

# SAN DIEGO ASSOCIATION OF GEOLOGISTS

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## *SDAG MEETING ANNOUNCEMENT*

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**WEDNESDAY, July 20, 2016**

### Predicting Slope Failures Using Slope-Monitoring Radar

*Presented by:*

**Steven E. Borron**

**PLEASE NOTE THE SOMEWHAT DIFFERENT FORMAT OF THIS MONTH'S MEETING. Show up the usual time or any time after 2:00 pm and have a few beverages, purchase your own food and enjoy the talk starting at around 7:30**

**Where:** BNS Brewing and Distilling Company See map on next page  
10960 Wheatlands Ave #101, Santee, CA 92071

**When:** 5:30 to 7:30 pm - Social Hour and Dinner  
7:30 pm - Program

**Directions:** FROM HIGHWAY 52: Take Exit 18A for Magnolia Avenue, turn left onto Magnolia, head north towards Mission Gorge Road. Make a right onto Mission Gorge Road/Woodside Avenue. Turn left/keep left toward N Woodside Avenue and then turn left onto Wheatlands Avenue. Destination will be on the right (see the map).

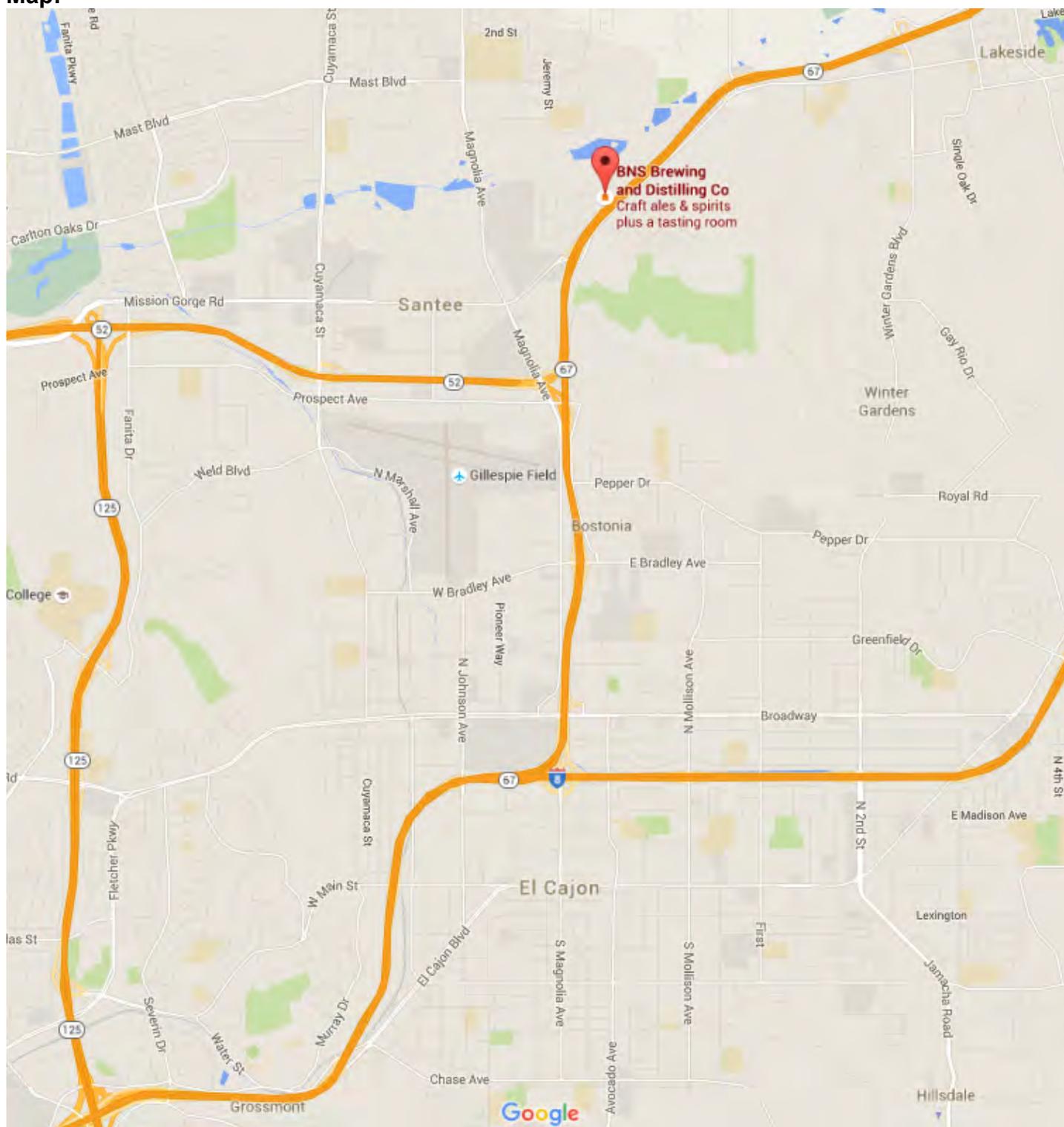
FROM INTERSTATE 8: Take CA-67 north in El Cajon. Exit at Prospect Avenue or Exit 2. Turn left (or west) onto Prospect Avenue then a right (or north) onto Magnolia Avenue. Make a right onto Mission Gorge Road/Woodside Avenue. Turn left/keep left toward N Woodside Avenue and then turn left onto Wheatlands Avenue. Destination will be on the right (see the map).

