

SAN DIEGO ASSOCIATION OF GEOLOGISTS

www.sandiegogeologists.org

SDAG MEETING ANNOUNCEMENT

WEDNESDAY, SEPTEMBER 16, 2015

<u>High-Resolution Mapping of Two Large-Scale Transpressional Fault Zones</u> in the California Continental Borderland: Santa Cruz-Catalina Ridge and

Ferrelo

Presented by: Mark Legg

- Where: Green Dragon Tavern & Museum 6115 Paseo del Norte Carlsbad, CA 92011 Tel: 760-918-2421
- **Directions:** FROM INTERSTATE 5: Exit at Palomar Airport Road. Turn right. Take the next right onto Paseo del Norte. The restaurant is located just past the Taco Bell on the right hand side.
- When: 5:30 pm Social Hour 6:30 pm - Dinner 7:30 pm – Program
- **Dinner:** Pesto Chicken on Vegetarian Risotto. Includes Cranberry Salad, seasonal vegetables, rosemary focaccia, coffee, iced tea, and chocolate mousse for dessert. Cash bar.
- **Cost:** \$35 per person, \$5 discount for members, STUDENTS: \$15. Add \$5 if you did not make a reservation.



Reservations: Make your reservation <u>online</u> at <u>www.sandiegogeologists.org</u> no later than noon, Monday **September 14th**. Reservations cannot be guaranteed after Monday at noon; but are always preferred over walk ins. Reservations well before the deadline are MUCH appreciated.

ABSTRACT

High-resolution mapping of two large-scale transpressional fault zones in the California Continental Borderland: Santa Cruz-Catalina Ridge and Ferrelo

Mark Legg: Legg Geophysical, Huntington Beach, CA, USA

New mapping of two active transpressional fault zones in the California Continental Borderland, the Santa Cruz-Catalina Ridge fault and the Ferrelo fault, was carried out to characterize their geometries, using over 4500 line-km of new multibeam bathymetry data collected in 2010 combined with existing data. Faults identified from seafloor morphology were verified in the subsurface using existing Borderland seismic reflection data including single-channel and multi-channel seismic profiles compiled over the past three decades. The two fault systems are parallel and are capable of large lateral offsets and reverse-slip during earthquake faulting. The geometry of the fault systems shows evidence of multiple segments that could experience through-going rupture over distances exceeding 100 km. Published earthquake hypocenters from regional seismicity studies further define the lateral and depth extent of the historic fault ruptures. Historical and recent focal mechanisms obtained from first-motion and moment tensor studies confirm regional strain partitioning dominated by right-slip on major through-going faults with reverse-oblique mechanisms on adjacent structures. The two systems resemble onshore active fault zones and provide additional information for understanding the full Pacific-North America plate boundary evolution, as well as transpressional fault systems along the plate boundary. Because of their potential

for dip-slip rupture, they may also be capable of generating local tsunamis that would impact southern California coastlines, including populated regions in the Channel Islands.

