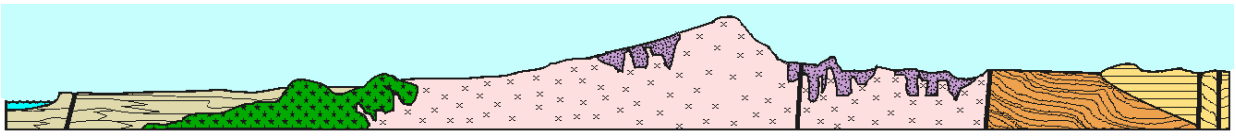

# SAN DIEGO ASSOCIATION OF GEOLOGISTS

www.sandiegogeologists.org

## SDAG MEETING ANNOUNCEMENT

## Wednesday, October 18, 2006

## *PLATE TECTONIC SETTING OF THE COYOTE MOUNTAINS: A PRE-FIELDTRIP GEOLOGIC AND GEOPHYSICAL OVERVIEW*

*presented by*

**Dr. Monte "the Full Monte" Marshall**
San Diego State University - Emeritus

**Where**: Emiliano's Mexican Restaurant
6690 Mission Gorge Road
San Diego, CA 92120
619-232-3821

**When:** 6:00 pm – Social Hour
7:00 pm – Dinner
8:00 pm – Program


**Directions:** The old *Eva's*. Just north of Zion Avenue, where Friars Road east turns into Mission Gorge Road. It's at the far north end of the strip mall, northwest side of the street.

**Dinner:** Mexican Buffet.

**Cost:** $20 per member and guests, $10 for students. Add $5 if you did not make a reservation.

**Reservations:** Make your reservation **online** at www.sandiegogeologists.org **or** call the SDAG Reservation Hotline at (619) 255-8380, **no later than 5:00 p.m. *Monday*, October 16th**.

**RESERVATIONS CANNOT BE ACCEPTED AFTER *Monday AT 5 PM*.**
***IF YOU DO NOT MAKE A RESERVATION, WE CANNOT GUARANTEE YOU A MEAL.***

## BIOGRAPHICAL SUMMARY: DR. MONTE MARSHALL

Monte (the real one) taught geology and geophysics at SDSU for almost 30 years. His research centered on applying geophysical tools, especially paleomagnetism and gravimetry, to tectonic movements and faults in southern California and detailed fault studies in metropolitan San Diego. Now retired, he travels often and is working on a geologic synthesis of the whole world.

## PLATE TECTONIC SETTING OF THE COYOTE MOUNTAINS: A PRE-FIELDTRIP GEOLOGIC AND GEOPHYSICAL OVERVIEW

The plate tectonic history of the Coyote Mountains, site of our up-coming fieldtrip, involves several dramatic changes in plate motion. The story of these mountains begins with that of their metamorphic and granitic basement. During the Paleozoic (?), sedimentary rocks, such as carbonates, sandstones, and mudstones were deposited on a Proterozoic continental shelf and slope at the then western edge of North America. These rocks were later folded, metamorphosed, and intruded by Cretaceous granitic magmas, possibly including the easternmost magmas of the La Posta pluton. On this mixed basement post mid-Miocene fluvial, lacustrine, and shallow marine sediments were deposited. But the story of making of the Salton Trough and the basins into which the gravel, sand, and mud were deposited really begins more than 100 million years ago. For most of the last several hundred million years, the west coast of North America experienced subduction by a series of known, like the Kula and Farallon, and unknown oceanic plates. Diving easterly to northeasterly these plates generated the magmas that rose and cooled about 100 Ma to form the eastern half of the Peninsular Ranges Batholith, like the La Posta pluton. But subduction also brought to our shores a piece of more-or-less continental crust; a 120 Ma island arc formed some 1000 Km to the south. This island arc was sutured to the coast and now forms the WESTERN half of the Peninsular Ranges Batholith. Just prior to 30 Ma the Farallon plate was subducting beneath most of western North and South America and just to the west of it, separated by a spreading center, lay the Pacific plate.

