

SAN DIEGO ASSOCIATION OF GEOLOGISTS

www.sandiegogeologists.org

SDAG MEETING ANNOUNCEMENT

[WEDNESDAY, March 16TH, 2011](#)

“The Easter Earthquake – Liquefaction Observations from the Mexicali Valley, Mexico”

Presented by

Diane Murbach, CEG

Where: **Emiliano’s Mexican Restaurant** (Overlooking Admiral Baker Golf Course)
6690 Mission Gorge Road, San Diego, CA 92120
(619) 284-2460

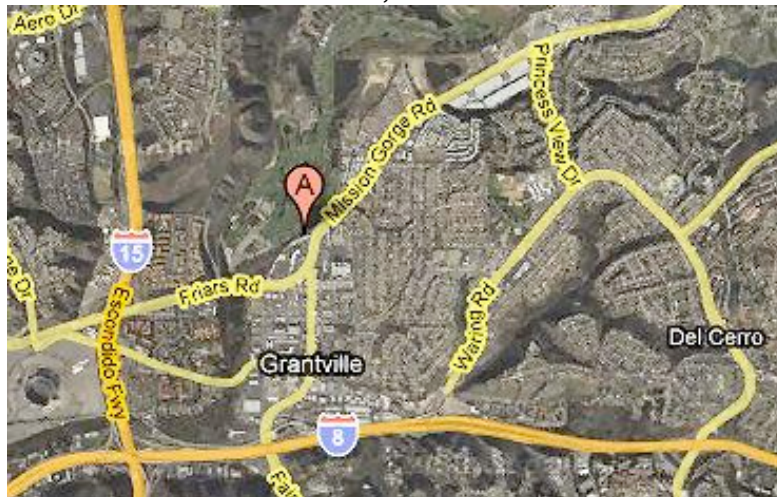
When: 5:30 pm – Social Hour
6:30 pm – Dinner
7:15 pm – Program

Dinner: Mexicano fantastico. Beverage station. Cash bar.

Cost: \$30 per person, \$5 discount for members, STUDENTS: \$20. Add \$5 if you did not make a reservation

Reservations: Make your reservation online at www.sandiegogeologists.org no later than noon, **Monday, March 14th**.

**RESERVATIONS CANNOT BE ACCEPTED AFTER MONDAY AT 12 NOON.
IF YOU DO NOT MAKE A RESERVATION, WE CANNOT GUARANTEE YOU A MEAL.**



SPEAKER BIO

SPEAKER: DIANNE MURBACH, CEG, DMURBACH@SANDIEGO.GOV

Diane Murbach is a Certified Engineering Geologist (CEG) with 29 years of experience providing geotechnical services and project management in Oregon, Washington and California. She currently manages Development Projects at the City of San Diego, and assists with the business Murbach Geotech. She received a B.S. degree from Eastern Washington University and an M.S. degree from San Diego State University in Geology. She is the 1990 past President for the San Diego Association of Geologists (SDAG), and the 1994 past President for the South Coast Geological Society (SCGS). She currently serves as Secretary on the Board of Directors for the San Diego Geological Society. Diane's background with earthquakes includes conducting a research project that investigated structures damaged by direct fault displacement from the Landers 1992 earthquake awarded by the Earthquake Engineering Research Institute (EERI), and being was part of the earthquake reconnaissance teams for the 1994 Northridge Earthquake and the 2010 Easter Earthquake in Baja, Mexico.

SPEAKER ABSTRACT

"EASTER EARTHQUAKE - LIQUEFACTION OBSERVATIONS MEXICALI VALLEY, MEXICO"

The M_w 7.2 El Mayor-Cucapah Earthquake occurred in Northern Baja California, Mexico on April 4, 2010. The Earthquake, known as the Easter Earthquake, ruptured approximately 70 miles from the northern tip of the Gulf of California to the international border. The epicenter was positioned in the farming communities approximately 30 miles south southeast of Mexicali, Mexico on the western side of a broad flat extensional sedimentary basin known as the Mexicali Valley. A significant effect of the earthquake was widespread liquefaction.