**Dinner:** **Baja/Mexican Food Truck (actual Truck TBD; likely either Casanova Fish Tacos or a Street Taco Truck) with Cash Bar**

**Cost:** \$20 per person, \$5 discount for members, STUDENTS and PROFESSORS: \$10. Add \$5 if you did not make a reservation. (NOTE: We are trying something NEW: The cost will cover the venue, but not the food or beverages)

**Reservations:** Make your reservation online at [www.sandiegogeologists.org](http://www.sandiegogeologists.org) **no later than noon, Monday July 18th**. Reservations cannot be guaranteed after Monday at noon; but are always preferred over walk ins. Reservations well before the deadline are MUCH appreciated.

**Map:**



## **ABSTRACT AND BIO**

### **Predicting Slope Failures Using Slope-Monitoring Radar**

*Presented by: **Steven Borron***

Slope-monitoring radar systems are being used successfully in many surface and open pit mining operations around the world. Their ability to quickly deliver data in various visual forms and to execute alarms has significantly reduced risk to miners and property in these locations. The primary radar function that has reduced risk is their ability to provide data in near-real time. In addition, the data is graphically displayed in several formats providing geomechanical professionals the ability to confirm movement trends from multiple data sets. This is a critical feature since identifying slope acceleration early and then using the inverse velocity trend is the only method that can accurately predict slope failure in a timely manner.

In addition, slope radar systems are extremely accurate at detecting the extent of slope surface movement. For instance, if a slope-monitoring radar project is proactively implemented on a suspect slope, surface movement will be detected by radar prior to visual detection of surface deformation. This can provide professionals with information that could help with mitigation and evacuation plans well in advance of possible acceleration events, which could lead to slope failure. Also in areas with limited access or other environmental restrictions a slope radar system located at some distance from a suspect slope could, in some cases, allow for accurate surface monitoring without using destructive testing methods.

The inverse velocity slope failure prediction method has been used successfully at several open pit mine sites around the world. Unfortunately, the method has not been disseminated to the general public in an effective manner. This has resulted in missed opportunities to save lives in areas that could have been easily monitored using a slope radar system and correctly interpreting acceleration in advance of slope failure. If lowering risk to life and property is a concern then incorporating slope-monitoring radar as part of a proactive monitoring system should be seriously considered.

### **SPEAKER BIO**

Steven Borron is a Senior Geologist with Bagdad Geomechanics/Freeport McMoRan, Inc. specializing in open pit mining. He currently is the supervising geologist for the Bagdad Geomechanical Department that includes three engineers and one geologist. One of his many geological focuses is to guide the department in developing models and data correlations to improve the understanding of mass movement mechanisms and ground water problems while reducing risk in an inherently hazardous environment.

He recently developed a landslide prediction model based on inverse velocity data during the summer of 2012. Inverse velocity data from active radar systems was used during active slope acceleration events, which led to the successful prediction of a 5-million ton failure in 2012 and a 1-million ton failure in 2015. The prediction technique was presented to Freeport McMoRan Inc. (FMI) management, which has now implemented the technique at all FMI properties worldwide.

He has BS and MS degrees in Geological Sciences from San Diego State University. His Undergraduate Thesis was titled, "Provenance of Puddingstones in Peninsular, California" while

his Master's Thesis was on the "Geology of the Split Mountain Struzstrom Anza-Borrego Desert State Park, California".

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## ***UPCOMING MEETINGS***

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Meetings are usually held on the 3rd Wednesday of the month but may change to accommodate the speaker and meeting place schedules. Check the SDAG web site for updates.

