2018 Fall Council of Examiners (COE) Workshop and Field Trip**

**Marriott Hotel, Monterey, CA**

**November 1-3, 2018**

### **COE WORKSHOP PRELIMINARY INFORMATION**

#### **The National Association of State Boards of Geologists (ASBOG) Needs You!**

ASBOG will hold its fall Council of Examiners (COE) Workshop in Monterey, California on Friday and Saturday, November 2, and 3, 2018. A field trip will be arranged for Thursday November 1, 2018.

The purpose of the COE is to review the fall 2018 ASBOG examinations just given and review the subsequent examinations proposed for spring 2019. Licensed geologists are needed to participate. While these subject matter experts (SMEs) typically are drawn from among members of various state geology boards, additional volunteers are sought from the COE host state and its adjacent ASBOG-member states that use passing of the ASBOG examinations as licensing requirements. Over the long term, ASBOG has developed applicable and fair examinations used to lead to geologist licensing.

The COE Workshop process is a key component of expanding and maintaining relevant and defensible examinations for applicants seeking geologist licensing. Geologist SMEs play a critical role in providing sufficient professional experience to the COE Workshop, which gives fair weight to all geologist task areas. ASBOG conducts a Task Analysis every 5 years to support the COE's strict examination review process. Analysis results maintain the relevancy and currency of the examinations.

The COE Workshop is a 2-stage process with parallel sessions for both the fundamental and professional examinations. The SMEs receive instruction from ASBOG's psychometrician on the Workshop process. On the first day, each SME unofficially takes the most recently given ASBOG fundamental or professional examination. Then, the psychometrician guides a comparative discussion of the groups' collective examination results with those of the recent, fall examinees. Each item is either accepted as given, double-keyed, or removed from the item pool. Individual examinee comments are considered and discussed. Generally, seldom-used, new, or unclear items are reviewed by the COE group, especially if performance results are of concern. If time permits, SMEs are encouraged to write new items for the item pool.

This process is repeated on the second day to review and test items to be included in the spring examinations. The groups then evaluate the historic performance of items, and improve items that need improving.

ASBOG needs your participation as a COE Workshop SME. **Please email a statement of interest, and your credentials and contact information to Ms. Deana Sneyd, ASBOG Executive Director, at [dsneyd@asbog.org](mailto:dsneyd@asbog.org).**

To qualify, each SME must have:

- A current license in good standing as a geologist in an ASBOG-member state.
- Worked as a professional geologist in industry, academia, or government.
- Be prepared to serve on the COE with no ASBOG reimbursement of any travel expenses.
- Agreed to ASBOG terms and conditions, provided under separate cover, to participate.

Please Note: This is a VOLUNTEER opportunity. ASBOG is a non-profit organization and is unable to reimburse travel expenses or pay for your time. However, they do provide some meals as part of the COE. The COE location rotates throughout the country and is unlikely to be in California again for 3 to 5 years. This is a unique and important opportunity to contribute to the geologic profession.

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## **Volcanology Speaker Wanted!**

Wavelength Brewery (our last meeting venue) in Vista is looking for a geologist or volcanologist to give a voluntary talk on the recent volcanic activity going on in Hawaii. If anyone is interested in doing this please contact the brewery. Here is a link to their webpage: [www.wavelengthbrewco.com](http://www.wavelengthbrewco.com)

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## **Professional Geologists Needed-Occupational Analysis Task Force Committee for BPELSG Exam Update**

### **We need your help ...**

The Board for Professional Engineers, Land Surveyors, and Geologists is conducting an occupational analysis regarding the profession of geology.

We are inviting California professional geologists to participate in an online survey to identify the tasks and knowledge that are relevant to the profession of California geology.

The purpose of the occupational analysis is to obtain feedback from a representative group of licensees and use the results to update the California Specific Exam for Professional Geologists.

This online survey is an essential step to ensure that the exam is current, relevant, and practice-related.

This is your chance for your voice to be heard.

If you would like to participate, please provide your email address and name to Erin LaPerle at (916) 263-1848 or by email to [Erin.LaPerle@dca.ca.gov](mailto:Erin.LaPerle@dca.ca.gov).

We anticipate releasing the survey in summer 2018.



