

SAN DIEGO ASSOCIATION OF GEOLOGISTS

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# SDAG MEETING ANNOUNCEMENT

WEDNESDAY, February 15, 2012

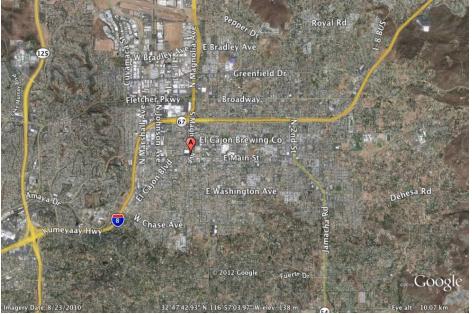
San Jacinto Fault Work Update – Clark Lake and Hog Lake

Presented by

## Michael Buga, SDSU MS Candidate

- Where: El Cajon Brewing Company 110 N. Magnolia Ave., El Cajon (619) 873-0222
- When: 5:30 pm Social Hour 6:30 pm – Dinner 7:15 pm – Program
- **Dinner:** Cheeseburger, Veggie Burger, or Pulled Pork Sandwich
- **Cost:** \$25 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, <u>Monday</u>, February 13<sup>th</sup>.

#### RESERVATIONS CANNOT BE GUARANTEED AFTER MONDAY AT 12 NOON BUT THEY ARE ALWAYS PREFERRED OVER WALK INS.



## SPEAKER ABSTRACT

### SAN JACINTO FAULT WORK UPDATE – CLARK LAKE AND HOG LAKE

Mike Buga, SDSU MS Candidate

We present preliminary results from a new paleoseismic site on the Clark strand of the San Jacinto Fault Zone in Clark (Dry) Lake, western Salton Trough, southern California. We excavated trenches across a prominent lineament and surface scarp, exposing a major fault with clear evidence of recurrent activity. The main strand of the fault juxtaposes mid-Holocene lake deposits against late Holocene, inter-bedded lake and alluvial deposits. We identified past surface ruptures by the presence of filled fissures, upward fault terminations, folding and angular unconformities, and presence of growth strata, from which we identify evidence for eight surface ruptures that have occurred in the past 1900-2400 years. The earliest two events are poorly dated with weak age control, but the past six events suggest an average recurrence interval of  $200 \pm 114$  years and a lapse time of over 210 years. The two most recent events are likely the November 22, 1800 and ca 1550 earthquakes, and correlate to events 1 and 2 at Hog Lake, ~50 km to the NW, based on geomorphic offset mapping along the Clark fault. Three earlier events (3, 4 and 5 at Clark Lake) are constrained to have ruptured between about 1209 and 915 AD and likely correlate to events 5, 6 and 7 at Hog Lake, suggesting that even some of the dates used in this chronologic model contain some inheritance. Only one of these events at Clark Lake likely corresponds to one of the three surface ruptures that occurred as a cluster at Hog Lake between about AD 1250 and 1450, suggesting that some of the ruptures in the Hog Lake cluster may correspond to rupture of the northern part of the zone, similar to what occurred in the 1918 M6.9 earthquake. These observations along with geomorphic offset observations suggest that the entire Clark fault, and possibly the Casa Loma fault, fail together in some large earthquakes (Mw7.3) whereas the northern Clark fault may fail more frequently in M6.5-6.9 earthquakes, as occurred in 1899 and 1918.

## SPEAKER BIO

### MICHAEL BUGA, SDSU MS CANDIDATE

I grew up on the east coast in New Jersey, but I've lived in California for the last 11 years now. I feel that I've always had a scientific mind and as a kid the natural world fascinated me. California's young and dynamic landscape piqued my interests and drove me into the realm of earth sciences with tectonics and faulting garnering most of my attention. I completed a B.S. in geology at UC Davis in 2002 and was then hired by a boutique consulting company, William Lettis & Associates. I spent 3 years at the company involved in a variety of different projects – from big geotech drilling jobs to hill slope stability analysis to fault trenching. It was fault trenching that really caught my attention and shaped my decision to return back to school for a Master's in paleoseismology. I moved down to San Diego to work with Dr. Tom Rockwell on my very own trench on the San Jacinto Fault Zone. I've been working out in Anza Borrego State Park for the past year now on the northern side of Clark (Dry) Lake developing a paleoseismic record for the Southern Clark Fault.