Aug 17, 2016	Monty Marshall - A little Something about Baja California
Sep 21, 2016	Peter Gold - Precursor to the SDAG Field Trip – The Agua Blanca Fault
October 22-24, 2016	THE 2016 SDAG Field Trip – Northern Baja California

## **2016 SDAG EXECUTIVE COMMITTEE**

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**WEBMASTER** – Carolyn Glockhoff; *Caro-Lion Enterprises*, Ph: (858) 549-3396; [carolyn@caro-lion.com](mailto:carolyn@caro-lion.com)

# 2016 SDAG FIELDTRIP UPDATE:

## GEOHAZARDS OF NORTHERN BAJA CALIFORNIA

Evaluating the Effects of Geologic Hazards on the Local Landscape

SDAG 2016 Field Trip – October 22<sup>th</sup> through 24<sup>th</sup>

Planning is now well underway on this year's exciting trip to Northern Baja, which will examine features related to faulting, landsliding and other erosional and mass wasting processes, and will assess their effects on the local landscape. We have now expanded this year's trip into **3 days**, beginning on Saturday the 22<sup>nd</sup> of October with an early morning rendezvous and breakfast near the US-Mexico border, before crossing, and touring down the coast to Punta Banda, just south of Ensenada, examining several faults, landslides and geologic exposures along the way. **Day two** will be spent traversing the Agua Blanca fault zone, with the day culminating in examination of a new fault trench excavated in young alluvial fan deposits, before overnighing in the Santo Tomas area. For those that choose to stay for **day three**, we will return to the US, most likely via some of the wineries in the Guadalupe Valley, before crossing the border at Tecate and returning to our starting point to pick up vehicles.

We are very fortunate this year to have the help and guidance of some of the most experienced local geologists in Southern California, including our very own John Minch and Jim Ashby, who have worked extensively in Baja over the last 40 ears. In addition, we have partnered with colleagues and graduate students at CICESE University, several of whom are participating in the fieldtrip and sharing their research. We also have Peter Gold from the University of Austin Texas, who will be presenting his research on the Agua Blanca Fault at our regular September meeting, and attending the fieldtrip as well to share his insights on the fault.

With respect to logistics, arrangements are ongoing, but we would like to highlight the following key points:

- You must have a **valid US passport or valid US permanent resident card** (Green Card) to cross back into the US at the end of the trip
- Transport will most likely be by a combination of bus/coach and private vehicle (SEE BELOW).
- We anticipate having a choice of both camping and hotel rooms at both overnight stops.
- All meals will be provided and we are looking at catering services to provide food at our overnight locations as well as during the day for lunch etc.
- We are planning several modes of transport for the trip. There has been significant interest by members who would like to travel by bus/coach. However, we will also require some 4x4 vehicles to access stops that cannot be reached by bus, or are too far to hike to (SEE BELOW).

With all this in mind we are looking for some feedback from our members to assist in trip planning. If you could answer the following questions and return the completed form to one of the Officers, it would be greatly appreciated!

## 2016 SDAG Field Trip Questionnaire

NAME: \_\_\_\_\_

**1. Are you planning on attending this year's fieldtrip?**

YES, NO, MAYBE (Circle one)

**2. If yes, would you prefer to travel on a bus/coach or bring your own car/rent a car or ride in someone else's car?**

BUS, CAR (Circle one)

**3. We are looking for at least 4 or 5 off-road vehicles to help transport people to locations that cannot be accessed by bus. If you have such a pickup truck or other suitable vehicle, would you be willing to drive it on the trip?**

YES, NO, N/A (Circle one)

**4. If you plan to attend, would you be more likely to stay for all three days or leave the trip earlier and return to the US separately?**

LEAVE EARLY STAY ALL 3 DAYS (Circle one)

**5. If you plan to attend, will you bring any family members or friends?**

0, 1, 2, 3, 4 or more (Circle one)

**6. Will you be needing vegetarian options for food?**

YES, NO (Circle one)

Please e-mail your responses to: [adams@geoconinc.com](mailto:adams@geoconinc.com)

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## *ANNOUNCEMENTS*

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# CALL FOR PAPERS

## GEOHAZARDS OF NORTHERN BAJA CALIFORNIA

Evaluating the Effects of Geologic Hazards on the Local Landscape

SDAG 2016 Field Trip – October 21<sup>th</sup> through 23<sup>th</sup>

On this field trip, we will travel south of the US-Mexico border to examine the geomorphic features related to faulting, landsliding and other erosional and mass wasting processes. If possible, we will also examine fault related features on a smaller scale in trench exposures. In addition, depending on the outcome of this year's highly anticipated El Niño, we may be able to examine the effects of the heavy rains on the local landscape. Where possible, we will look at how geotechnical engineering solutions have been employed to stabilize the local landscape.