The Salton Trough, a geologically young north-south trending sedimentary basin, is located east of the epicenter. The Salton Trough is a structural and topographic depression consisting of the San Andreas transform fault system along the eastern portion of the basin. The basin includes a prime agricultural area north of the U.S. border known as the Imperial Valley, and south of the border in Mexico known as the Mexicali Valley. Historically, natural and man-made water ways have traversed the agricultural lands in both of these valleys creating high groundwater levels.

Liquefaction features were observed across the Mexicali Valley that included lateral spreading, settlement, ground fissures, sand volcanoes and flooding. Observations after the earthquake noted the presence of loose, saturated, fine sand and non-plastic silts, and a shallow ground water table contributing to the liquefaction. Liquefaction-associated effects on structures included differential settlement, bearing capacity failures and severe lateral spreading damage. Structure types affected included single-story homes to multi-story buildings, irrigation canals, bridges and roads. Impacts from liquefaction included topographic warping of the previous flat farmland and roads and severe damage to lined and unlined irrigation canals. Observations along the Rio Hardy River noted significant lateral spread damage displacements and damage along and adjacent to its banks. Sand volcanoes and sand fissures were scattered across the farm land, and around and in residential structures. The sand volcanoes were described by locals to have shot up to six feet above the ground. The history of the Salton Trough and six locations in the Mexicali Valley where significant liquefaction effects were observed will be presented.

2011 SDAG MEETING SCHEDULE - Mark your Calendars!

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

April 20, 2011	Student Presentations - Stever Werner and Gayatri Marliyani
May 18, 2011	Beth O'Shea - Arsenic Contamination in Groundwater
June 15, 2011	Vicky Todd - The Southern California Batholith

2011 EXECUTIVE COMMITTEE

PRESIDENT – Chuck Houser; *SCS Engineers*; Ph: (858) 571-5500; CHouser@scsengineers.com

VICE PRESIDENT – Todd Wirths; *TRC*; Ph: (858) 505-8881, x4927; TWirths@trcsolutions.com or todd@wirths.com

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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

*** Notes ***

Prospective monthly speakers have been lining up and pounding down our doors! But we are always interested in hearing what you may have to say. Anyone interested in presenting a talk for the monthly dinner meetings should contact our president, Chuck Houser.

Please Make a Note! Effective immediately, the San Diego Association of Geologists has a new mailing address:

San Diego Association of Geologists (SDAG)
3130 N Evergreen Street
San Diego, CA 92110

We've consolidated and therefore replaced the address formerly intended for membership correspondence: PMB 157, 5694 Mission Center Road, Suite 602, San Diego, CA 92108

And also replaced the address used for the ordering of publications: P.O. Box 191126
San Diego, CA 92159-1126

Don't forget! Send in your 2011 membership form, available at:

<http://www.sandiegoeologists.org/MemberForm.pdf>

And check out our publications available for order at:

<http://www.sandiegoeologists.org/Publications.html>

PRESIDENTS CORNER, MARCH 2011

It's March already! Seems like it was still 2009 just a few months ago. Tucson was a success this year. I've attached a couple of photos to inspire your appetites for next year's big show.

Plans are well underway now for the 2011 field trip. If you have any ideas for papers, or know people who have worked in the area and might have some good material, let Todd know. It promises to be a very good trip into an area with a lot of relatively new research on-going. Another trip worth noting is the March 19-20, 2011, 25th annual SDSU alumni field trip in the Trigo Mountains and Cibola area of western Arizona. The flyer is included herein, and you can contact Joe Coronas if you need more information.

At our March meeting, Diane Murbach will be giving us a presentation on liquefaction associated with the Easter Sunday 2010 El Mayor-Cucapah earthquake. In addition to ground shaking and surface rupture, liquefaction is an important geologic hazard associated with major earthquakes. Come to Emilianos on March 16 for good Mexican food and a great presentation by Diane. Also note that the April meeting, also at Emilianos on the 20th, will be our annual presentations by our student scholarship recipients.