Outside of geology, I enjoy playing music on a variety of instruments but mostly guitar, have an undying passion for motorcycles, and like to brew my own beer.

# 2012 SDAG MEETING SCHEDULE - Mark your Calendars!

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

March 21, 2012	Dr. Scott Burns - AEG Jahns Lecture on Subduction EQ's - Joint Mtg. with the EERI	
April 18, 2012	Geology Student Presentations	
May 16, 2012	Dr. Bethany O'Shea, University of San Diego: "Arsenic-mineral interaction in	
	groundwater environments"	

#### 2012 EXECUTIVE COMMITTEE

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CALL FOR PAPERS FOR THE SDAG 2012 ANNUAL FIELD TRIP GUIDEBOOK Waiting for Tsunami: Coastal Processes and Geologic Hazards of north San Diego County

In this trip, we will explore the southern California coastline from La Jolla north to San Clemente. We will tour sites of geologic interest including: tsunami features, active coastal erosion, landslides, a Miocene volcanic plug, estuaries, and efforts to restore brackish water areas.

SDAG seeks new manuscripts based on original work in the broad fields of regional geology, sedimentology, soil, tectonics, hydrogeology, paleontology,

engineering geology, petrology, geothermal resources, geomorphology, paleoclimatology, landslides, and related fields. Articles on any facet of the natural or cultural history of northern San Diego County and vicinity are also welcome.

#### Deadline for submission of abstract: February 29, 2012.

Please submit the following information when submitting abstract:

- Title,
- Authors and affiliation,
- Address, e-mail, and telephone numbers for the corresponding author.

Submit abstract by e-mail to Cari Gomes: cg7783@yahoo.com

# PRESIDENT'S CORNER

I recently obtained a copy of our first publication, *Studies on the Geology and Geologic Hazards of the Greater San Diego Area, California*, from 1973 (original price: \$6). I was very pleased to acquire this valuable volume. This copy, coming from a book dealer in Corvallis, Oregon, somewhat worn with the imprints of notes pressed into the cover long ago, has the signature of a previous owner: George W. Moore. I flipped through the book- a George W. Moore had contributed an article, "Landslide at the National Marine Fisheries Service Building, La Jolla, California." So it appears I now have George W. Moore's personal copy of the book. Who is George W. Moore?

George was a native of Palo Alto, California. Naturally, he obtained his Bachelor's and Master's degrees

in geology from nearby Stanford University. He earned his Ph.D. at Yale in 1960. He was with the USGS as a research geologist, starting at age 23, from 1951 through 1987, then part time until 1996. At the time he wrote the SDAG article, he was Geologist-in-charge at the La Jolla Marine Geology Laboratory, and was a Research Associate at Scripps Institute. Among dozens of publications, he co-authored, with Michael Kennedy, an important article in the AAPG Bulletin on stratigraphic relations of the Cretaceous and Eocene strata of coastal San Diego in 1971. George was a member of SDAG in the 1970's and made significant contributions to the understanding of our local geology.



He and his wife (Ellen J. Moore, a former San Diego Natural History Museum paleontologist) moved to Corvallis, Oregon, in 1987 where he continued his

passion for geology, teaching and researching at Oregon State University. Much of George's career was involved with the research of plate tectonics, marine geology, and speleology (caves). He received numerous honors and awards during his life. He passed away in 2007.

Undoubtedly, some of you reading this column knew, worked with, or had beers with George, and have first hand experience with George's work and life. Two gents in particular, William Elliott and Mike Hart, come to mind. Not only did Bill and Mike contribute articles to that first SDAG guidebook, they are also contributing to my upcoming guidebook, *Picacho and the Cargo Muchachos*. I cannot be more pleased. A fortunate coincidence, to be sure!

#### .....

What a great January meeting we had! Thanks to Dr. Barry Keller for an exotic and fascinating talk on "The Inka Road" and the Chilean quake of 2010. This month, SDSU graduate student, and recent recipient of a scholarship award from SDAG, will present his findings on researching the Clarke Lake strand of the San Jacinto fault- at a new destination, the El Cajon Brewing Company. Let's hope those 8.9% Abv brews don't interfere with the speech! Look for details on the new venue in the announcements.