SPEAKER BIO

Dr. Legg received a B.S. in Space Sciences & Mechanical Engineering from the Florida Institute of Technology in 1973. At F.I.T, he also studied Physical Oceanography for the M.S. program. Dr. Legg continued his graduate studies in Oceanography at the Scripps Institution of Oceanography, with a National Science Foundation Graduate Fellowship, where he received his M.S. in 1980. In 1985, Dr. Legg completed his Ph.D., Geological Sciences, at the University of California, Santa Barbara. His postgraduate research focused upon the geology and seismotectonics of the California Continental Borderland, with detailed studies of the inner borderland west of San Diego and northern Baja California. While a graduate student, Dr. Legg conducted earthquake hazard and risk analysis research for the J.H. Wiggins Company, and helped the California Division of Mines & Geology map faults and earthquakes in the borderland. After the Ph.D., Dr. Legg expanded his marine seismic exploration skills at the Amoco Tulsa Research Center. Since 1988, Dr. Legg returned to Southern California to continue his offshore faulting and earthquake hazards studies. Recent offshore faulting and earthquake research efforts have included submersible dives (Alvin, Turtle, and Delta) to study borderland faults directly, multibeam swath bathymetry mapping of seafloor structure, and acquisition, processing, and interpretation of MCS and single-channel seismic profiles throughout the borderland. He continues to educate the larger community regarding the seismic hazards of the borderland including the potential for locally-generated tsunamis through seminars and publication. As President of Legg Geophysical, a small consulting firm that specializes in Earth Sciences and Risk Analysis, Dr. Legg is involved in many diverse projects relating to both natural and man-made hazards funded by both government and commercial agencies. He is also a participating scientist with the Southern California Earthquake Center, and adjunct professor at San Diego State University, and a Visiting Assistant Research Geophysicist at UC Santa Barbara. His collaboration with scientists at Oregon State University and UC Santa Barbara to produce more accurate maps of the Borderland bathymetry for fault and tectonic studies led to the discovery of the large crater structures to be discussed. Most recently, Dr. Legg's work focuses on obtaining high-resolution multichannel seismic reflection images of active tectonic structures in the California Continental Borderland, so that more accurate and precise understanding of the regional tectonic evolution may be achieved.

UPCOMING MEETINGS

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.

October	Tom Rockwell – Coyote Mountains	
November	Nicholas Clapp – Lost City of Ubar	
December	Annual Christmas Meeting	

2015 SDAG EXECUTIVE COMMITTEE

PRESIDENT – Jennifer Bauer Morton; geologyjen@yahoo.com

VICE PRESIDENT - Randy Wagner; Ph: (760) 877-3490 randallwagner@live.com

<u>SECRETARY</u> –Rupert Adams, <u>rsa_sdag@geoconinc.com</u>

TREASURER – Chris Livesey, liveseychris@yahoo.com

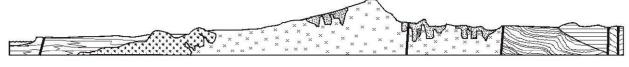
PUBLICATIONS – Lowell Lindsay; Sunbelt Publications; Ph: (619) 258-4911, x111; fax:(619) 258-4916;

llindsay@sunbeltpub.com

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

2015 SDAG MEMBERSHIP

It's never too late to pay your membership! The regular membership is \$25 (only \$5 for students) while the sponsor membership starts at \$100. Both forms are included on the following pages or they can be found on the home page of the SDAG website.



SAN DIEGO ASSOCIATION OF GEOLOGISTS

www.sandiegogeologists.org

2015 MEMBERSHIP FORM

NAME:	DATE:						
	Please type or print clearly.						
Home Addr	ess:						
Work Addre	ess:						
_							
_	Please include company, university or other affiliation						
Home E-ma	il Address:						
Work E-mai	I Address:						
	r membership dues include delivery of the monthly SDAG newsletter and announcements to the						
Phone: Hon	ne: Work: Cell:						
Website: _							
Are you willii	ng to serve as an officer? Are you willing to volunteer as a guest speaker?						
Field(s) of Ir	nterest:						
Dues:	Student Member (email delivery only) \$ 5.00						
(check cho	lice) Regular Member (email delivery only) \$ 25.00						
	Donation Student Scholarships \$						
	New/Returning Member Continuing Member						
Please end	close a check payable to SDAG, and mail to:						
	Association of Geologists (SDAG)						
-	green Street						
San Diego,	CA 92110						

	A	TUR .		Ŧ		
		× × × × × × × × × × ×				
SAN DIEGO ASSOCIATION OF GEOLOGISTS 2015 SPONSORSHIP FORM						
NAME:			DATE:			
• •	••		Website, and Guidebook)			
Please type or print clearly						
Residential Address:						
- Office/School Addres	SS:					
Website:						
Home E-mail Address:						
Work E-mail Address: NOTE: Your Sponsorship inclu and announcements to the ema	udes a complimentary SDAC		nip, and delivery of the monthly SDAG new.	sletter		
Phone: Home:	Work:		Cell:			
Donation Level and	Consideration:					
contribution, you ar list all Sponsors in a	e entitled to a free Interr any publications printed	net "link" f this year) o the above	o monthly recognition for your from SDAG Website. We also e, you are entitled to an image of AG Website)			
			n to the above, you will receive a generous support of the organization)			
New Member / Donor	Continuing Mem	ıber 🛛	Change of mailing address: \Box			
Are you interested to serv	e as an officer?	Willing to	volunteer as a guest speaker?			
Please make check payab nonprofit educational cor			<u>ty, Inc.</u> , a 501(c)3 public benefit a deduction), and mail to:			
San Diego Geological Soc			ations may also be made			
3130 North Evergreen St. San Diego, California 92		at mo	onthly meetings. Revised 11/18/2014			

