

# SAN DIEGO ASSOCIATION OF GEOLOGISTS

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

## SDAG MEETING ANNOUNCEMENT

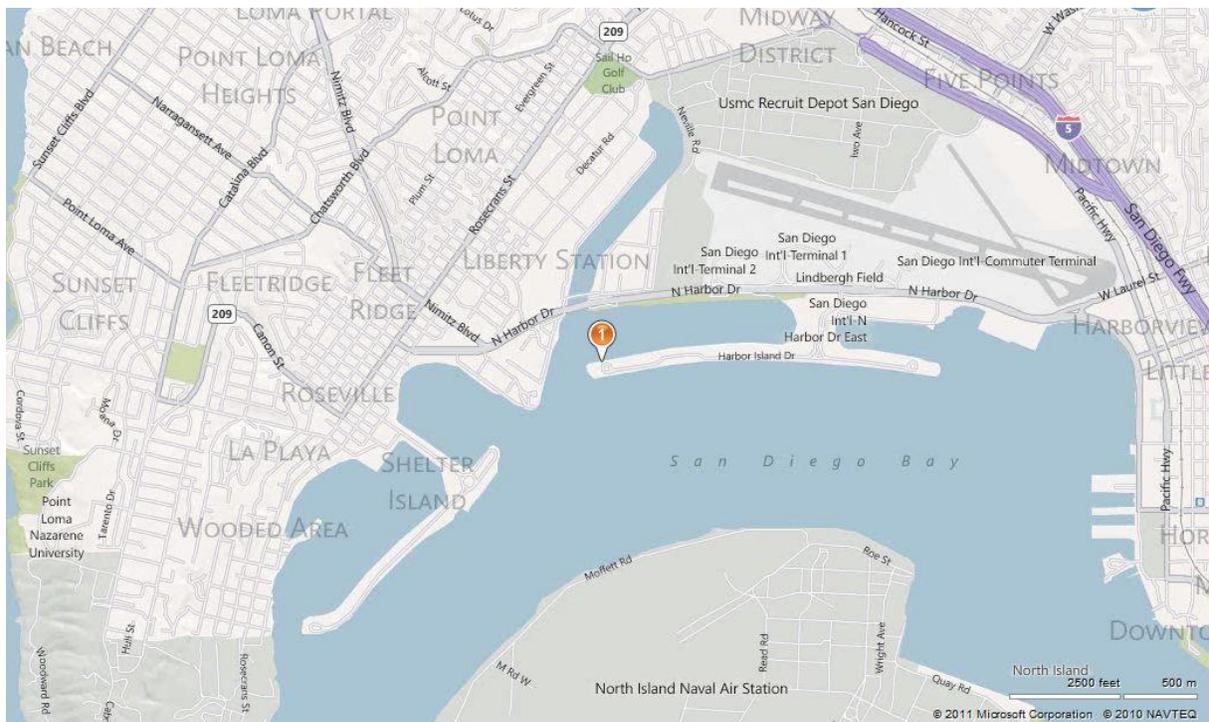
WEDNESDAY, September 14<sup>TH</sup>, 2011

### THE NON-REGULARITY OF EARTHQUAKE RECURRENCE IN CALIFORNIA: LESSONS FROM LONG PALEOSEISMIC RECORDS IN SIMPLE VS COMPLEX FAULT REGIONS

*Presented by*

**Dr. Thomas Rockwell**

**Where:** Tom Hams Lighthouse 2150 Harbor Island Drive, San Diego, (619) 291-9110



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

**Dinner:** Buffet

**Cost:** \$35 per person, \$5 discount for members, STUDENTS: \$25.

**Reservations:** Make your reservation online at [www.sandiegogeologists.org](http://www.sandiegogeologists.org), **No later than 5pm, Monday, August 15<sup>th</sup>**, if you can!

