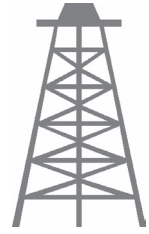


Pacific Petroleum Geology



NEWSLETTER

Pacific Section • American Association of Petroleum Geologists

November & December 2011



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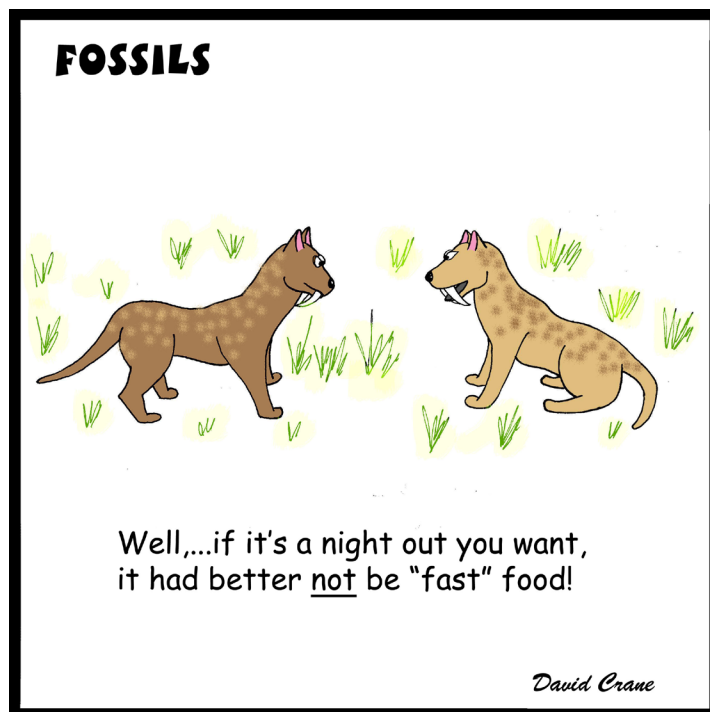
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Cover photo: El Capitan, Yosemite National Park. Photo submitted by the editor.

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Are we missing something?

Last night at the Coast Geological Society meeting, I had a conversation with Dr. Bob Gray of Santa Barbara City College (AAPG Grover E. Murray Memorial Distinguished Educator). The conversation centered on the fact that the Community Colleges are one of the major cradles of geologists. Many of us were molded and subducted into the fascinating world of geology in these formative early years. The Community Colleges provide a significant number of geology majors to the four-year colleges and universities.

I was enticed into geology by my first geology teacher at Pasadena City College. PCC had a dynamic program that was one of the best in the Community College System (some of you call them Junior Colleges). While there, I took Physical, Historical, Paleontology, a full year of Physical and Chemical Mineralogy, and numerous field trips. The Dana Club was a very active geology group. H. Stanton Hill (H2S) had a list of hundreds of his students who went on to be geologists. Many of them are leaders in the field.

I can count many among you that went through my geology department at Saddleback Community College. One of the keystones of Saddleback was the field classes that introduced students to the fascinating geology of the south-western United States. Some of you were on top of Mount Whitney, Half Dome, the Temples of Zion, and to the depths of the Grand Canyon with me.

Why did Bob Gray of Santa Barbara City College (SBCC) receive the AAPG's prestigious Grover E. Murray Memorial Distinguished Educator award? Simply stated, he deserved it. He is the first Community College educator to get this award. How many educators can count over 600 of their students that went on to receive degrees in geology? That's a dozen for every year that he taught. SBCC is a major contributor of geology students to UCSB and other 4-year schools nationwide. Bob and his colleagues have built his geology department to six full time geologists with over 20 AAPG student members in any given year (33 one year). The SBCC undergraduate program rivals the undergraduate program of many four-year schools. They have an intensive geology field-mapping program with a 6-week summer field camp.

I could go on to cite many other Community College programs that feed a significant number of geology students into the system. There are many.