At about 30 Ma an eastward-extending promontory of the Pacific plate collided with the North American plate near Los Angeles, forcing the trailing edge of the Farallon plate and the spreading center down into the subduction zone! Thus, direct contact between the Pacific and North American plates was initiated and the plate boundary became a transform or strike-slip fault. More and more of the trailing edge of the Farallon plate and spreading center was subducted north and south of LA, forming two triple junctions, one that migrated north and one that moved south. The length of the transform boundary between the triple junctions, which at that time was located offshore/underwater, grew. The northwest-southeast trending Salton Trough--Gulf of California area had already been experiencing extension and even the invasion of SHALLOW seawater since Miocene time. But when the southern triple junction reached the Cabo San Lucas/Mazatlan area, at about 6 Ma, a series of spreading centers alternating with transform faults began to tear Baja California away from Mexico and formed the deep water Gulf of California. The northernmost transform fault, beginning at the north shore of the present Salton Sea and connecting with older faults, extended all the way to Cape Mendocino and out into the ocean to join the Gorda and Juan de Fuca spreading centers.

Thus at about 5 million years ago the modern San Andreas transform/ Fault System was born. With increasing distance west of the San Andreas the continental crust is more and more a part of the Pacific plate and shares its northwesterly absolute motion. This process of transforming and rifting of Southern California away from North America has extended over the last 5 Ma and has produced a very complicated geology--which, at the least, involves many northwest-trending right lateral and northeast-trending left lateral strike slip faults, transpressional mountain ranges, and transtensional basins or rhombochasms. Prior to the formation of the Elsinore fault, at about 1 Ma, the area of the Coyote Mountains was probably the southern extension of the Vallecito Creek-Fish Creek Basin and formed the depressed basement on which several thousand meters of Miocene and younger sediments were deposited. Only with the start of transpressional stresses due to a left bend in the Elsinore fault was the Coyote crustal block uplifted, broken into smaller, fault-bounded blocks, which were rotated in many cases, to form the complicated geology and elevated topography we see today.

## 2006 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!

| | |
|---|---|
| October | Road Trip!! (Actually, a field trip…Annual SDAG trip to Anza Borrego) and Monte |
| November | Tom Rockwell, Neotectonics of Panama |
| December | San Diego Natural History Museum (Party Time!) |

## PRESIDENT'S CORNER:

**Great Talk at the September Meeting** – Tim Shields of General Dynamics enlightened us about the Navy's Site Characterization and Analysis Penetrometer System (SCAPS). We hope to continue to see you at SDAG meetings, Tim.

**October (TWICE)** - We'll have a regular meeting at Emiliano's, where Monte(k) Marshall will give us a preview of his part of the 2006 SDAG Field Trip. His subject: "Plate tectonic setting of the Coyote Mountains - a pre-fieldtrip geologic and geophysical overview." The meeting will be on October 18th, at the usual date and times. Dave Bloom and I will put together a brief overview of the field trip itself.

The field trip will follow, on the last weekend of October, to southern Anza-Borrego Desert State Park® and vicinity. Catering will be handled by Toni Menghini of the winery by the same name. As per tradition, we'll begin check-in festivities with a Julian pie breakfast. A cast of thousands has been working feverishly behind the scenes to make this the best SDAG field trip ever (at least, since last year…). Be sure to send in your reservation form and check before the 15th!

**November** - Dr. Tom Rockwell of SDSU will enlighten us on the neotectonics of Panama, where he's been working of late.

**December** - San Diego Natural History Museum, of course. My swan song (WHEW!).

P.S. We are looking for a new treasurer for next year. Be ready for a four-year commitment to our organization, where you will move through the officer positions: treasurer, secretary, vice president (+ field-trip coordinator), then president. Who is ready to throw his/her name into the hat? Stay tuned…

## ANNOUNCEMENTS:

The National **Association of Earth Science Editors (AESE**), a GSA and AGI affiliate organization, is holding its 40th annual meeting in San Diego at the Hacienda Hotel in Old Town November 8-11, 2006. The mission of AESE is to enhance the communication of earth science information and education and to strengthen the profession of earth science editing. Membership is $35/year and offers a Web page www.aese.org www.aese.org to members who freelance within the profession. Please contact Lowell Lindsay or Phil Farquharson for further information.

