

SAN DIEGO ASSOCIATION OF GEOLOGISTS

www.sandiegoeologists.org

SDAG MEETING ANNOUNCEMENT

WEDNESDAY, NOVEMBER 17TH, 2010

“Dead Oil in the San Diego Subsurface”

Presented by

Eleanora (Norrie) Robbins, PhD (SDSU)

Where: Catalina Room (southern end of MVCC) **SEE MAP**
Marina Village Conference Center
1936 Quivira Way, San Diego, CA 92109

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

Directions: FROM INTERSTATE 5: Take the SEA WORLD DRIVE exit. From SEA WORLD DRIVE, take WEST MISSION BAY DRIVE on your right. When you see the large green sign that says QUIVIRA ROAD, get in the farthest left of the two left turn lanes. Turn left, go one very short block and turn left again. Drive about one half mile and MARINA VILLAGE will be on your right.

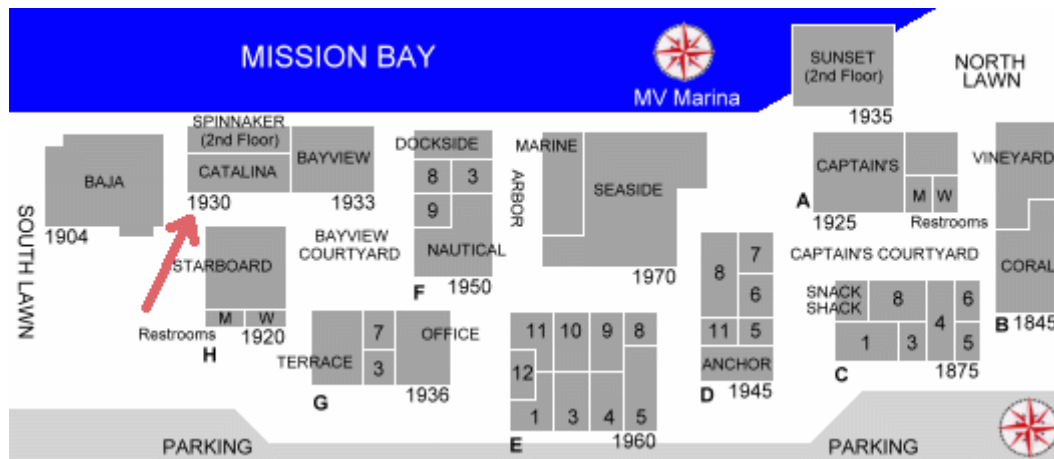
FROM INTERSTATE 8: Take the WEST MISSION BAY DRIVE exit to the right. You will be on INGRAHAM STREET for a short distance from which you will take the next exit marked WEST MISSION BAY DRIVE on your right. When you see the large green sign that says QUIVIRA ROAD, get in the farthest left of the two left turn lanes. Turn left, go one very short block and turn left again. Drive about one half mile and MARINA VILLAGE will be on your right.

Dinner: Thanksgiving Buffet. Beverage station, dessert, 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.sandiegoeologists.org **no later than noon, Monday, November 15th**.

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



2010 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!

December 15	Dr. Tom Deméré, S.D. Natural History Museum: The Year in San Diego Paleontology; the Bali Hai Restaurant http://www.balihairrestaurant.com/
January 19, 2011	TBA
February 16, 2011	TBA

2010 EXECUTIVE COMMITTEE

PRESIDENT – Bryan Miller-Hicks; *Cuyamaca College*; Ph: (619) 733-3724; bryanmillerhicks@gmail.com

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

SECRETARY – Todd Wirths; *Ninyo & Moore*; Ph: (858) 576-1000, x2101; twirths@ninyoandmoore.com or todd@wirths.com

TREASURER – Cari Gomes; sdagtreas@sandiegogeologists.org

PUBLICATIONS – Lowell Lindsay; *Sunbelt Publications*; Ph: (619) 258-4911, x111; fax:(619) 258-4916; lindsay@sunbeltpub.com

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

SPEAKER BIO

Norrie Robbins



Eleanora (Norrie) Robbins is an economic biogeologist/palynologist retired in 2001 from the USGS. During her funded work years, she analyzed organic tissues in mineral deposits, petroleum fields, and coal beds. Now living in San Diego, she is adjunct faculty in the Dept. Geological Sciences at SDSU. She also volunteers at the local USGS office, picking macro-fossils to help with subsurface correlation between units in the subsurface.