How do we reach out to these students in the early days/years of their career? They are worth reaching. Perhaps this is a task that could be taken up by the active student. Also, those of us in teaching positions or with contacts at a Community College, or who attended a Community College should make an effort to contact these schools. We need to think some more on this subject. Any suggestions?

Also, in the last issue I left you hanging here with the thought: What can I do to get my colleagues involved and into the AAPG. Then I asked you to act on your thoughts with the idea that we can make this effort work.

In the next few weeks I will be contacting many of you at various companies and schools with a list of your colleagues that are Active and Associate members of AAPG National. Of course, any colleague that is not on the list is probably not an AAPG National member. Your charge (enlist other AAPG colleagues to help) is to approach the Associate Members and try to get them to become Active Members, and to try to get those that are not members to join AAPG National. I will help with sponsor letters if necessary. This can become a significant membership drive. Of course we can also work on improving PacSec membership.

John Minch, President, Pacific Section AAPG

Regulatory Anxiety Is Nothing New

Oil field news in California recently has focused on the issue that companies have had in obtaining permits from the California DOGGR (Department of Oil, Gas, and Geothermal Resources), and the resulting fallout, with the removal of the DOGGR oil and gas supervisor and director of the Department of Conservation. The industry situation in California reflects the national discussion around government revenue, job creation, and regulation of private industry.

While the current position of the energy industry highlights the downsides of regulation (e.g., unnecessary delays and stifling job growth), it is sometimes enlightening to look back at how positions have evolved to their current state. While a comprehensive review of this subject is a bit much for this page, it may be of interest to remind ourselves as to how some of the very first state and federal regulations of the oil and gas industry came about. Although it may seem counterintuitive, the first government regulations were put in place in Texas in the late 1920s, at the direct request of some oil and gas producers. In its pleas for government intervention, the president of Humble Oil stated “the only solution of the trouble of the oil industry is in government control and help ... The industry is powerless to help itself.”* The issue at the time was that an overabundance of production as new fields were discovered and brought on line drove prices so low that production was often uneconomic, and huge amounts of reserves were left behind as initial flush production rapidly lowered reservoir pressures. Government supervised “voluntary” limits on production were gradually welcomed as a stabilizing influence. Obviously, the relationship has undergone many changes in the intervening eight decades. This is most likely because striking a balance between development and conservation of natural resources, and building government revenues and creating jobs versus thorough oversight of activities on public lands are difficult issues, often debated by those who have more information on public opinion poles than on the details of energy production.

The major lessons may be; first, be careful what you wish for, and second, the industry-government relationship works best as a cooperative partnership, rather than as an adversarial showdown. Hopefully, the new leaders of California’s regulatory agencies will be of that opinion.

* Quote from W.S. Farish, president of Humble Oil, in Roger Olien and Diana Hinton, *Wildcatters: Texas Independent Oil Men* (College Station, Texas A&M University Press, 2007), p. 45.



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Age dating and environmental determinations of the LA Basin, the Ventura Basin, the San Joaquin and Sacramento sections, as well as the Alaskan Cook Inlet and Post Paleozoic North Slopes section

The Lake Piru, Ventura County, California Body Recovery or Recovery by Geology

The time frame for this tragedy and recovery is early in the nineteen sixties. I was a member of the *Kelp Kats* of Ventura County dive club. As such, we were at times called upon to find and recover drowning victims from the lakes and shallow ocean waters of Ventura County. We were an unsworn, ex-officio group attached to the Ventura County Sheriffs Rescue Squad. As such, we took training in related matters including delivering babies, recognizing drug induced poor behavior, resuscitation, first aid, communication, and other things that I, fifty or so years later, forget. I can't forget Lake Piru.

It was a Sunday afternoon, and I was at the local dive shop getting a refill of my dive tanks, after a day of some deep diving off Anacapa Island, offshore Ventura County. A call came to the shop asking for all divers to be transported to Lake Piru to recover a drowning victim.