Todd Wirths President

# BOOK REVIEW

#### **Rough-Hewn Land**

A Geologic Journey from California to the Rocky Mountains, By: Keith Heyer Meldahl, 2011, Professor of Geology, Mira Costa College 2011, University of California Press

Those in attendance at a recent San Diego Association of Geologists monthly meeting where Keith Meldahl gave a synopsis of his recently published book were treated to one of the best and most informative talks in SDAG history. His topic was ambitious: present the geologic history of the western United States from California to the Rocky Mountains in 45 minutes or less; and he was successful. His book is even more successful in presenting how the west was created almost from nothing as geologic plates crashed and foundered on the western shore. What could all that have to do with the rise of the Rocky Mountains? You will find out. An added bonus is Appendix II that will guide you to many of the outcrops or key geologic sites described in the book.

Probably many of us, including this engineering geologist who learned about continental drift from Wegener and is typically concerned about only the stability of an acre or two of the earth's crust at a time, have had little time to keep up to date on the latest plate tectonic theories. This book will bring you up to date and provide you a firmer geologic foundation on which to place your more localized studies. As one previous reviewer put it, "the book is a virtual road trip through geologic time." Rough Hewn Land is a marvel of data synthesis and presents in a very readable and entertaining way, the assembling of the west in a manner similar to John McPhee's Assembling California. Meldahl, though, utilizes quotes and observations of Mark Twain, John Muir, and other early travelers and pioneers in combining human history with geologic history to give the reader some feel of the vastness, the beauty, and daunting challenges of exploration of the west before cars, trains, and even stagecoach travel to take us back in time so that we can imagine the appearance of that country before the advent of minimarts and gas stations. An example is Mark Twain's description of the great desert west of Salt Lake as observed through a stage coach window on a trip from St. Louis, Missouri to Carson City, Nevada in the 1860's, "Imagine a vast, waveless ocean stricken dead and turned to ashes; imagine this solemn waste tufted with ash-dusted sage bushes; imagine the lifeless silence and solitude that belong to such a place... The sun beats down with dead, blistering, relentless malignity; ..., there is not a living creature visible in any direction whither one searches the blank level that stretches its monotonous miles on every hand; there is not a sound- not a sign - not a whisper - not a buzz, or whir of wings, or distant pipe of bird - not even a sob from the lost souls that doubtless people that dead air."

For those students thinking about becoming a geologist, you will get a feeling for the passion that geologists have for the profession. For students about to become geologists your newfound knowledge will amaze your professors. For professional geologists that have not managed to keep up with the latest research dealing with the origins of the Colorado plateau, the Sierras of California, the Rocky Mountains, and the Basin and Range, this book is for you. And, if this book is an example of Dr. Meldahl's passion for the science of geology and ability to educate, Mira Costa College will do well to keep him very happy; otherwise he will be gobbled up by institutions that have full programs in geology.

Submitted by Mike Hart, Engineering Geologist

# ANNOUNCEMENTS

The Nielsen Environmental Field School presents The 2012 North American Environmental Field Conferences and Expositions in San Diego February 7-10, at the Marriott Courtyard Liberty Station. The theme of the Conference is "Advances and Innovations in Environmental Site Characterization, Sampling, Monitoring and Remediation". You can attend more than 60 hours of interactive indoor workshops presented by some of the world's foremost authorities in their fields; more than 24 hours of interactive, hands-on outdoor workshops featuring the latest environmental field methods and equipment; more than 40 exhibits showcasing state-of-the-science field equipment and services. Single-Day Passes Are Now Available On-Line.