## **SPEAKER ABSTRACT**

### **THE NON-REGULARITY OF EARTHQUAKE RECURRENCE IN CALIFORNIA: LESSONS FROM LONG PALEOSEISMIC RECORDS IN SIMPLE VS COMPLEX FAULT REGIONS**

*Dr. Thomas Rockwell, San Diego State University.*

A long paleoseismic record at Hog Lake on the central San Jacinto fault (SJF) in southern California documents evidence for 18 surface ruptures in the past 3.8-4 ka. This yields a long-term recurrence interval of about 210 years, consistent with its slip rate of ~14 mm/yr and field observations of 3-4 m of displacement per event. However, during the past 3800 years, the fault has switched from a quasi-periodic mode of earthquake production, during which the recurrence interval is similar to the long-term average, to clustered behavior with the inter-event periods as short as a few decades. There are also some periods as long as 450 years during which there were no surface ruptures, and these periods are commonly followed by one to several closely-timed ruptures. The coefficient of variation (CV) for the timing of these earthquakes is about 0.6 for the past 4000 years (17 intervals). Similar behavior has been observed on the San Andreas Fault (SAF) south of the Transverse Ranges where clusters of earthquakes have been followed by periods of lower seismic production, and the CV is as high as 0.7 for some portions of the fault. In contrast, the central North Anatolian Fault (NAF) in Turkey, which ruptured in 1944, appears to have produced ruptures with similar displacement at fairly regular intervals for the past 1600 years. With a CV of 0.16 for timing, and close to 0.1 for displacement, the 1944 rupture segment near Gerede appears to have been both periodic and characteristic.

The SJF and SAF are part of a broad plate boundary system with multiple parallel strands with significant slip rates. Additional faults lay to the east (Eastern California shear zone) and west (faults of the LA basin and southern California Borderland), which makes the southern SAF system a complex and broad plate boundary zone. In comparison, the 1944 rupture section of the NAF is simple, straight and highly localized, which contrasts with the complex system of parallel faults in southern California. These observations suggest that the complexity of the southern California fault network is partly responsible for the apparent increase in "noise" and non-periodic behavior, perhaps resulting from stress transfer to adjacent faults after a large earthquake on one fault. The simplicity of the central NAF may account for its relatively simple behavior. If correct, the study of simple plate boundary faults may provide new insights into the constitutive elements of fault zones, and may aid in identifying those components that are critical for better forecasting future seismicity in complex systems.

## **SPEAKER BIO**

### **SPEAKER: DR. THOMAS ROCKWELL**

Dr. Thomas Rockwell is a nationally and internationally renowned paleoseismologist and geomorphologist. He is an expert on the neotectonics of southern California, as well as many other areas of the world where he has worked, including Baja California, Argentina, Turkey, Panama, India, Portugal, Mongolia, and Israel. He routinely uses soil stratigraphy and geomorphology to assess rates of fault activity and determine recency of faulting. He often acts as a consultant for local geotechnical and archaeological consulting firms, providing input on the age of the soils or geomorphic surfaces of interest and assisting with fault evaluations to resolve recency of movement. In addition to his duties

as a professor of neotectonics and Quaternary geology at San Diego State University, Dr. Rockwell has been the principal investigator for numerous research studies funded by the National Science Foundation, the U.S. Geological Survey, and the Southern California Earthquake Center. He is a Senior Partner of Earth Consultants International.

## 2011 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!

October 19, 2011	<b>Gary Girty - Picacho Area-prelude to 2011 field trip</b>
November 16, 2011	<b>Keith Meldahl - Rough-Hewn Land: A Geologic Journey from California to the Rocky Mountains</b>

### 2011 EXECUTIVE COMMITTEE

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

### PRESIDENTS CORNER, JULY 2011

Our September meeting promises to be a great one, with Tom Rockwell speaking to us at Tom Ham's Lighthouse. Remember it is the 14<sup>th</sup>, rather than 21<sup>st</sup>! So please be there. I'm sure Todd will also have some important updates for the 2011 field trip planning. By the way, if you are submitting a paper for the guidebook (and haven't submitted it yet, like me), better hurry! See you all on the 14<sup>th</sup>.