On arrival at the lake my dive partner and I found that there were ten other teams of divers, either in the water or ready to go. The Sheriff wanted divers to do the recovery to avoid the sometimes lengthily and usually horrifying results of body recovery by grappling hooks. Here is where my training and experience in geology, geomorphology, topographic map reading, and physiographic map making combined to be useful to others.

I asked the attending ranger for a map showing the bathymetry of the lake and the surrounding topography. It was at hand. We then started finding out what had happened, in order to estimate the spot where the victim had gone down. The victim was in a rowboat with a group of five children. A power boat came too close at high speed and tipped the boat, throwing him into the water. Talking to the children established that all of the children had life jackets including the one that the victim had shared with an observant little boy. We asked "How was he dressed?" His reply: the victim was wearing 'blue jeans, a thick oily jacket, and thick-soled, knee high rubber boots'. Conclusion - he went down like a brick.

Where was the boat when the victim went over the side? My partner and I quickly discounted the recollections of the nearby boaters, whose arm waving was all over the south end of the lake, and no two agreed. However, there were three people on the dock who saw the accident. I asked if they could point to a line of sight to the accident and what they saw on the horizon. They all agreed that the boat was closer to the opposite (east) side of the lake than the dock, and right in line with the top of a prominent mountain that was some distance to the left (north) of the Santa Felicia dam.

The lake is surrounded by steep mountains; therefore the bottom would be steep and narrow as confirmed by the bathymetry. We then had one line of sight that we could follow. Where to dive on that line was the next question. The depth contours showed the course of the stream that the earth fill dam was blocking. I noticed that the point where the bottom of the stream crossed our established line of sight (west to east) was also in a line of sight (north to south) with the left (east) end of the dam, and a prominent point of land that stood out from the peak of the easterly mountain that we were to sight on. Now we had a point of entry. I also had a picture in mind of what we would see when we got there. That image dated from my time as a cartographer working for the Department of Soils and Survey for the State of Washington.

While there, I drew physiographic diagrams (see Erwin Raisz for examples) of counties as seen from an imaginary point in space. They were used as the covers of soils folios. This is something else that geologists do!

My diving partner (Bill Pollard) and I were boated to the chosen spot and we entered the water. I set the time on my diver's watch (we both had been to 100' below sea level twice that day) and in the 70 feet of fresh water plus the elevation of the lake (1050' elevation spillway), decompression was now a factor. We went to the bottom where there was a pale grey yellowish glow in the mixed clay and silt colored water. Our hands were not visible. Holding ten feet of rope between us, we started down the narrow stream bed. Three minutes into the dive we ran into him, he was still tumbling toward the dam. It was the right victim, boots, jacket and all. Using a flotation device, we rapidly raised the body to the surface. Total dive time was five and one half minutes. No real worry with decompression. The body was recovered and the family survivors had some peace and closure. The ganged grappling hooks were reloaded and sent away. A newly anointed pair of believers in boating safety went back to our lives to try, unsuccessfully, to forget staring into those pale blue, unseeing eyes.



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Your Pacific Section AAPG Foundation

The Pacific Section AAPG Foundation was chartered in 1999 as a 501 (c)(3) organization in California. Its members are all the members of the Pacific Section AAPG. It has seven trustees which include five elected trustees and two ex-officio trustees who are the current President and the Senior Treasurer of the Pacific Section AAPG.

The Pacific Section AAPG Foundation was formed for two reasons: to conduct the educational business of the Pacific Section AAPG, and to provide a vehicle for donation to our causes for individuals who are unable to or prefer not to deduct those donations as business expenses.

The Foundation is run by its trustees. It is and must operate independently of the Pacific Section. The Foundation's educational support goals are, however, closely aligned with those of the Pacific Section AAPG, and the largest donor to the Pacific Section AAPG Foundation is the Pacific Section itself.