SPEAKER ABSTRACT

“Dead Oil in the San Diego Subsurface”

The San Diego subsurface is presently being analyzed in detail, as the USGS and local water agencies are cooperating to define the extent of ground water in the post-Eocene San Diego Embayment. The Embayment is a silled basin with nested grabens between major faults forming a structural rhombochasm. Gravity and well data show that the basin is 12x20 mi, filled with about 6,000 ft of sediment, and centered near the south end of San Diego Bay. In situ temperature measurements project the top of the petroleum window (66°C) to be around 4,000 ft deep.

Wildcatters have been searching for petroleum in the San Diego subsurface since the 1880s. The drilling of about 70 dry holes is good evidence for the lack of onshore petroleum potential in San Diego. However, drilling has revealed minor hydrocarbon shows and bitumen. As part of a study of well cuttings and cores for paleontological and mineralogical information in USGS water test wells in southern San Diego County, a distinctive type of hydrocarbon was encountered, which I call “asphaltic micro-tarballs.” Their presence would have been missed except for the fact that a xylene-based mounting medium was used to make permanent microscope slides of acid-resistant organic residues. The xylene created distinctive structures known as petrolic filaments from the reaction of xylene with the bitumen.

The unit that bears the micro-tarballs doesn't crop out at the surface. It is probably a basinal facies of the Plio-Pleistocene San Diego Formation. The subsurface unit, which drillers call “Blue Goo,” is as much as 1000 ft. thick, often highly fossiliferous, and generally a dark gray, very-fine-grained sand with clay. The presence of pyrite attests to anoxia in the basin.

Organic tissues in this unit have not been thermally altered, so it is submature for petroleum generation. Palynological processing through HCl and HF revealed both marine (dinoflagellates, abundant *Tasmanites*, zooplankton fecal pellets) and terrestrial organic matter (wood cells, and pollen of *Pinus*, *Alnus*, *Picea*, *Abies*, and *Chenopodiaceae/ Amaranthaceae*).

Provenance of the micro-tarballs is a mystery. They are not being generated from the submature organic tissues. One possibility is that this dead oil is related to tarballs that are frequently found on San Diego beaches. In a large study along the California coast, USGS researchers determined that beached tarballs in San Diego and elsewhere are hosted from naturally-occurring petroleum seeps associated with the offshore Santa Barbara oilfields. The California Current carries those tarballs south in the winter and spring; the Davidson Current carries them north in the summer and fall. One could envision a long-term process of slow deposition of transported micro- and macro-tarballs into San Diego coastal waters producing this unusual form of buried, non-economic hydrocarbon. Indeed, asphalt-cemented cobbles have been noted by Tom Rockwell on a Late Pleistocene marine terrace along the coast west of Santa Barbara, which means that tarball production and transport is an ancient process.

Another source is being considered, although this is highly speculative. Perhaps the dead oil was generated from a hither-to-unidentified unit in the subsurface that is Monterey Fm.-like or an equivalent. Miocene-aged Monterey crops out in Camp Pendleton at the north end of San Diego County and offshore San Diego. Furthermore, Monterey-like diatomites crop out in the Rosarito Beach Fm. south of Tijuana, Mexico. So it seems reasonable to speculate that Monterey Fm. could exist in the subsurface.

Because no oil reservoir has been found despite so many years of exploration, the missing factor(s) could be lack of sealing units or leaky traps as opposed to lack of a source rock(s) in the subsurface.