Greetings SDAG Members!

Fall is just around the corner, and cooler temps make for great geology field trips! I hope everyone is gearing up for our SDAG field trip to the Coyote Mountains in November...it is sure to be epic! Stay tuned for information about an extra informal SDAG meeting in October to preview some of what we will see.

The South Coast Geological Society's field trip to the Southern Sierra Nevada is fast approaching as well...I've heard a number of you talking about plans to go. I'm sure this will be a fascinating and fun trip as well!

I hope you will all join us this month at the Green Dragon Tavern in Carlsbad for an update from Mark Legg on his research in the Southern California Continental Borderland. Dr. Legg is one of the foremost experts on the Borderland region and always gives an interesting and entertaining talk! Hope to see you there!

Jennifer Bauer Morton, PG SDAG President geologyjen@yahoo.com

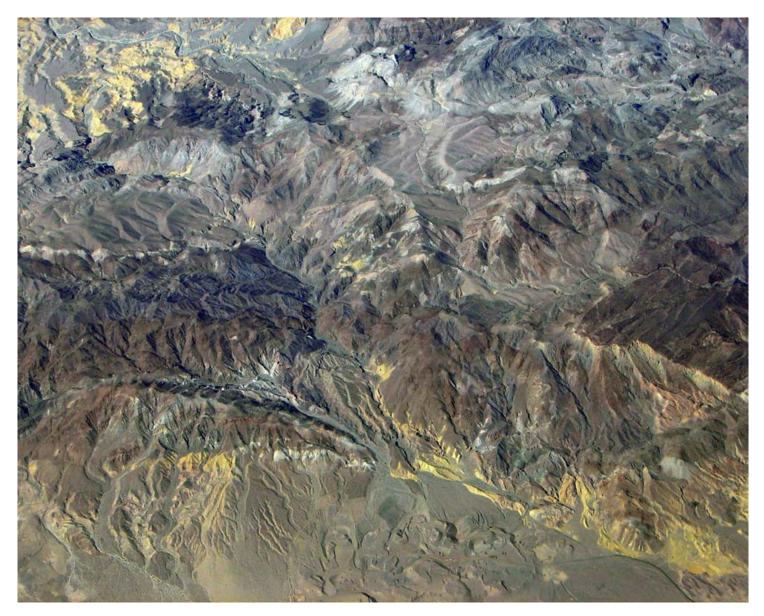
ANNOUNCEMENTS

THE COYOTE MOUNTAINS: TECTONICS AND GEOLOGY OF THE WESTERN SALTON TROUGH

November 6-8, 2015

Field trip are now available on the the next few pages, including the sign up form, waiver etc. Deadline for registration is October 23, 2015 or sooner if we reach the limit of 50 people, so sign up quick!

If you have any questions, call or e-mail to Randy Wagner: randallwagner@live.com (760) 877-3490



THE COYOTE MOUNTAINS: TECTONICS AND GEOLOGY OF THE WESTERN SALTON TROUGH

The 2015 San Diego Association of Geologists annual field trip will explore the tectonics and geology of the Coyote Mountains in the western Salton Trough. The trip will be by personal vehicles.

DATES: October 23: Last day to sign-up unless field trip limit of 50 people is reached sooner.

Friday, November 6: Meet at the Community Park on S2 2.2 miles northwest of Ocotillo. Leave 10:30 am for an OPTIONAL hike in the Domelands area or Fossil Canyon.