The Pacific Section AAPG Foundation's educational initiatives are largely focused on geology in general, and more specifically, petroleum geology. The Foundation has assisted students in attending Pacific Section AAPG and national AAPG conventions, provided support for recipients of the AAPG's teacher of the year awards, provided funding for Pacific Section publications, supported the annual Imperial Barrel competition, supported publication of the Dibblee geologic maps, and purchased a keystone fossil exhibit for the Buena Vista Natural History Museum.

Funding for the Foundation comes from check-offs on the Pacific Section AAPG dues card, an annual appeal by the Foundation for donations, the occasional distribution of surplus funds that the Pacific Section AAPG has accumulated in excess of monies required for their operations, occasional distribution of surplus funds from other geological organizations, such as the SJGS or LABGS, and larger individual and estate donations. In addition, the Pacific Section AAPG Foundation has for a number of years solicited geologic books for the purpose of selling those books at the Pacific Section AAPG conventions to fund our educational initiatives.

Mark L. Wilson

Pacific Section AAPG Foundation Chair

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Applying Improved Methodology to Produce Kern River's Remaining 1.5 Billion Barrels

With daily Chevron net production of 73,500 BOPD (3rd Quarter 2011 average), Kern River Field is the single largest producing asset in Chevron North America. Since its discovery in 1899, the Kern River Field, with an estimated 3.5 billion barrels of OOIP, has produced over 2.0 billion barrels of oil (Figure 1). Most of this oil is heavy and has been produced with vertical wells through a combination of primary and thermal enhanced recovery in the shallow Kern River formation.

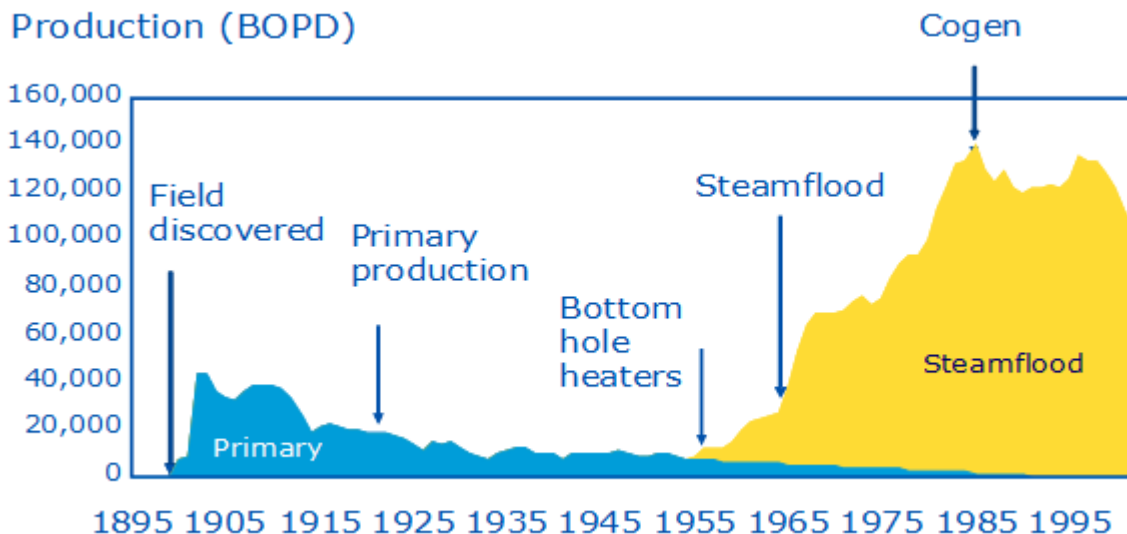


Figure 1: Kern River Production through time and major technologies and methodologies used along the way.