PRESIDENTS CORNER, NOVEMBER 2010

As the last week of October draws to a close while I am writing this, geology and geologic processes are in the news again. In one of the most dangerous and active corners of the world, a significant earthquake generated a tsunami on Monday which took some 272 lives on the Mentawai Islands, just west of Sumatra. Also on Monday and then again on Tuesday, the active volcano, Mt. Merapi in central Java, erupted, and has killed about 30, possibly from pyroclastic flows.

Geologic hazards and disasters always make the news broadcasts and websites, of course. The spectacular and (relatively) infrequent events are often the only times that the public in general thinks about geology and geologists. Not that there is much wrong with that: volcanoes, earthquakes, etc. draw the curious, even snag the undecided freshman or sophomore college student. Having been one of those unsuspecting sophomores, I quickly became hooked by the "wow" factors of alarming geologic events. Then, the chance to see some spectacular scenery and landscapes, which our planet presents to those willing to look and wonder, started to take hold. In my case, the magical glaciated landscapes of New England, the kettle lakes and drumlins, were the main draw at first. Then my relocation to Oregon, with its Crater Lake, its Cascade ramparts dividing lush western valleys from the eastern drylands, opened my eyes much, much wider, and volcanoes became my favorite part of geology. Of course, I didn't take the direct path from college to the observatory at Mauna Loa or such, but volcanoes still fascinate.

The public, of course, thinks of and experiences mega events in the "now", without knowing about and understanding the enormous amount of patient and not-so-spectacularly newsworthy work done by the geochemists, the petrologists, et al. Observation and recording of events is one part of our science; understanding often comes after logging the hard hours with the chemical crucibles, the rock pulling, pushing and breaking machines, and the microscope, among others pieces of equipment and lab techniques.

Our speaker this month has done much of this kind of patient, eye-straining work. In her years with the USGS, Dr. Norrie Robbins worked as an economic biogeologist/palynologist....looking at tiny things with big, important stories to tell. We are happy to have our friend Norrie this month, telling tales of "Dead Oil". A couple of weeks past Halloween perhaps, but hey, pretty close. So, a reminder to all of us, that the very small, the quiet, the unspectacular, have things to say. And we need to remind our non-geologist friends of this, as they are seated, transfixed by the latest big TV geologic disaster.

HAPPY THANKSGIVING, EVERYONE!

--
Bryan Miller-Hicks
Certified Engineering Geologist

2010 SPONSORS - THANK YOU!!

Note the new nomenclature for 2010: 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 the Sponsorship Form included in this newsletter.

Corporate Sponsors	
	<p><u>H&P Mobile GeoChemistry, Inc.</u> 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.</p> <p style="text-align: center;">2470 Impala Dr., Carlsbad, CA 92010 (800) 834-9888</p> <p style="text-align: center;">Steve Zigan, Cardno ERI, szigan@eri-us.com</p>
<u>Dr. Pat Abbott</u> , SDSU Prof. of Geology and Geophysics, Emeritus	Lowell A. Lindsay and Diana Lindsay - <u>Sunbelt Publications/AESE</u>
Sally & Dennis Avery	<u>Dr. Monte Marshall</u> , SDSU Prof. of Geology and Geophysics, Emeritus
<u>Dr. Richard Berry</u> , SDSU Prof. of Geology and Geophysics, Emeritus	Monte and Diane Murbach, <u>Murbach Geotech</u>
David Bloom, Consulting Geologist	<u>Ninyo & Moore</u> - Jonathan Goodmacher
Joe Coronas, SDSU Geo-Alumni Assn.	David and Jan Steller ("two-fer" - thanks!)
Greg Cranham, Consulting Geologist	Stone Brewing Company
Phil Farquharson - <u>CG-Squared Productions</u>	Sue Tanges, Southland Geotechnical Consultants
<u>Carolyn Glockhoff</u> , Caro-Lion Enterprises	Terra Costa Consulting Group, Inc.
	Carole L. Ziegler