The third printing of the 2010 guidebook is out, so bring your checkbooks to the March 16th meeting and plan of getting the copies you need for your library. See you on the 16th!

Chuck Houser



Left: Tourmaline from the Tourmaline Queen Mine in Pala, considered to be one of the finest tourmaline specimens mined in San Diego County. It is now in the Houston Museum. Right: "The President's Case" of calcite twins. Part of a large calcite exhibit (12 cases) organized by myself and a collector named Phil Richardson from Phoenix, Arizona

Reminder: Annual Membership Dues for 2011!

SDAG Membership dues are due! If you have not already done so, please complete the form located here <http://www.sandiegoeologists.org/MemberForm.pdf>, with a check for \$25, to keep yourself in good standing. That's \$2.08 per month, what a bargain!

	<h3>2010 Corporate Sponsors - Thank You</h3>
<p>H&P Mobile GeoChemistry, Inc. is an industry leading provider of environmental lab services. With ten mobile labs and five direct push sampling trucks and unparalleled experience, H&P's repertoire of environmental lab services includes many forms of environmental lab sampling techniques all the way to on site field analysis services. H&P has successfully and accurately performed environmental lab services delivering quality results to our clients for over sixteen years. 2470 Impala Dr., Carlsbad, CA 92010 (800) 834-9888</p>	
<p>Steve Zigan, Cardno ERI, szigan@eri-us.com</p>	
<p>Dr. Pat Abbott, SDSU Prof. of Geology and Geophysics, Emeritus</p>	<p>Lowell A. Lindsay and Diana Lindsay - Sunbelt Publications/AESE</p>
<p>Sally & Dennis Avery</p>	<p>Dr. Monte Marshall, SDSU Prof. of Geology and Geophysics, Emeritus</p>
<p>Dr. Richard Berry, SDSU Prof. of Geology and Geophysics, Emeritus</p>	<p>Monte and Diane Murbach, Murbach Geotech</p>
<p>David Bloom, Consulting Geologist</p>	<p>Ninyo & Moore - Jonathan Goodmacher</p>
<p>Joe Coronas, SDSU Geo-Alumni Assn.</p>	<p>David and Jan Steller ("two-fer" - thanks!)</p>
<p>Greg Cranham, Consulting Geologist</p>	<p>Stone Brewing Company</p>
<p>Phil Farquharson - CG-Squared Productions</p>	<p>Sue Tanges, Southland Geotechnical Consultants</p>
<p>Carolyn Glockhoff, Caro-Lion Enterprises</p>	<p>Terra Costa Consulting Group, Inc.</p>
	<p>Carole L. Ziegler</p>

Coming Soon: Those that have already stepped up in 2011 - Sponsors, Corporate Sponsors, and Patrons provide a significant portion of SDGS's and SDAG's operating and scholarship budgets. By making your payments to SDGS (a 501(c)3 public benefit nonprofit educational corporation) you may be able to claim a tax deduction. In addition to monthly recognition for your contribution, you are entitled to additional benefits as listed on our Sponsorship Form.

Request for Sponsors: 2011 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 at our San Diego Association of Geologists (SDAG)

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.

MEETINGS AROUND THE REGION:



The Association for Environmental Health & Sciences (AEHS) is presenting the 21st Annual International Conference on **SOIL, WATER, ENERGY, AND AIR**, to take place **March 14-17, 2011** at the Mission Valley Marriott, San Diego, CA. It's not too late to sign up. Program and registration information is available at <http://www.aehsfoundation.org/west-coast-conference.aspx>.