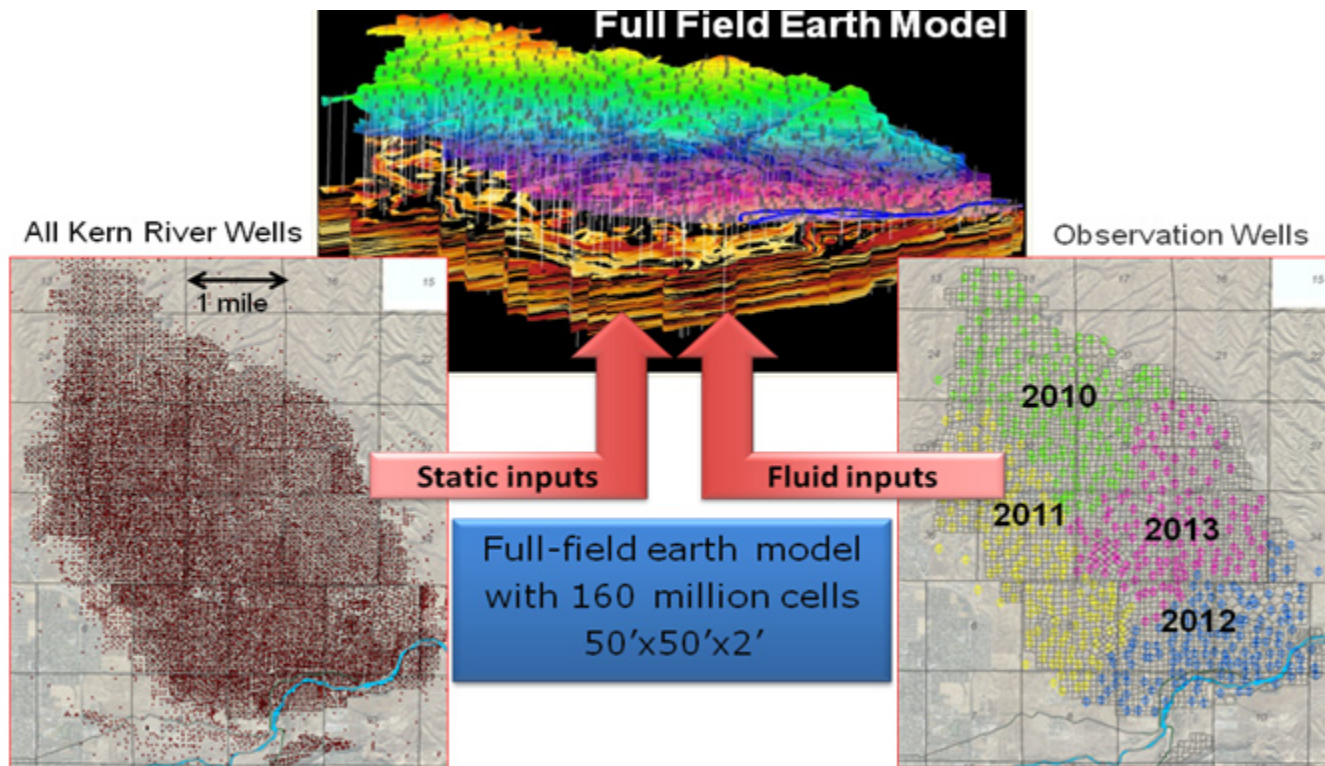


Figure 2: Kern River well log data (static and dynamic) are incorporated into the Full-Field geologic model for full reservoir management.

To sufficiently monitor remaining oil and reservoir conditions, surveillance wells have been drilled and are logged on a regular basis. These data are integrated into a lithologic framework to create a full-field 3D earth model (Figure 2). This earth model, one of the largest in our industry, forms a basis for Kern River reserves estimation, new opportunity identification and prioritization, and depletion monitoring. This 3D model has also illuminated the remaining incremental oil opportunities available – prime targets for horizontal infill wells. In hopes of mitigating field-wide production decline, Kern River has placed an emphasis on drilling horizontal infill wells. Horizontal wells are able to target the remaining oil at the base of single sands.