SDAG seeks new manuscripts based on original work relating to earthquakes, faulting, landsliding, and/or any other geologic hazards that may affect Northern Baja. We also invite authors to submit articles on a broader range of topics including regional geology, structural geology, hydrogeology and groundwater resources.

### **Deadline for Abstracts: Friday, May 20<sup>th</sup>, 2016**

Please submit the following information along with abstracts:

- Title
- Author(s) and affiliation
- Address, email, and telephone numbers for the author(s)

Please submit abstracts by email to Rupert Adams at [adams@geoconinc.com](mailto:adams@geoconinc.com)



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## *Obituary of Jim Evans*

Jim Evans, a 1965 geology graduate from SDSU and a consulting engineering geologist for over 50 years, passed away on April 16, 2016 at his home in Vista, California.

While Jim began college with a focus in philosophy, he soon discovered a passion that changed his path by enrolling into a required science course taught by Baylor Brookes. The focal change lead into a career and lifestyle interwoven with geology throughout California, but particularly within the lands from Los Angeles County to San Diego County.

While living in Mission Viejo he resided as a geologist for Orange County and later the city of Newport Beach. As an independent consultant, Jim worked out of his Vista residence. He was a member for many years in local geological communities, including the presidential leadership of SDAG in 1989. He was also named a distinguished alumnus of the SDSU Geology Department. While he contributed to many geologic publications over the previous years, he really enjoyed planning and leading field trips. A classic landslide or an interesting road cut was an exciting discovery for him.

Jim is survived by his wife, Karen of 45 years, three children, and for grandchildren.

Memorial gifts may be made to the Baylor Brookes scholarship at SDSU

<http://sci.sdsu.edu/geology/scholarships/baylor-brooks-scholarship/>

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## ***"ROCK DONATIONS NEEDED:***

Amy Romano, one of our former student members, is looking for rock donations. Amy is currently attending Humboldt State University and majoring in Geology. She is very involved with Humboldt's Geology Club, and every year the club holds a rock auction to support their activities. If you have any rocks to donate, please contact Amy at [ajr612@humboldt.edu](mailto:ajr612@humboldt.edu).

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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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## ***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.sandiegoeologists.org/SDAG\\_Pubs\\_authors.pdf](http://www.sandiegoeologists.org/SDAG_Pubs_authors.pdf)

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The 2016 GSA Annual Meeting will be September 25 - 28, 2016  
in Denver, Colorado

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The SIPES (Society of Independent Professional Earth Scientists) is planning their annual conference in San Diego on August 1-4, 2016 at the Omni Resort and are looking for people to give presentations and for potential field trip stops that represent the local geology of any type, so the scope of the presentations and field trip is fairly open. The SIPES is a national group, consisting mostly of independent geoscientists. Their website is <https://sipes.org>. Speaker presentations will take place on August 2 & 3 and the field trip is set for the 4th. Any person giving a presentation receives free registration to attend all functions, and can join the networking group for free. The presentations should be approximately 25 minutes in length and have a PowerPoint presentation, if possible. They find the applicability and interest in most geological and geophysical parameters to be appropriate for the conference. However, diversity is greatly sought as well.

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### ***SDAG MONTHLY PHOTO COMPETITION***

SDAG member Gregory Farrand took this month's photo in June 2016 during his vacation in Norway and other countries in the Scandinavia, Baltic and Scotland regions. The photo shows deformed Paleozoic thin-bedded metasedimentary rock (gneiss and marble) as exposed in a strait at Saltstraumen near the town of Bodo, Norway, north of the Arctic Circle. Differences in erosion or dissolution of the layers caused the 3D effect along the bedding. Evidently the deformation occurred during the Caledonian Orogeny, 490 to 390 million years ago. He came across this outcrop in a zodiac boat while searching for Sea Eagle's, birds similar to the American Bald Eagle. The Saltstraumen strait is also noted for whirlpools or maelstroms caused by turbulent tidal flow through the narrow channel.