100 years ago, California's largest lake – the Salton Sea – was formed when Colorado River levees broke along the California/Mexican border. But this was only the latest episode in the Sea's long and rich history. The Colorado has flooded and poured down the Salton Trough for millennia, forming lake bodies far greater than the Sea as we know it today. Over the last century, the Sea has become haven to one of the most diverse assemblages of plant and wildlife in all of North America and remains critical habitat and an important stopover for over 400 species of birds alone.

In recent years, the Sea's fragile ecosystem has become overburdened from agricultural runoff and other accelerated environmental changes. Today, the future of the sea is uncertain. Its woes are the focus of a major restoration effort by the state and others who have been tasked with recommending options for managing this extraordinary resource by the end of this year.

To assist the public in understanding the story and finding out why we should care about this ailing Sea, the Anza-Borrego Institute, in partnership with California State Parks, is offering a 3-day symposium on November 10-12, 2006 for the general public to explore the geological and cultural history and future challenges of California's most dynamic ecosystem. With a combination of lectures and guided field tours, you will witness for yourself the spectacular diversity of flora and fauna and geological wonders of this special place and come to appreciate the challenges facing land managers today.

A copy of the brochure for the program is attached in PDF form. For more information about this event and our other programs, please contact us at www.theabf.org or 760.767.4063.

**Prospective RGs, CEGs, and CHGs**

REG REVIEW and the Association of Environmental and Engineering Geologists are pleased to announce the reinstatement of Exam Review Courses for the Certification Exams for Engineering Geology (CEG) and Hydrogeology (CHG). These courses will be held in Sacramento on November 4, 2006 and Santa Ana on November 5, 2006. The morning class from 8am to noon is devoted to the CEG and the afternoon class from 1pm to 5pm is for the CHG.

The Courses individually are $245 for AEG members, $260 for nonmembers. If you take both together the total cost is $485 for AEG members, $500 for nonmembers. Preregistration deadline for the CEG and CHG courses is October 13, 2006.

REG Review, Inc. has been teaching these courses in California since 1985. In March 2000, we began to direct our teaching towards the ASBOG geology licensing exam and temporarily eliminated the Certification courses. The demand now warrants reinstating them. The courses are taught by Patti Sutch, California RG 3949, CEG1641, and CHG 25, and Lisa Dirth, California RG 3951, CEG 1240, and North Carolina RG by ASBOG exam.

For specific information and registering for the courses as well as current information on study manuals, flash cards, and courses please visit REG REVIEW, Inc's website at http://regreview.com. To contact REG REVIEW Inc.: e-mail - regreview@aol.com, mailing address - 37 Rosewell Road, Bedford, NH 03110, telephone - East Coast call Lisa Dirth at 603-472-3050, (fax) 603-471-1969. West **Coast (evenings) Patti Sutch at 916-456-4870.**

## 2006 CORPORATE SPONSORS - THANK YOU!!

Corporate sponsors provide a significant portion of SDAG's operating and scholarship budget. In addition to monthly recognition for your contribution, you are entitled to a free Internet "link" from SDAG's Website. We also list Corporate Sponsors in our annual SDAG Field Trip Volume. ***Please consider SDAG sponsorship in 2006!***

A special thank you to **Ninyo & Moore** for sponsoring the preparation, duplication, and mailing of the newsletter for 2006 and 2007!