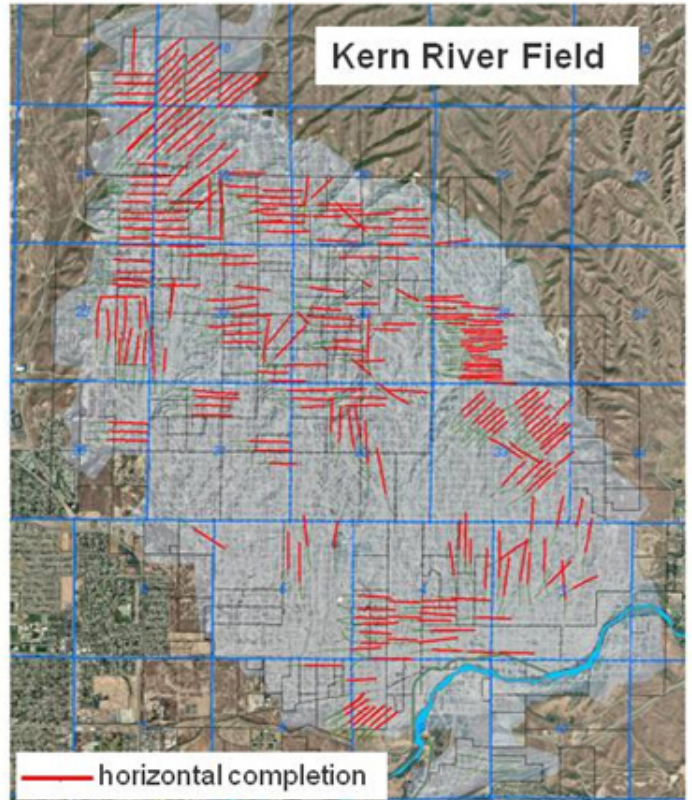
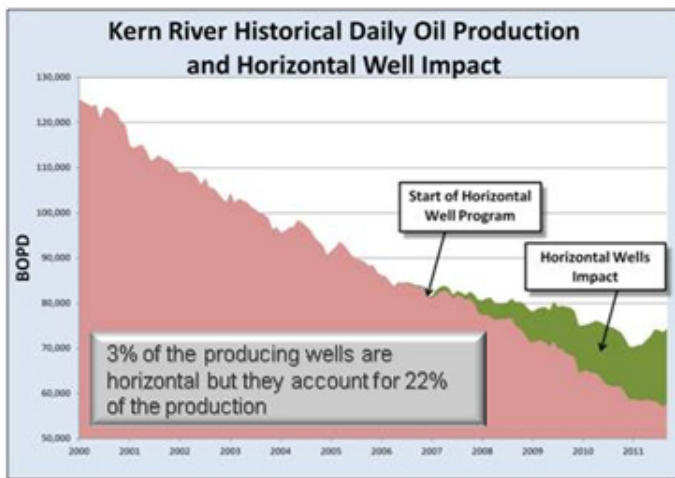



Figure 3: Kern River horizontal well program – on right, location of the wells throughout the field; on the left, impact of horizontal well production on the field's declining production.

As of September 2011, the almost 300 horizontal wells are producing over 16,000 BOPD and have cumulatively produced nearly 5 million barrels of oil (Figure 3). One well, producing 650 BOPD, is the largest producer in the history of the field. While there are numerous technical challenges in drilling horizontal wells in shallow, unconsolidated sediments, advances in drilling technology and methodology have enabled drilling of the shallowest horizontal wells in Chevron, opening up further remaining opportunities.



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THE TOM DIBBLEE GEOLOGIC MAP PROJECT IS COMPLETE

ALL 419 MAPS ARE AVAILABLE IN DIGITAL AND PAPER FORMATS

The USGS's **National Geologic Map Database** project lists the Dibblee Maps in their catalog by map description with order information. Shortly they will be adding high quality Geo-referenced TIFF files to each catalog/map entry for previewing through a special viewer. This will allow zoom capabilities and a search by coordinates. The maps cannot be downloaded, however, links to the AAPG Datapages and Dibblee Museum sales will be included.