Saturday, November 7: Meet at Ocotillo Community Park. Check in starts at 6:00 am. Explore the southeastern Coyote Mountains. Dinner at sunset. Camp at the park.

Sunday, November 8. Full breakfast. Explore Coyote Mountains. Lunch provided.

RECOMMENDED EQUIPMENT: Prepare for several short desert walks. Bring hat, sunscreen, walking stick, and sturdy boots. Bring camping equipment: tent, sleeping bag, folding chair, coffee mug, binoculars, etc.

COST: \$125 per person. Discount for SDAG members and students. Fee includes guidebook, camping, five meals, snacks, and beverages. Fees are non-refundable. All ages welcome.

RESERVATIONS: Reservations are on a first-come, first-serve basis. See options on page 2. The Saturday Alternative 1 trip will be limited to approximately 8 to 10 4WD vehicles, while the entire field trip will be limited to approximately 50 people due to the meals and other logistical issues.

QUESTIONS: Contact SDAG VP Randy Wagner at: <u>randallwagner@live.com</u>. or 760-215-5540

2015 SDAG FIELD TRIP REGISTRATION FORM	TODAY'S DATE:, 2015
Name(s):	
Address:	
City/State/Zip:	
Mobile Phone(s):	
Email:	
 Saturday: Alternative 1 (Domelands), □Short (2 mi Fossil Canyon), □None (High Road) □Alternative 2 (Low Road) .ow Road) □Alternative 2 (High Road)
TOTAL NUMBER AND FEE FOR YOUR PARTY	MAIL FORM AND CHECK (payable to SDAG) TO:
\$125/ea. Non-members: \$	
\$110/ea. SDAG member discount: \$	c/o Randall Wagner —— 2801 Dove Tail Drive
Member spouse cost w/o field trip guidebook	San Marcos, CA 92078
\$ 50/ea. Students (1 st 10) \$	
TOTAL ENCLOSED: \$	

San Diego Geological Society, Inc. and San Diego Association of Geologists General Release and Save Harmless Waiver

The undersigned is advised that dangers and hazards may include but are not limited to uneven ground, steep trails, heat and cold stress, poisonous reptiles and insects, open flames, uncertain and possible extreme weather conditions, floods, earthquakes, and landslides on the San Diego Association of Geologists field trip planned for November 6 through 8, 2015, and does hereby assume any and all risks involved in connection with the field trip and does hereby save and hold harmless San Diego Geological Society, Inc., and its board of directors, its committees including the San Diego Association of Geologists and its officers and members, Imperial Valley Desert Museum, and other participants, all claims, losses and damages (including attorneys fees and any costs involved because of said claims) on account of injury, illness, death, property damage, and inconvenience or loss of money due to delay that may arise, by reason of my participation in the field trip. I understand that I am responsible for carrying my own medical and liability insurance.

Signature

Date

ITINERARY and OPTIONS for PREFERENCES:

Friday, November 6: Meet at the Community Park on S2, 2.2 miles northwest of Ocotillo. Leave at 10:30 am for an OPTIONAL hike in the Domelands area or Fossil Canyon. The long hike to the Dome- lands will be on and off trails on rugged terrain at least 6 miles long, and may take up to 6 hours to complete. The Fossil Canyon hike will be about 2 miles long take up to 4 hours and will keep to relatively low relief areas. Check in will be open in the evening by 5pm (approximate sunset). No meals provided on Friday.

Saturday, November 7: Meet at Ocotillo Community Park. Check in starts at 6:00 am. After a continental breakfast, we will travel by car caravan to see the geologic and tectonic features of the southern and eastern flanks of the Coyote Mountains. Our campsite will be at the Ocotillo Community Park. Although there are no showers, there are separate bathroom facilities and a kitchen large room in the community center building.