The Groundwater Resources Association (GRA) presents the 6th Symposium in the Tools and Technology Series - **ENVIRONMENTAL FORENSICS IN AN ERA OF EMERGING DIAGNOSTIC METHODS**, to take place **April 12, 2011** at the Hilton Irvine/Orange County Airport Hotel, Irvine CA. The deadline for hotel reservations at the GRA rate is **March 22, 2011**. More information is available at <http://www.grac.org/environmentalforensics.asp>

The San Diego State Department of Geological Sciences will be hosting a Water Quality short course certificate program March 24-25. Courtesy of the Environmental Training Institute (ETI), **Surface- & Ground-Water-Quality Principles, Techniques, & Applications**, for more information, go to <http://www.etietc.com/courses/waterquality.html>



The Earthquake Engineering Research Institute's (EERI) Annual Meeting was held February 9-12, 2011 in San Diego at the Hyatt Regency Hotel, La Jolla, CA. The meeting theme "Earthquakes without Borders" combined emergency response professionals, geologists, geotechnical engineers, structural engineers and students. In case you missed it, or were there and want more information on particular subjects, some of the presentations have been posted to <http://www.eeri.org/site/meetings/2011-annual-meeting/presentations>. And a selection of some candid photos from the event were also put up at <http://www.eeri.org/site/meetings/2011-annual-meeting/photo-gallery>.

CALL FOR PAPERS!! For the 2011 SDAG Field Trip Guidebook:

"GEOLOGY AND MINING HISTORY OF THE EASTERN IMPERIAL COUNTY REGION"

This year's San Diego Association of Geologists field trip and guidebook will focus on the area of eastern Imperial County: essentially, the areas east of the Imperial sand dunes, and any outlying areas that are relevant. The guidebook would have these "sections": Structural and basement geology, mines (including history), Neogene geology and paleontology, and the road log(s). Papers might include subjects such as the Chocolate Mountains anticlinorium, detachment faults, geologic units such as the Bouse Fm., Orocopia Schist, etc. Historical papers on the Hedges/Tumco mining district in the Cargo Muchacho Mountains and the Potholes gold mine on the river have been promised so far, as well as cutting-edge geological papers. First draft manuscripts are due September 2, 2011.

The field trip is scheduled for November 4, 5, and 6, 2011, and camp will likely be at the Picacho State Recreation Area, about 25 miles north of Winterhaven, on the Colorado River. The geology is simply fantastic! Contact Todd Wirths, field trip guidebook editor, at todd@wirths.com or 858-337-0098 to discuss logistics or for more information.

New Exhibit Open at the San Diego Maritime Museum: "Mapping the Pacific Coast"

Mapping the Pacific Coast: Coronado to Lewis and Clark. This world-class exhibition showcases 45 magnificent maps, books and illustrations dated 1544 through 1802, the very first explorations of our West Coast by Europeans. Many of the documents included in the exhibition tell dramatic stories with references to explorers such as Juan Rodriguez Cabrillo, Sir Francis Drake and Captain James Cook; all of whom left their mark on the Pacific Coast. These historic stories are told through original maps of the time, and illustrations (the earliest being woodcuts and the majority being copperplate engravings, many in original hand-coloring). This exhibit is enhanced by an audio tour and catalog, and is on display on the Berkley now through March 30, 2011. More information regarding this and other exhibits can be found on the museum's website at: www.sdmaritime.org.

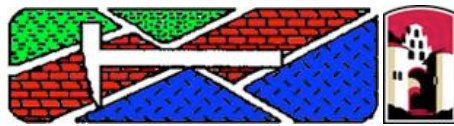
The museum is located at 1492 North Harbor Dr., downtown San Diego. For more details, call: (619) 234-9153. *Thanks to Greg Cranham for finding this, he highly recommends it!*

2011 Desert Symposium: "Southern Exposure: A Trip through Southern California Outcrops"



Plan to share your research with a presentation or a poster at the fabulous Zzyzx, California Desert Studies Center. The event is being held on April 22-23, 2011, with an accompanying field trip on April 23-25, 2011. Interested parties should contact William Presch Ph.D., Director of Desert Studies, Department Biological Sciences, California State University, Fullerton, at 657-278 2215 wpresch@fullerton.edu. For more info go to the

Desert Studies Center website at <http://biology.fullerton.edu/dsc>.