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## *Geology Institutions*

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We have heard from many upcoming geologists at our recent meetings, all of whom are seeking work opportunities here in San Diego. Included herein, in no particular order, are bio's and contact information of our members looking to gain a foothold in the local professional community

### **Geographic Information Systems Professional Seeking Job Opportunity**

I have completed my coursework for a GIS Certificate from San Diego Mesa College and am looking for an internship or full/part-time position as a GIS Analyst or Technician.

## Skills and Experience

- 4 ½ years' experience with ESRI ArcGIS Desktop 10.x software.
- 3½ years' experience as a GIS Specialist in Environmental Consulting.
- 6 years' experience as a Geotechnical and Environmental Geologist.
- Collect, process and import GPS survey data into ArcGIS.
- Georeference data, maps and aerial photos.
- Geodatabase design and management, geospatial data analysis.
- Excellent communication skills, able to multitask and work independently.
- Effective team-player, works well with people in multidisciplinary environment.
- Client/Customer service oriented, able to translate needs of non-GIS personnel into effective solutions.
- Strong computer skills including automation of tasks (Python/Perl) and scientific programming.
- Excellent mathematical background and technical writing skills.

For resume and references please contact Chris Lynch, (619) 302-1152, [mrprbgeo@gmail.com](mailto:mrprbgeo@gmail.com)

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## ***REQUEST for 2016 SDAG/SDGS and PUBLICATION SPONSORS***

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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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Contact: **Louise Adams or Suzie Nawikas**



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Contact: **Dave Bloom**



Contact: **Rupert Adams, CEG**

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**Contact: Brian Olson**

<http://www.cruxsub.com/>  
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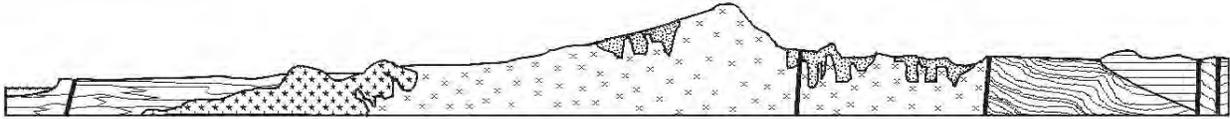
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# SAN DIEGO ASSOCIATION OF GEOLOGISTS

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

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*Please include company, university or other affiliation*

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**NOTE:** Your membership dues include delivery of the monthly SDAG newsletter and announcements to the email addresses given.

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Field(s) of Interest: \_\_\_\_\_

Dues: \_\_\_\_\_ Student Member (email delivery only) \$ 5.00

(check choice) \_\_\_\_\_ Regular Member (email delivery only) \$ 25.00

\_\_\_\_\_ Donation Student Scholarships \$ \_\_\_\_\_

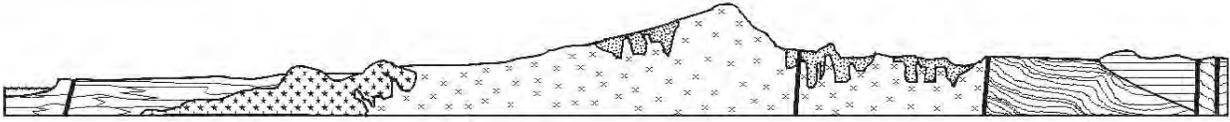
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San Diego Association of Geologists (SDAG)

3130 N Evergreen Street

San Diego, CA 92110



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(as you would like it to appear in Newsletter, Website, and Guidebook)

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**Work E-mail Address:** \_\_\_\_\_

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**Phone:** Home: \_\_\_\_\_ Work: \_\_\_\_\_ Cell: \_\_\_\_\_

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**EMERALD \$100.00** (In addition to monthly recognition for your contribution, you are entitled to a free Internet "link" from SDAG Website. We also list all Sponsors in any publications printed this year)

**RUBY \$500.00** (In addition to the above, you are entitled to an image of your business card in the monthly newsletter and SDAG Website)

**DIAMOND \$1,000.00** (In addition to the above, you will receive a commemorative plaque in recognition for your most generous support of the organization)

New Member / Donor  Continuing Member  Change of mailing address:

Are you interested to serve as an officer? \_\_\_\_\_ Willing to volunteer as a guest speaker? \_\_\_\_\_

**Please make check payable to San Diego Geological Society, Inc., a 501(c)3 public benefit nonprofit educational corporation (in order to claim a tax deduction), and mail to:**

San Diego Geological Society, Inc.  
3130 North Evergreen St.  
San Diego, California 92110 **Thank you!**

*Donations may also be made  
at monthly meetings.*

*Revised 11/18/2015*