<u>There will be two alternate field trip routes on Saturday</u>. **Alternative 1 (High Road)**: One will travel to the top of the Coyote Mountains via Painted Gorge High Road and out to an overlook above Fossil Canyon. This alternative will be over a very rugged roads that require high-ground clearance 4WD vehicles. Due to the short daylight hours in November, people going on this will need to meet at the Painted Gorge Kiosk by 7:30 am. Alternative 2 (Low Road): The other field trip route will be along the southern and eastern flanks of the Coyote Mountains on "typical" dirt roads of the backcountry. We will look at features of the Elsinore fault zone and the Paleozoic to Quaternary geologic units making up the Coyote Mountains.

Sunday, November 8. After a full breakfast in camp, we will depart the Ocotillo Community Park camp site. <u>There will be two alternate field trip routes on Sunday</u>. **Alternative 1 (Low Road)**: This field trip route will include a stop (Rockwell) at a fault trench along the Painted Gorge Wash fault and partially retrace the "low road" route of Alternative 2 of Saturday. Lunch will be provided on the route. The last stop will wrap up around 3 pm, well before sunset. Those who need to depart early have the option to break away around noon. **Alternative 2 (High Road)**: This field trip route will retrace the "high road" route of Alternative 1 of Saturday. With an early start, the group will be back down the mountain by 3pm. A bag lunch will be provided. There will be no option for early departure.

The Community Park will be available for camping Sunday night. No meals are provided after Sunday lunch.

Another **High Road** opportunity will be available on **Saturday, November 14**, led by George Morgan. This opportunity is self-supported. No meals, beverages, or other logistical services will be provided by SDAG.

From the good folks at Sunbelt Publications:

Book Reviews, Book Lover Resources, Advice for Writers and Publishers

Home / California Bookwatch

California Bookwatch

Volume 10, Number 9

September 2015

The California Shelf

Field Guide to the San Andreas Fault David K. Lynch Thule Scientific c/o Sunbelt Publications 1256 Fayette Street, El Cajon, CA 92020 www.sunbeltpublications.com 9781941384084 \$39.95 www.thulescientific.com

Field Guide to the San Andreas Fault should see renewed interest given the popularity of the disaster film San Andreas, but is thoroughly packed with science, not speculation or science fiction, and thus makes a nice, realistic compliment to the movie. Here is everything you need to know about the famous fault line that took out San Francisco in 1906; from GPS coordinates for hundreds of locations to road logs for visitors and fault coordinates, geological history and scientific explanations, color, full-page trip maps and sidebars of travel notes, and more. Travel and science collections strong in California history and science will welcome a survey that avoids the usual general discussion of earthquakes and faults to hone in on a single huge fault line and how it can be observed and followed, making this a 'must' for any California or geology collection.

http://www.midwestbookreview.com/calbw/sep_15.htm

Stop by Sunbelt Publications to get your copy, mention SDAG and receive a 30 percent discount!

Scholarship Offer: Academic Year 2016-2017

One, \$5,000.00 scholarship is available through the Bighorn Desert View Water Agency for students focusing on water resource management. Further information and application forms are available via the following link:

http://www.bdvwa.org/

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.

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, and from Coast to Cactus in 2014. 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_chronological.pdf



The 2015 GSA Annual Meeting will be November 1 - 4, 2015 in Baltimore, MD, at the Baltimore Convention Center

SDAG MONTHLY PHOTO COMPETITION



Flow banding in Gabbro, Dehesa Area.



Backcut failure along a bedding plane shear in the Puente Formation. SDAG-14

Geology Job Opportunities

We have a new job opportunity:

ENVIRONMENTAL SAMPLING TECHNICIAN

(Carlsbad, CA or Signal Hill, CA)

H&P Mobile Geochemistry, Inc. is an environmental field service company that provides a broad range of environmental sampling throughout Southern California and beyond. H&P is currently looking for an Environmental Sampling Technician to work out of either our Carlsbad office or our Signal Hill office. If you want to work outdoors at different locations every day and become part of an expert team of environmental sampling technicians, see below for more information!

Primary job responsibilities will include the collection of soil vapor samples, soil samples, and groundwater samples. The employee will be trained on proper soil vapor sampling procedures in accordance with state and federal guidance and in accordance with our certified sampling protocols. Accurate record keeping, attention to detail, and math skills are a must. The Environmental Sampling Technician job does require physical labor as well as the ability to lift 50 lbs. Other duties will include hand augering, decontamination of drilling equipment, and various tasks associated with field work.