**SAN DIEGO STATE
UNIVERSITY**

25th ANNUAL SDSU GEOLOGY FIELD TRIP NORTH TRIGO MOUNTAINS DETACHMENT FAULT & BOUSE FORMATION, CIBOLA, ARIZONA MARCH 19TH & 20TH, 2011

The 25th Annual SDSU Geology Alumni Field Trip/Campout will be in SW Arizona this year. Chuck Houser, current SDAG President, has done some mapping in the area as a follow up to Eric Frost's students in the early 80's and has agreed to show us some amazing exposures of the detachment fault along with a 2 ½ mile hike around some of the contact showing upper plate Tertiary volcanic flows and crystalline rocks & lower plate Gneiss. A visit on Sunday morning to the Pliocene Bouse Formation is also planned. There will be people in our primitive camp area (no water, restrooms or firewood) from Friday PM thru Monday AM. The Geology hike will start Saturday morning at 11:00 AM.

DIRECTIONS: I-8 east from SDSU approx. 145 miles to Ogilby Rd. S-34 (exit 159) to Blythe. Left at stop sign and go 25 miles to Hwy 78. Right onto 78 and go about 25 miles to green sign on right that says "Colorado River" and brown signs indicating Cibola Refuge and boat ramp. Right turn here on gravel road on NORTH SIDE OF CANAL! Do not take canal bank! Go to T and turn left, go .2 mile and then right and cross bridge. Right at stop and follow pavement for 4 miles to stop sign. Turn right onto "RIVER ROAD" for 5.3 miles until pavement ends. Go straight after pavement ends for 1 mile and turn left onto good-wide gravel road that angles off to left by a power pole. Go about 2 miles until good road angles off to right, you go straight on well traveled track. Go about 1.2 miles and road will drop off into a good sized wash and go to right where you will see pink flagging indicating a left turn to main camp about ¼ mile. GPS coordinates of main camp are: 33 17' 45.57" / 114 36' 27.97"
Go to Phil Farquharson's website at <http://sdsu-geoalumni.geology-guy.com> for Google maps of the area and his GPS track from San Diego to campsite. High ground clearance vehicles are recommended to get to main camp area but you may camp anywhere after road drops into wash if it looks too risky to continue. It would be about a ¼ mile walk to main camp and our geology hike starts about ¼ mile farther up wash from main camp.
Directions from LA area take I-10 east to Blythe. Take Hwy 78/Neighbors Blvd. exit. Right at stop and go straight about 12.5 miles. At 28th Ave. (4-way stop) Hwy 78 turns to right, but go straight. At 12.5 +/- miles you will see a "Y" sign. "Bridge" with arrow pointing to right, you cross the bridge into Arizona and follow road 8 miles to stop sign. Baseline road goes to right and is the way in from San Diego. Go straight and you will be on "River Road" then follow directions above from Stop sign at "River Road"

COMMUNICATIONS: FRS Radios channel 4, no tones. Amateur Radios use Black Mt. Repeater 147.120 + pl 103.7 (linked into San Diego on 147.240+ 103.7) or 2-M Simplex 146.520 as you get close. Phone service was almost non-existent in camp but good as you turn off “River Rd.” and gain elevation.

FUEL/SERVICES/SUPPLIES: 4th Ave El Centro for food & fuel. Palo Verde, just a few miles N. of turn off to river, has fuel and junk food. The I-10 corridor crowd should go into Blythe, 7th Ave. exit & turn left. If any or our Alumni are interested in becoming involved with any of our Alumni Activities, like to assist with future Field Trips or has a “Special Place” in mind that would be good for a future Field Trip please let me know.

If you have any questions regarding this trip email or call me. Joe Corones, Alumni Field Trip Chairman.
jcorones@gmail.com , H 858.484.3582, C 858.603.5545

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OUR CLOSING PHOTO IS OF THE FEBRUARY ONE STOP WONDER (OSW), FOR THOSE OF US WHO MISSED IT - THE COYOTE CREEK FAULT IN BOX CANYON. ALTERED GRANITIC ROCKS ON LEFT, QUATERNARY SANDSTONE AND GRAVELS ON THE RIGHT. A FEW GEOLOGISTS FOR SCALE, STANDING AROUND (EITHER LOOKING AT HAND SAMPLES, CHECKING EMAIL, OR TEXTING. TOUGH TO TELL). PHOTO COURTESY OF MIKE HART.