Contact Dave Nielsen with any questions about the conference. phone: 575-532-5535 fax: 575-532-5978 e-mail: info@envirofieldschool.com web: www.envirofieldschool.com

**Welcome to the El Cajon Brewing Company!** Great microbrew on tap! Need I say more? (Oh, they serve wine too) Here's what to expect at our meeting at the ELBC: We have a choice of three dishes, 1/2 lb. Angus cheese burger, a veggie burger topped with grilled red peppers and sweet chili sauce, or their popular slow-cooked pulled pork sandwich. All come with seasoned fries and non-alkie beverage (if you desire). This place has a great atmosphere with a killer selection of local and imported beer styles. Come for the beer, stay for the friends! *–Todd* 



### Plan to share your research with a presentation or a poster 2012 Desert Symposium

**Presentation Theme:** Life in the Desert: Adaptations to Environmental Extremes **Field Trip Theme:** Search for the Pliocene: Southern Exposures **Desert Studies Center, Field Trip April 21- 23, 2012 Zzyzx, California** Additional information to follow. Please forward this information to other interested individuals and invite them to send their email addresses to <u>wpresch@fullerton.edu</u>. California State University, Fullerton **Tough Mudder** - Looking for a few hardy geologists (or engineers!) interested in competing as a team at this year's Tough Mudder event, at the Snow Valley Mountain ski resort near Big Bear on the weekend of July 7th/8th. If anyone's interested in 12 miles of pain and suffering followed by unlimited cold beer, then please e-mail Rupert Adams at rupert.hgi@sbcglobal.net. For more info, check out http://www.toughmudder.com

## SEEKING JOB OPPORTUNITIES

**Qualifications Summary and Objective:** I have 14 years experience directing surface water quality monitoring programs with a proven record of excelling in monitoring plan implementation, quality control, public notification and continuous improvement in operational effectiveness and efficiency. I have built and maintained relationships with key staff in academia, industry, and all levels of government in San Diego and California. I have a widely applicable skill set which includes: analytical thinking, communication and writing skills, data analysis and management, inter and intra- agency project coordination, and staff supervision and training. My objective is to obtain a career position with an industry leader where I can contribute my skills to build the success of my employer as well grow professionally. Detailed work experience, education and more at <u>www.linkedin.com/in/cbclifton2010</u>. Email <u>cbc2006@cox.net</u> or 619-964-1776.

**ENGINEERING GEOLOGIST-** MS in Geology, 13 years of the industry experience (CA, NY/NJ, overseas), California P.G., proficient in methods of subsurface exploration and geotechnical hazard evaluations, geophysical surveys, construction quality control, geotechnical engineering analyses, special interest in earthquake-hazard and seismic design related applications, strong problem solving and organizational skills, enjoy being challenged. I worked in San Diego in 1998-2004 and would love to move back. Detailed resume available upon request. Anna Fyodorova, <u>Afyodorova103@gmail.com</u>.

# JOB OPENINGS!

**Hargis** + **Associates, Inc** is looking for a motivated entry level hydrogeologist with relevant course work in hydrogeology, geochemistry, and environmental sciences to join our San Diego office. <u>http://www.hargis.com/jobs-hydrogeologist.html</u>. We are also seeking an engineer with extensive experience in the mining industry for a position in our Tucson office. This position is well suited to a self starting individual with strong ambitions for success and promotion within Hargis + Associates. <u>http://www.hargis.com/jobs-senior-staff-engineer-mining.html</u>.

**Seeking a Career in Southern Vice President Environmental Services (VPES)?** Seeking a successful VPES (seller/doer) to help grow an environmental consulting company in San Diego, CA. The main focus is new client sales and client retention. Other duties will include technical direction and management for client projects. The primary focus for sales and technical project management are in the areas of air quality, CEQA permitting, water discharge, stormwater permitting, regulatory compliance, hazardous materials and waste management, and environmental mitigation management. 5+ years of experience, minimum Bachelor's Degree, and the ability to bring in and retain a large book of business is required. Candidates from the Orange County, CA, area will also be considered. Inquiries and resumes to: resumes@proconnectweb.com

#### Part-time teaching positions at Palomar College: Geology

The Geology Program at Palomar College is seeking qualified individuals to teach Basic Geology (GEOL 100) Lecture and Basic Geology Lab (GEOL 100L) beginning in the Fall 2012 semester. These courses are introductory in nature; both fulfill general education requirements and requirements for the Geology AA degree. Qualifications for teaching GEOL 100 Lecture and GEOL 100 Lab include a MS degree or higher in geology, geophysics, or the equivalent. Palomar College is an accredited California Community College that serves more than 30,000 students and is located in San Marcos, California with an education center in Escondido. More information about Palomar College and the Geology Program can be found at http://www.palomar.edu. Interested parties should contact Patty Deen, Professor, Earth, Space, and Aviation Sciences at mailto:pdeen@palomar.edu