The AAPG is featuring Tom's maps in digital format in the **Datapages** section on their web site for downloading as georeferenced, layered PDF files by end users. The entire Dibblee Geologic Map Collection is now available for purchase on the *Datapages*. In addition, the high quality, Geo-referenced TIFF files from the NGMD will be available for purchase on the *Datapages*. Paper maps are still available for purchase on the Santa Barbara Museum of Natural History web page.

GIS Dibblee Maps and Other Uses - Blocks of the Adobe Illustrator Dataset as CS4 .ai files can still be purchased. Data in this set is in an unrestricted layered format to allow the user to examine and manipulate the data, and to incorporate it into their dataset. We are also currently able to seamlessly combine contiguous maps and convert Dibblee files into a variety of GIS formats. Inquire about these conversions at <jmainc@earthlink.net>

Jason and I have been vigorously soliciting funds to digitize the final maps of the Dibblee Collection that were prepared by hand. In order to accomplish our goal we went out on a ledge and finished the maps without securing the final funding. At this point we are only \$50,000 short of paying for the digitizing of the last of the maps. I am asking for you to consider helping us to obtain funding for all or part of the final funding. Help us to finish this project. This can be accomplished in several ways. Of course an outright gift is acceptable, however, the purchase of a dataset or special purchases of CS4 .ai files will help to reimburse the museum for the completion of the final maps.

John Minch, Emeritus Editor, Thomas Dibblee Jr. Geological Center jmainc@earthlink.net

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Stanford University Geologic Studies of the San Joaquin Basin, 1980-2010

Stephan A. Graham, W.J. and M.L. Crook Professor
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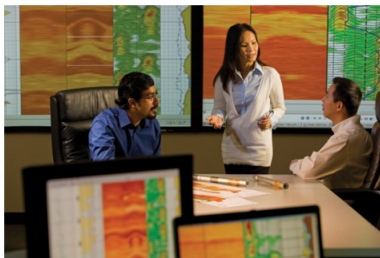
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Alaska Geological Society

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Contact: Tom Morahan
907.230.1672



Luncheon meetings are held monthly September through May, usually on the third Thursday of the month, at the BP Energy Center (1014 Energy Court) from 11:30 a.m. to 1:00 p.m. The hot lunch cost is \$20 for members with reservations; \$22 for non-members with reservations; and \$25 without reservations. The box lunch cost is \$13 for members with reservations, \$15 for non-members with reservations, and \$18 without reservations. For reservations, call the AGS reservation voice mail at 907-258-9059 or contact David Hite at hiteconsult@acsalaska.net by noon on Monday before the meeting.

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Coast Geological Society

www.coastgeologicalsociety.org

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Contact: Mike Nelson
805.535.2058



Dinner meetings are held monthly September through May, usually on the third Tuesday of the month, at the Poinsettia Pavilion, 3451 Foothill Road in Ventura. Social hour starts at 6:00 p.m., dinner is served at 7:00 p.m., and the talk starts at 8:00 p.m. The cost of dinner with reservations is \$20 (members), \$25 (non-members), or \$10 (students and K-12 teachers); the talk is free. For reservations, please email Jerry Nichols (secretary@coastgeologicalsociety.org). Reservations should be made by 4:00 p.m. on the Friday before the meeting.

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Los Angeles Basin Geological Society

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213.225.5900 x 205



Luncheon meetings are held monthly September and October; and January through June, usually on the fourth Thursday of the month, in the Monarch Room at The Grand at Willow Street Conference Centre (4101 E. Willow Street) in Long Beach. Lunch is served at 11:30 a.m., and the talk starts at 12:15 p.m. The cost is \$20 (with reservations), \$25 (without reservations), or \$0 (students are covered by Halliburton and Schlumberger). Reservations can be made online at www.labgs.org or by contacting Marieke Gaudet at 562.624.3364 or marieke_gaudet@oxy.com. Reservations must be made prior to Tuesday before the meeting.