ANNOUNCEMENTS



"The Lows to Highs of the Anza-Borrego Desert State Park" 2010 joint SDAG/SCGS Field Trip group, under the protecting wings of the great *Aiolornis incredibilis*. What a trip! Thanks go to the co-organizers Monte Murbach and Chuck Houser, and trip lecturers and contributors Mike Hart, Tom Rockwell, Diane Murbach, Diana and Lowell Lindsay, George Jefferson, Miles Kenney, John Peterson, and all the others who participated! Photo Diana Lindsay

SOUTH COAST GEOLOGICAL SOCIETY EVENT - ST. FRANCIS DAM DISASTER EXPLORATION 11/13/2010

Come join us on November 13 as we explore the remnants of the ruins of the St. Francis Dam that failed catastrophically in March of 1928, resulting in the deaths of approximately 450 people. We will be reviewing the geological setting of the dam site and potential causes for the failure while contextualizing the history of the dam within the history of the growth of Los Angeles. As we get closer to the day of our trip, those of you who respond will be provided with some materials to review before the hike and exploration. We encourage you to visit our facebook page (Geologists Drinking Beer) and respond there. Please, forward this announcement and invite your friends and other geo-friendly folks.



The hiking will be moderately strenuous and may total up to 4 miles depending on what you plan to do. The site is approximately 10 miles north of Santa Clarita along San Francisquito Canyon Rd. A map will be provided to those who reply. A forest service adventure pass is required for all vehicles, so please bring one. If you do not know how to get one please contact us ahead of time so we can work out a purchase agreement. Carpooling is recommended. We will be following up the reconnaissance by returning to a local watering hole in Orange County.

We will meet onsite at 10 am on 11/13/2010. Cell phone reception is generally terrible in the canyon so

please remember to print out your directions. Beers to follow at: TBD. Things to bring: Sturdy Shoes, Plenty of Water, Forest Service Adventure Pass, Camera, Sunscreen.

Helpful Links:

Wikipedia: http://en.wikipedia.org/wiki/St._Francis_Dam

USGS photo tour : http://libraryphoto.cr.usgs.gov/cgi-bin/search.cgi?search_mode=noPunct&free_form=St.+Francis+Dam+Flood

Dr. J David Rogers website documenting much of what we will see

http://web.mst.edu/~rogersda/st_francis_dam/

We look forward to seeing you there!

Jeff Miller

Everything you wanted to know about Plio-Pleistocene vertebrate paleontology but were afraid to ask!



The **Anza-Borrego Desert State Park Paleontology Society** is starting a new training program for volunteers interested in looking for and conserving Park fossils. The first meeting and orientation will be held 8am to 3pm on Friday, November 12th. Meet at the Anza-Borrego Desert State Park Visitor Center, 200 Palm Canyon Drive, Borrego Springs. The program consists of weekly classes, fossil curation, laboratory preparation workshops and field surveys each Friday through May.

Attend the first meeting or contact District Paleontologist George Jefferson at (760) 767- 4974 to register. Visit www.anzaborregopaleo.org for more information. -Linda Gilbert, Paleo Society Volunteer

November 7, 2010 One Stop Wonder- Postponed

The One Stop Wonder to Lakeside's San Diego River restoration project site on Sunday, Nov. 7 has been postponed. No replacement trip has been announced for the date, but stay tuned. Sorry!

MEETINGS AROUND THE REGION:

Inland Geological Society: 1 December 2010 (Wednesday): "Haiti Earthquake Groundmotion," Susan Hough, USGS. LSA Associates, 1500 Iowa Ave., Riverside. For more info go to <http://www.inlandgeo.org/>.

San Diego Environmental Professionals: 9 November 2010, 12 pm (Tuesday): "Why the USGS is Drilling Deep Monitoring Wells in an Area of Little Groundwater", Wes Danskin, P.G., C.H.G., USGS. Holiday Inn - Mission Valley Stadium, 3805 Murphy Canyon Road, San Diego. For more info go to <http://www.sdep.org/>.