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|---|---|
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| Dr. Sarah Gray - University of San Diego | Geocon, Inc. |

# Southern Anza-Borrego Desert and Coyote Mountains, California
## October 28 and 29, 2006

The geology of Anza-Borrego Desert State Park and the surrounding area attracts geologists from around the world. The trip includes an optional Friday afternoon (noon to 4pm) hike to explore the four mysteries of the Domelands which includes the enigmatic "flamingo nests." Optional Friday night camping will be at Agua Caliente County Park, with an optional evening hike to a detachment fault from the campground. The trip will begin on Saturday morning (8:30am) at the Carrizo Badlands Overlook on Highway S-2 in Anza-Borrego Park. We will explore the faulting and structural complexity of the northwestern Coyote Mountains as we descend Canyon Sin Nombre from the Overlook. We'll hike about a mile up a little known side canyon to see stratigraphic evidence of coincidental volcanic activity during the deposition of the Split Mountain formation, structural evidence of the Coyote Mountains uplift, and subsequent Mio-Pliocene basin evolution. We will return to the campsite at Agua Caliente for a catered dinner. The Agua Caliente hot springs await us in the evening, followed by the traditional evening program under the stars. After an early Sunday morning meal we will leave camp to explore the lava beds of Volcanic Hills, and the terrace cavelets and mesa conglomerates. After a short hike we will top off the trip with a sack lunch while discussing the geologic memories of the weekend and allowing you an early return home.

Trip Cost includes meals and liquids Saturday morning thru Sunday lunch, publication, camping fees, and trip logo hat. Carpooling and 4WD are necessary. Please bring your own water, camp and hiking gear, and FRS radios.

For more trip information: Dave Bloom at 619-571-3470, email: vp@sandiegogeologists.org

**Register early - Field Trip details will be emailed to participants, so please list your preferred email address.**

.....cut here and mail info with money.....

## SDAG TRIP October 28th and 29th; Saturday & Sunday = $110.00

*Registration required by October 15th (Limited to 75)*

☐ **Check here if camping Friday night: October 27th optional Friday night at Agua Caliente Park.**

**NAME:** _____

**ADDRESS:** _____

**EMAIL:** _____ **PHONE:** _____

**I will be Carpooling with:** _____

**Mail this form and your Check payable to SDAG to:**

Sarah Gray, Marine and Environmental Studies Department,
University of San Diego, 5998 Alcala Park, San Diego, CA 92110

# JOB OPENINGS!

**TN & Associates, Inc**. specializes in environmental services, natural resources, infrastructure engineering, and construction services. Our San Diego office is currently looking to fill the following positions:

**Staff Geologist**: Geologist to perform office and field assignments for environmental site assessment and remediation projects. Position will involve soil borings, monitoring well installations, soil and water sampling, historical research investigations, data management, construction documentation and construction QA/QC, and report writing. Ability to adapt to both office and field environments a must. OSHA 40-hour training a plus. Periodic travel is required.

**Project Geologist**: Geologist with 3 to 7 years experience required in conducting all aspects of field investigations including limited site assessments, multi-task remedial investigations and remedial actions with a strong emphasis in technical writing skills. The ideal candidate will have experience in data analysis and reporting. PG registration and OSHA 40-hour training a plus. Work will entail some fieldwork and travel, mainly within California . Experience with government projects (DOD, USACE, AFCEE, Navy and USEPA) landfills and stormwater engineering/compliance a plus.

We offer a competitive salary, benefits package and friendly working environment. Equal Opportunity Employer. Please mail or fax your resume and letter of interest to: T N & Associates, Inc., 2247 San Diego Avenue, Suite 238, San Diego CA 92110 , fax 619-291-8100.

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**Hargis + Associates, Inc.**, a San Diego based consulting firm specializing in **hydrogeology and engineering**, and **SDAG Corporate Sponsor** currently has opportunities in our San Diego, California and Mesa Ari office. We are currently looking to fill the following positions:

**Field Technician:** Candidate would have OSHA 40-hour training with appropriate updates, a minimum of 3 years of environmental consulting industry experience, and strong mechanical aptitude. Ideal candidate would have experience with soil and groundwater sampling, monitor well installation, aquifer testing, and soil and groundwater remediation system operating, maintenance, and monitoring. Position will be based in San Diego, California, and will require some travel.