The ideal candidate:

- * A desire to learn about soil vapor sampling from the only certified soil vapor sampling firm in the nation
- * Personable and positive attitude with which to communicate with teammates, clients, regulators, and property owners

* Able to cooperate when working as part of a team, but also have initiative and confidence to work independently

- * Clean driving record required
- * Good record keeping skills and legible handwriting
- * Solid math skills (including basic algebra)
- * Flexible schedule (early mornings, out of town, weekend work, etc)
- * OSHA 40 hour HAZWOPER training is preferred

Compensation: Hourly wage will be based on experience and qualifications.

We are pleased that you are seeking employment with H&P Mobile Geochemistry, Inc. (H&P). Applicants are considered without regard to race, color, sex, or national origin, or any factors prohibited by local, state, or federal law. We are proud to be an Equal Opportunity / Affirmative Action Employer.

TO APPLY:

Please email your resume to: michele.luna@handpmg.com

Geology Job Seekers

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:

SENIOR GEOLOGIST - Bilingual English and Spanish speaker with 12 years of experience in geological, geotechnical, and hydrogeological investigations for civil projects such as highways, railway lines, dumping sites, dams and residential buildings. A postgraduate specifically trained in environmental management and groundwater hydrology. Skilled in site management, drilling campaigns, and supervision of geotechnical laboratory and site tests.

Detailed work experience, education, and recommendations at <u>http://www.linkedin.com/in/sergiopostigo/</u>. Email <u>sergiopostigo@yahoo.com</u> or call Sergio Postigo at 619-450-3642

This is Farida Baxamusa, MS- Earth Science from Scripps Institution Of Oceanography (SIO), University of California, San Diego (UCSD). I am originally from India, and have another Master's in Earth Sciences from St. Xavier's College, University of Mumbai, India. I have also been granted the Dr. Ratan Nadirshaw Sukeshwala and Dr. Dayanand Dattatraya Yellur scholarship for securing highest rank in Earth Science at MS Part I and Part II. After completing my MS in India, I secured an internship at Oil and Natural Gas Corporation (ONGC), Mumbai, India. Later I worked as an Earth Science lecturer at St. Xavier's College, University of Mumbai, India where I held classes, directed discussions among large groups ranging from 35 to 80 students on mineralogy, petrology, geochemistry, crystallography, economic geology, oceanography, and plate tectonics and led lab courses involving mapping, stratigraphy, and paleontology. In September of 2013, I was accepted at SIO, UCSD for a master's program. Dr. Lisa Tauxe was my advisor and I worked as a research assistant under her in the field of paleomagnetism. I worked in the paleomagnetism laboratory where I skillfully selected quenched rock materials from lava flow samples to obtain accurate estimates of the Earth's magnetic field intensities. I developed python scripts to analyze individual samples to obtain their paleointensity values. I also worked as a teaching assistant for a year where I assisted teaching undergraduates introductory geology and Earth processes, collaborated with other teaching assistants and professors to aid in conducting an introductory course about hydrologic processes on Earth and held office hours, tutored students, proctored and graded exams. Around the time of completion of my degree I presented my year's research to the faculty members of the Geoscience Research Division (GRD) and qualified for my MS in Earth Science and graduated in September of 2014. I am currently doing 3 part time jobs, one as a Staff Research Associate at SIO, the other as a Staff scientist at the Bodhi Group where I perform phase I site assessments, and the third as a geology education website volunteer at California Coastal Commission Public Education Department, CA. I am now actively looking for a job in environmental consultancy firms or educational institutions. I believe that I have a varied background and education and the

perseverance and grit in achieving excellence in everything I do. If you have any advice, jobs, internships please feel free to contact me at fbaxamus@ucsd.edu or call me on 858-397-8456. Your help and guidance will be highly appreciated.

REQUEST for 2015 SDAG/SDGS and 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: <u>http://www.sandiegogeologists.org/Sponsors.html</u>.

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.