AEG—Inland Empire Section: 10 November 2010 (Wednesday): "Martis Creek Dam -The Discovery of a New Capable Fault in Tahoe Basin", Bruce Hilton, Kleinfelder, Sacramento, CA and President of the Association of Environmental & Engineering Geologists. University of California - Riverside, Riverside, CA Earth Sciences Department Courtyard. 5:00 - Social 6:00 - Dinner 7:00 - Speaker. For more info go to <http://www.aegsc.org/chapters/inlandempire/meetings/index.php>.



SME-Southern California Mining Section: 16 November 2010 (Tuesday):

"Extracting rare-earth minerals at the Molycorp Mountain Pass Mine", Mark A. Smith, CEO, Molycorp, Denver, CO. Pomona Valley Mining Co. Restaurant, 1777 Gillette Rd., Pomona. 6:00 - Social 6:45 - Dinner 7:30 - Speaker. \$30. For more info go to

<http://www.smenet.org/southerncalifornia/SMENewsletterNov2010.pdf>.



Sunbelt Publications Annual Holiday Party, Thursday, December 2, 2010, 5-8:30 pm

Join us at **December Delights**, the 26th annual Sunbelt Holiday Party. It will be an evening of great reads, great eats and spirits, and most importantly great discounts. Presentations by the authors of newly released and soon to be released books are scheduled hourly. Warehouse discounts from 30 to 70 percent will be available all day. **RSVP** by Tuesday, November 30th at marketing@sunbeltpub.com. For more info go to <http://www.sunbeltbook.com/events.asp>.

FOOD | FRIENDS | BOOKS | RAFFLES | DISCOUNTS



Save The Date!

Sunbelt's Annual Holiday Party:

Thursday, December 2nd, 2010,
5-8:30 pm.

A once yearly opportunity to listen to the authors of newly published books, sample cookbook recipes, enjoy the company of your neighbors, and get amazing discounts on a whole warehouse full of books.

Shop the Warehouse M-F, 8-5 Any Time of Year
Sunbelt Publications | 1256 Fayette Street | El Cajon | CA | 92020



www.SUNBELTBOOKS.com



Register Now

To save \$200 off the Standard Event Registration Fee
Early Registration Ends November 9

The Nielsen Environmental Field School is very pleased to announce that the complete schedule of presentations for the **2011 North American Environmental Field Conference & Exposition** is now posted on the event web site at www.envirofieldconference.com. This annual Conference, which will be held in San Diego, CA for the first time, is presented by The Nielsen Environmental Field School and sponsored by the American Institute of Hydrology, the American Institute of Professional Geologists, ASTM International, the Groundwater Resources Association of California, H & P Mobile Geochemistry, Schlumberger Water Services, Princeton Groundwater, and CRC Press/Taylor & Francis Publishers. Past events have attracted more than 1700 environmental professionals from around the world. Representatives from 19 different countries attended the 2010 Conference in Tampa, Florida.

The Conference, which will be held **January 10-13, 2011** at the **Hilton San Diego Resort & Spa** on Mission Bay in San Diego, California, features a unique combination of presentations focused on the theme of the meeting, "Advances and Innovations in Environmental Site Characterization, Sampling, Monitoring and Remediation Technology", including:

- A Conference featuring 58 invited platform papers discussing cutting-edge field-based environmental technology presented by the world's leading experts in their fields;

- A special platform paper session featuring an additional 9 papers on the response to the Gulf of Mexico oil spill;
- More than 75 hours of interactive indoor workshops presented by the field's top researchers and practitioners;
- More than 30 hours of hands-on, interactive outdoor workshops and equipment demonstrations featuring the latest environmental field methods and equipment; and
- An educational Exposition featuring 59 indoor and outdoor exhibits of state-of-the-science environmental equipment and services.