**Staff Engineer:** Candidate would have a B.S. Degree in Chemical, Civil, or Mechanical Engineering, EIT Certification and/or a Masters Degree is a plus. Only entry level candidates will be considered. Candidate should possess strong writing and presentation skills. Position will be based in San Diego, California, and will require some travel and field work. OSHA 40-hour training preferred, but not mandatory.

**Staff Hydrogeologist**: Candidate would have a B.S. Degree in Geology, and 3 to 5 years relevant experience, including experience with soils and groundwater sampling, well installation, work plan and report preparation, task management, cost estimating and scheduling. Candidate should possess strong organizational, writing and presentation skills. California Professional Geologist (PG), or ability to obtain within two years, groundwater modeling experience, and Masters degree is a plus. Position will be based in San Diego, and will require some travel and field work. OSHA 40-hour training required.

Hargis + Associates offer competitive salaries and benefits, and a challenging work atmosphere. Hargis + Associates in an Equal Opportunity Employer. To learn more about Hargis + Associates, please visit our website at: www.hargis.com.

No phone calls please. Qualified candidates should send resumes, along with a cover letter summarizing experience and salary requirements to: Hargis + Associates, Inc., Attention: Phil Rosenberg, 2365 Northside Drive, Suite C-100, San Diego, CA 92108

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**Rincon Consultants, Inc.** is an environmental sciences, planning, and engineering consulting firm with offices in Ventura, San Luis Obispo, and Carlsbad, California. The firm, a leader in environmental impact assessment, planning, biological resources, and soil assessment and remediation, seeks **Mid-Level** and **Senior Level Environmental Scientists** to work in the **Carlsbad** office.

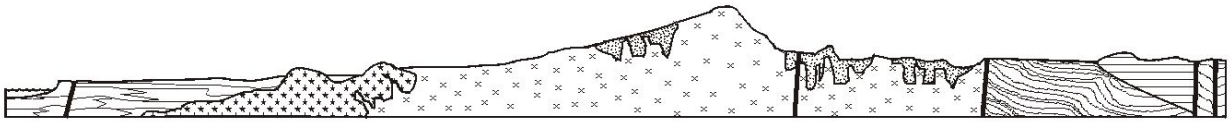
**Mid-Level Requirements:**

- Bachelor's degree in Geology, Biology, Environmental Science, Environmental Engineering, or related field (advanced degrees welcomed).
- 3-6 years experience in Phase I ESAs and soil/groundwater assessment/remediation.
- Excellent verbal and written communication skills.
- Field capabilities including logging borings, collecting soil and groundwater samples, and mapping and collecting soil samples for large remediation projects.
- OSHA health and safety training for hazardous waste sites.
- Well-organized, analytical, hard-worker, sense of humor, and good team player/leader.

**Senior Level Requirements:**

- In addition to fulfilling the Mid-Level Requirements above:
- Manage projects and personnel: prepare proposals, job assignments and schedules, track budgets, coordinate personnel and subcontractors, attend meetings, interact with clients and agencies, enforce use of guidelines and proper permits, troubleshoot problems, etc.
- Professional registration preferred.

E-mail your Microsoft Word cover letter and resume to Julie Marshall at jmarshall@rinconconsultants.com



# SAN DIEGO ASSOCIATION OF GEOLOGISTS

**www.sandiegogeologists.org**

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**Please type or print clearly, and check your chosen delivery address below.**

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_____

**Work Address:** _____

☐ *Include in directory* _____

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**E-mail Address:** ☐ _____

*Check box for email delivery*

**Website:** _____

Field(s) of Interest: _____

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Sarah Gray
Marine and Environmental Studies Department
University of San Diego
5998 Alcala Park
San Diego, CA 92110

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**5710 Ruffin Road**
**San Diego, CA 92123**