**Sealaska Environmental Services, LLC (SES)** is seeking a motivated individual with relevant environmental experience as a Project Manager, to perform all functions in managing projects under U.S. government contracts requiring environmental remedies at various governmental sites, primarily in California. This position is for our San Diego office. The <u>minimum</u> qualifications are:

- Undergraduate degree in engineering or physical science;
- A minimum of six (6) years environmental project management experience, including three (3) years of experience managing remediation projects; and
- Registered professional engineer or registered geologist in the state of California.

The Project Managers' duties and responsibilities are described at the SES website:

http://tbe.taleo.net/NA11/ats/careers/requisition.jsp?org=SEALASKA&cws=1&rid=491

**Civil Engineer -TerraCosta Consulting Group** is a 25-year specialty design firm providing services in two basic areas: earth retention & foundation design systems; and coastal and maritime engineering.

We are looking for a civil engineer with a geotechnical background, 3 to 5 years experience, and City of San Diego certification in concrete inspection, reinforced concrete inspection, and deep foundation/tieback inspection. Our immediate need is for a field engineer to implement geotechnical design recommendations in the field on construction projects, and perform in-office design work. Ample opportunity exists for career enhancement and growth in the areas of project design and project management. Some travel required.

Minimum Bachelors Degree in Civil Engineering (preferably with geotechnical emphasis) required. Professional registration preferred.

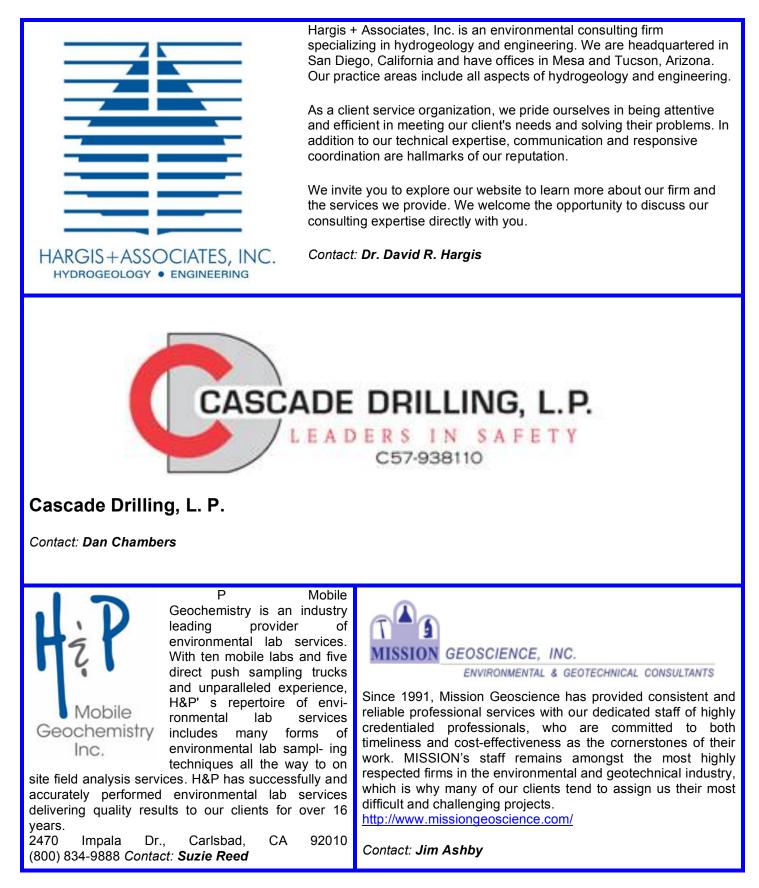
This is a full-time position with great benefits (401k, health, etc.). Salary commensurate with experience.

Email resume and salary requirements to: <u>employment@terracosta.com</u> No calls please!

#### Request for Sponsors: 2012 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

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#### Contact: Steve Zigan

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