Detailed information on the Conference schedule, event registration and hotel accommodations can be found at the event web site or by e-mailing The Nielsen Environmental Field School at info@envirofieldschool.com.

Contact:

David M. Nielsen, Event Coordinator

The Nielsen Environmental Field School

9600 Achenbach Canyon Rd.

Las Cruces, NM 88011

Phone: (575) 532-5535, Fax: (575) 532-5978, e-mail: info@envirofieldschool.com

SDSU GeoAlumni invite you to help beautify our section of Sunrise Highway on November 6, Saturday morning!!!



Join the SDSU geology alumni group for a few hours of maintenance (trash pick-up) along the Sunrise Hwy east of Cuyamaca Lake. Once again our section of road is due for trash pick up. We meet at the intersection of Hwy 79 and the Sunrise Highway just north of Cuyamaca Lake for a couple hours of pick up and then to Julian for lunch. **SATURDAY MORNING, NOV. 6, 9AM.** If you would like to join us bring gloves, safety vest, trash grabber, hat, and water. Contact Mike at mwhart@aol.com to sign up or for details.

COMMERCIAL BUILDING SPACE AVAILABLE in El Cajon

Convenient to Freeways 1-8, Hwys 52 and 128. 6250 sq. ft. warehouse with two remodeled offices in front. Contact Terry Cochran at Sunbelt Publications 619-258-4911 x110 for details.

Excursion to the Past, Sunday, Nov. 21st

Visit the Old West as you travel to remote historical locations with acclaimed author and publisher Diana Lindsay. The seven-hour on and off-road tour includes autographed copies of her book, "The Ghost Mountain Chronicles." Go to the California Overland Desert Excursion website for details: <http://www.californiaoverland.com/>.



SEEKING JOB OPPORTUNITIES!

Brian J. Olson, PG, CEG: Registered engineering geologist with 13+ years of experience in the geotechnical consulting business is seeking a new opportunity. Excellent in the office and even better in the field. Too many skills to list here. B.S. in Hydrologic Science/ Geology from UCSB, 1996. Detailed work experience, resume, and references available upon request. brianjolson@att.net (858) 750-9243.

Jared Warner: I am a graduate of San Diego State where I received both my B.S. and M.S. in geological sciences ('06 and '09). I have experience in multiple fields including production geology, fractured reservoirs, reservoir characterization, basic geologic model building, geophysics, paleontology, sedimentology, oceanography, and teaching. I've recently moved back down to San Diego after working for Occidental Petroleum and looking for immediate employment opportunities. For information on my research, contact information, or a resume please feel free to contact me at jared.j.warner@gmail.com or call me at (858) 692-3789.

JOB OPENINGS!

Paleontological Field Monitor Position: The Department of Paleontology at the San Diego Natural History Museum has openings for paleontological field monitors. Both a full time position with benefits and part time temporary positions (without benefits) are available. All work is funded through contracts. Work will include field monitoring of construction-related exposures of potentially fossiliferous sedimentary rocks (Cenozoic and upper Mesozoic marine and/or non-marine rock units) in the Southern California region. Field monitors will be expected to collect exposed fossils and record relevant stratigraphic and taphonomic data. Opportunities for fossil preparation are also possible. Depending on experience, the field monitor may also be involved in preparing final reports of findings. Must be able to lift at least 50 lbs and have a valid Driver's License.

Requirements: A minimum of a B.S. in geology or a related discipline with an emphasis in paleontology. Experience in field paleontology and stratigraphy is preferred. Salary is dependent upon the applicant's experience. For general information about our paleontology mitigation program, please visit <http://www.paleoservices.org>

Start date: 15 November 2010

Please mail or email resumes to:

Melissa Soetaert (paleo@sdnhm.org; 619-255-0309)

Department of Paleontology
San Diego Natural History Museum
P.O. Box 121390
San Diego, CA 92112-1390