Chuck Houser



**HARGIS + ASSOCIATES, INC.**  
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Hargis + Associates, Inc. is an environmental consulting firm specializing in hydrogeology and engineering. We are headquartered in San Diego, California and have offices in Mesa and Tucson, Arizona. Our practice areas include all aspects of hydrogeology and engineering.

As a client service organization, we pride ourselves in being attentive and efficient in meeting our client's needs and solving their problems. In addition to our technical expertise, communication and responsive coordination are hallmarks of our reputation.

We invite you to explore our website to learn more about our firm and the services we provide. We welcome the opportunity to discuss our consulting expertise directly with you.

Contact: **Dr. David R. Hargis**



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Since 1991, Mission Geoscience has provided consistent and reliable professional services with our dedicated staff of highly credentialed professionals, who are committed to both timeliness and cost-effectiveness as the cornerstones of their work. MISSION's staff remains amongst the most highly respected firms in the environmental and geotechnical industry, which is why many of our clients tend to assign us their most difficult and challenging projects.

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Contact: **Jim Ashby**



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Contact: **Steve Zigan**

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## ANNOUNCEMENTS:

### **2011 SDAG Field Trip: Picacho State Recreation Area and the Cargo Muchachos: Cool Facts, Part II**

Dr. Gary Girty of San Diego State University will be guiding us during Saturday's portion of the trip. SDSU geologists have had quite a hand unraveling the geology of the region over the years.

- Gary Girty has been mapping the area since about 2002 or 2003- records are sketchy! He and his students have mapped nearly 50 square miles of harsh terrain.
- Eric Frost had a huge impact in the early 1980's, leading the way developing an understanding of the area's detachment fault history and mechanisms.
- Picacho State Recreation Area was established in 1961, but it took until 1968 for all of the land title disputes to be settled and the land to be cleared for public use.
- Jose Mendivil discovered what was to become the Picacho mine in 1862. His great-grandsons still live in Winterhaven.
- Jose was the son of a Mexican mining engineer. As a seven-year old, he was a captive of the Apache tribe, not escaping until he was 15.
- Picacho was visited by western fiction novelist Zane Grey. His observations there were the basis for his 1922 novel "Wanderer of the Wasteland."

Please contact your VP Todd Wirths at 858-337-0098 or [todd@wirths.com](mailto:todd@wirths.com) for any suggestions, comments, etc. More to come, thanks!

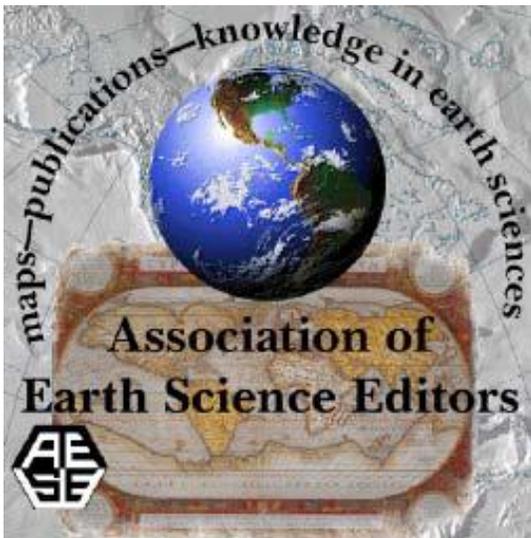
# Shake Out

## Get Ready to ShakeOut!

Have you practiced how to protect yourself in an earthquake? Participate in a ShakeOut drill near you and be ready to Drop, Cover, and Hold On!

▶ [LEARN HOW TO PARTICIPATE](#)

On October 20 at 10:20 a.m.\*, millions of people will participate in the 2011 Great California ShakeOut! In 2010, more than 7.9 million Californians practiced [Drop, Cover, and Hold On](#) to practice how they will protect themselves during earthquakes, and increased their overall preparedness. Join us in 2011!