**Board for Professional Engineers,  
Land Surveyors, and Geologists**  
2535 Capitol Oaks Drive, Suite 300  
Sacramento, CA 95833

**phone: (916) 263-1848**  
**email: [Erin.LaPerle@dca.ca.gov](mailto:Erin.LaPerle@dca.ca.gov)**  
**[www.bpelsg.ca.gov](http://www.bpelsg.ca.gov)**

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## **Geological Society of America Annual Meeting**

[www.geosociety.org](http://www.geosociety.org)

**2018**

**Field Trip Proposal Deadline: December 1, 2017**

**Technical Session/Short Course Proposal Deadline: February 1, 2018**

**Abstract Deadline: August 14, 2018**

**Meeting: November 4<sup>th</sup> to 7<sup>th</sup> 2018, Indianapolis, Indiana**

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## Yonder Dynamics – UC San Diego Student Robotics Organization



Allison Kubo is the Science lead for Yonder Dynamics a university rover team at UC San Diego and an Earth Science student at Scripps. She reached out to SDAG looking for sponsors for their rover this year. Part of the competition is an analysis of the geologic settings of the area and soil retrieved by the rover which incorporates soil moisture, conductivity, and chemical testing.

She would be happy to partner with SDAG or anyone interested in the project.

Here are links to the team's website and sponsorship package:

[Yonder Dynamics](#)

[Yonder Dynamics Sponsorship Package](#)

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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, from our first guidebook in 1972, up the San Luis Rey River in 2013, from Coast to Cactus in 2014, and finally over the edge to the Coyote Mountains in 2015. 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, "tsunami" 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 2018 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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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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## 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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## **Geologist Wanted in Corona, CA**

GeoTek in Corona is looking for a geologist to prepare reports, Contact Chris Livesey ([clivesey@geotekusa.com](mailto:clivesey@geotekusa.com)).

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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

[cbaker@mpmaterials.com](mailto:cbaker@mpmaterials.com) | [www.mpmaterials.com](http://www.mpmaterials.com)

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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.



Photo Taken By Diane and Monte Murbach, July 5, 2018 at Pahoa, Hawaii

View East of the Kilauea Volcano Lower East Rift Zone (LERZ) Active lava output from Fissure 8 towards the Ocean. You can see the LERZ lineament and the active lava entry at the Ocean in the distance. At the time of this picture the lava delta into the Ocean had created 585 additional acres for the State of Hawaii. The green buildings located in the middle of the recent flows, between Fissure 8 and the Ocean, are the Puna Geothermal Venture (PGV) complex. The active Fissure 8 is within the Leilani Estates Subdivision.





HARGIS+ASSOCIATES, INC  
HYDROGEOLOGY • ENGINEERING

Hargis + Associates, Inc. is an environmental consulting firm specializing in hydrogeology and engineering. We are headquartered in San Diego, California and have offices in Mesa and Tucson, Arizona. Our practice areas include all aspects of hydrogeology and engineering.

As a client service organization, we pride ourselves in being attentive and efficient in meeting our client's needs and solving their problems. In addition to our technical expertise, communication and responsive coordination are hallmarks of our reputation.

We invite you to explore our website to learn more about our firm and the services we provide. We welcome the opportunity to discuss our consulting expertise directly with you.

Contact: **Dr. David R. Harais**



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Contact: **Louise Adams or Suzie Nawikas**



Tetra Tech is a leading provider of consulting, engineering, and technical services worldwide. We are a diverse company, including individuals with expertise in science, research, engineering, construction, and information technology. Our strength is in collectively providing integrated services—delivering the best solutions to meet our clients' needs.

<http://www.tetrattech.com>



Contact: Rupert Adams, CEG

Geocon Incorporated  
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Leighton is a multidiscipline engineering firm, providing geotechnical, environmental, and testing and inspection services. Founded in 1961, Leighton provides engineering solutions to public agencies, property owners, and facilities. With offices located in San Diego, Irvine, Los Angeles, Temecula, Rancho Cucamonga, Palm Desert, Santa Clarita, Ventura, and Bakersfield, we efficiently service any region of Southern California. Our professional staff of Registered Geotechnical Engineers, Professional Geologists and Certified Engineering Geologists, Registered Hydrogeologists, and Registered Environmental Assessors and Certified Inspectors provide decades of local experience for the successful completion of your projects.

For additional information, please contact Bob Stroh ([rstroh@leightongroup.com](mailto:rstroh@leightongroup.com))

Website link: <http://www.leightongroup.com>

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- Marty and Sherry Bloom
- Joe Corones
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