### Association of Earth Science Editors 45th Annual Meeting

## “Expanding our Boundaries: Geoscience Editing in the Digital World”

Governors Inn Hotel, Tallahassee, Florida  
November 14–17, 2011

Technical sessions November 15–16

Field trip on karst features November 17

For more information about the annual meeting, visit [www.aese.org](http://www.aese.org) or contact Jane Eggleston, host chair, [jegg@usgs.gov](mailto:jegg@usgs.gov), or Carole Ziegler, AESE vice president, technical program chair, [sdageditor@gmail.com](mailto:sdageditor@gmail.com). AESE is an organization of editors, journal

managers, and others involved with publication in the earth sciences. Its purpose is to facilitate cooperation among editors and to promote effective dissemination of earth-science information. AESE maintains liaisons with AGI, AAAS, CSE, EASE, and GSA. The registration fee for the annual meeting includes a one-year membership in AESE. Membership benefits include a subscription to AESE’s quarterly digital newsletter, the *Blueline*, and access to a members-only listserv and jobs board. Follow us on our Web site at [www.aese.org](http://www.aese.org), on our blog at [geoeditors.wordpress.com](http://geoeditors.wordpress.com), on Facebook at [tinyurl.com/3n2vrwx](http://tinyurl.com/3n2vrwx), on Twitter at [twitter.com/#!/AESERocks](http://twitter.com/#!/AESERocks), and LinkedIn at [tinyurl.com/3scpt7e](http://tinyurl.com/3scpt7e)

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**Seeking a Career in Southern California** - Motivated and enthusiastic mid-level geotechnical project engineer with 4 years of experience in linear, underground and maritime infrastructures, seeking to leverage her diverse project experiences to continue her technical career development in a dynamic growing firm. Knowledge of geotechnical calculations and numerical simulations to study the behavior of

the interaction of soil-structure with 2D and 3D software, to design the foundation in the safest and most economical manner. Wide experience in preparing and writing proposals and technical reports. Experience in leading and conducting geological and geotechnical field work. Used to working in a team environment to successfully deliver projects. Interested in informational interviews as well employment opportunities. Contact: **Carme Cervantes**, [carmecervantes@hotmail.com](mailto:carmecervantes@hotmail.com), 4250 4th Avenue, San Diego 92103, CA. (858) 888-3716

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**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 [www.linkedin.com/in/cbclifton2010](http://www.linkedin.com/in/cbclifton2010). Email [cbc2006@cox.net](mailto:cbc2006@cox.net) or 619-964-1776. Contact: **Clay Clifton**

## **JOB OPENINGS!**

**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](mailto:resumes@proconnectweb.com)

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**Entry-Level Staff Geologist (San Diego, CA)** RORE, Inc., is a woman-owned, small-business contractor located in San Diego, CA. We are looking for a highly motivated entry-level geologist with exceptional written and verbal communication skills. We offer a challenging work environment, competitive salary, training & professional development, and excellent benefits. The ideal candidate should possess the following:

- A bachelor's degree in Geology or Geological Sciences (geophysics, geochemistry, earth science, or soil science);
- Exceptional written and verbal communication skills;
- Has a desire to pursue a California Geologist-In-Training (GIT) certificate and subsequently a Professional Geologist (PG) certification;
- Practical mechanical ability to adapt to the various challenges presented by field work;
- This position will have field and non-field related responsibilities. Some travel is required;
- 0-3 years of previous experience. 40-hour HAZWOPER trained preferred;
- Attention to detail and strong written/oral communication skill sets required;
- Should have basic knowledge of Microsoft Office programs; and

- AutoCAD and GIS skills a plus

Job Requirements: Typical tasks will include field work planning and preparation, drilling and monitoring well installation oversight, and remedial system permitting, design, fabrication, and operation. Field work will also consist of the collection and proper documentation of soil and groundwater samples to define the nature and extent of soil and groundwater contamination. Since the candidate will be heavily involved in the writing of work plans and supporting documentation, a representative writing sample may be required during the interview process. Equal Opportunity Employer. If interested in this Entry-Level Staff Geologist job, please submit resumes to: Human Resources, [hr@roreinc.com](mailto:hr@roreinc.com), 858-404-7395 (fax), No phone calls please.

**ENVIRONMENTAL DATA ANALYST, JOB CODE: MEP20110826-064, POSTED: AUGUST 26, 2011 LOCATION: SAN DIEGO, CALIFORNIA OFFICE ( [VIEW MAP](#) )**

[HTTP://WWW.DDMSINC.COM/ABOUT\\_US/CAREERS\\_CURRENT\\_OPENINGS.HTML](http://www.ddmsinc.com/about_us/careers_current_openings.html)

Description: de maximis Data Management Solutions (ddms) is currently seeking a full-time Environmental Data Analyst for our San Diego, California office. The successful candidate will work as part of a multi-office project team which includes a single and multi-party (e.g., Superfund) Project Coordinators and support staff, one or more Analysts, Technicians, Programmers, Engineers, Geologists and Data Validators. Analysts perform data management and analysis services on large industrial environmental remediation projects. Day-to-day duties include the tasks associated with managing, analyzing and reporting analytical and field measurement data collected through various groundwater, surface water, sediment, soil and "O&M" sampling events. Duties also include environmental database management, GIS maintenance and development, hydrogeologic and fate and transport analysis, table and map report preparation, and significant contributions towards frequent team meetings, project management and client communications. This position requires the ability to commit to some light infrequent travel throughout the year.

Requirements include:

- Strong Work Ethic
- Ability to communicate effectively with co-workers and clients
- Ability to manage data management related tasks, projects and budgets
- Bachelors degree preferably in one of the physical sciences (e.g., geology, chemistry, environmental sciences), engineering or geography
- Experience in the environmental remediation industry
- Minimum 5 years experience using Esri ArcGIS® software products required
- Minimum 5 years experience managing environmental databases (EQuIS® Professional and schema experience desired but not required)
- Experience using environmental visualization packages desired but not required (e.g., C-Tech MVS®, RockWorks etc)
- Proven fluency in modern office software programs (i.e. Microsoft Windows® and Office® including Word® and Excel®)
- Strong experience using database applications and related languages (e.g., Microsoft Access®, SQL syntax)
- Positive attitude and ability and desire to learn new technical skills quickly
- Must be a self motivator and able to work independently
- 40 Hour Hazwoper Training a plus but not required

**Environmental Staff/Sr. Staff Professional** – E2 ManageTech - We are seeking a dynamic team member with a background in environmental consulting . The ideal candidate will be an individual who has focused on conducting and completing Phase I Environmental Site Assessments (ESAs) for the past 2 years and is looking to advance and develop further in their career. The candidate can expect to spend an average of 25-50% of their time on providing the full scope of services related to Phase I ESAs and the remainder of the time on projects related to environmental compliance and/or Phase II Site Investigations and Remedation. The ideal candidate will possess the following:

- Bachelor's degree in Geology, Environmental Sciences, or Civil Engineering with a focus in Environmental Engineering
- 2+ years of experience conducting the full scope of services related to Phase I Environmental Site Assessments which include conducting site walks, reviewing EDRs, identifying RECs on industrial/commercial sites, preparing reports, and client communication.
- Registered Environmental Assessor (REA) a plus, but not required
- Detail oriented individual with advanced technical writing skills

**Benefits:** We value our employees' time and efforts. Our commitment to your success is enhanced by our competitive salary and an extensive benefits package including paid time off, medical, dental and vision benefits and future growth opportunities within the company. Plus, we work to maintain the best possible environment for our employees, where people can learn and grow with the company. We strive to provide a collaborative, creative environment where each person feels encouraged to contribute to our processes, decisions, planning and culture.

**To Apply:** To respond to this opportunity, please go to: <https://insperity.ats.hrsmart.com/cgi-bin/a/highlightjob.cgi?jobid=68796>

## **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.sandiegoeologists.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.sandiegoeologists.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.

### Parting Lineation...



*'That's it, sir . . . we've eaten the last of the geologists!'*

(Courtesy of Punch)