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Evening meetings are held monthly September through May, usually on the last Wednesday of the month, at the Masonic Center (9 Altarinda Road) in Orinda. Social hour starts at 6:30 p.m., and the talk starts at 7:00 p.m. (no dinner). For reservations, contact Dan Day at danday94@pacbell.net before the meeting. Cost is \$5 per regular member; \$1 per student member; and \$1 per K-12 teachers.

<p>Northwest Energy Association www.nwenergyassociation.org</p>	<p>P. O. Box 6679 Portland, OR 97228-6679</p>	<p>Contact: <i>Tim Blackwood</i> 503.656.0156</p>
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Breakfast meetings are held monthly September through May, usually on the second Friday of the month, at the Multnomah Athletic Club (1849 SW. Salmon Street) in Portland. Meeting time is at 7:30 - 9:00 am. The cost is \$18. For information or reservations, contact Steve Walti.

President	Tim Blackwood	tblackwood@pacificgeotechnicallc.com
Treasurer	Steve Walti	steven.walti@nwnatural.com

<p>Sacramento Petroleum Association</p>	<p>P. O. Box 571 Sacramento, CA 95812-0571</p>	<p>Contact: <i>David Hartley</i> 530.304.4277</p>
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Luncheon meetings held monthly January through November, on the third Wednesday of the month. Location: Club Pheasant Restaurant in West Sacramento. The meetings starts at noon. The cost is \$16 - \$20. For information or reservations, contact Pam Ceccarelli.

President:	Jerry Reedy	916.486.2643	JWR5532@aol.com
Vice-President:	David Hartley	530.304.4277	drilmax1@aol.com
Secretary	Derek Jones	916.859.4710	djones@gasbiz.com
Editor/Treasurer	Pam Ceccarelli	916.439.0400	pc626@comcast.net

<p>San Joaquin Geological Society www.sjgs.com</p>	<p>P. O. Box 1056 Bakersfield, CA 93302</p>	<p>Contact: <i>Tim Elam</i> paselam@peoplepc.com</p>
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We have dinner meetings on the second Tuesday of the month at the American Legion Hall at 2020 "H Street" in Bakersfield. There is an icebreaker at 6:00 pm, dinner at 7:00 pm, and a talk at 8:00 pm. Dinner is \$20.00 for members with reservations and \$25.00 for nonmembers, \$25.00 for members without reservations and \$30.00 for nonmembers without, and the talks are free.

President:	Tim Elam	paselam@peoplepc.com
Past President:	Jack Grippi	JGrippi@aeraenergy.com
President-Elect:	Jeff Gartland	Jeff_Gartland@oxy.com
Vice-President:	Stephano Mazzoni	Stephano_Mazzoni@oxy.com
Secretary:	Ariel Auffant	AAuffant@chevron.com
Treasurer:	Kathy Smith	kathysmith@pacseis.com

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- Avoid clip-art and images from the internet. These images are low-resolution (72 dpi).

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Newsletter Deadline

January & February Issue

January 1st

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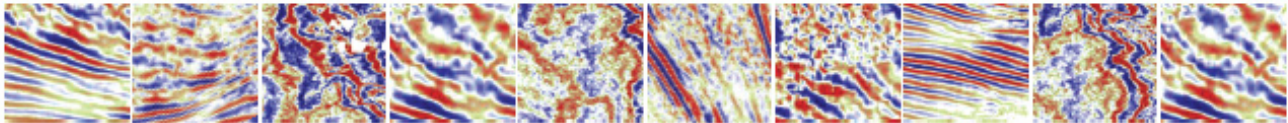
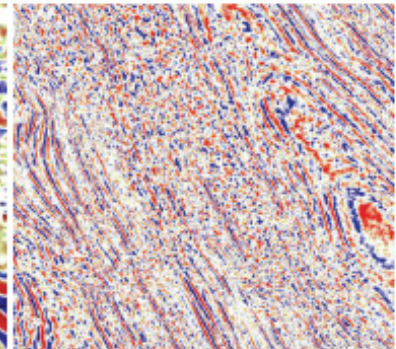
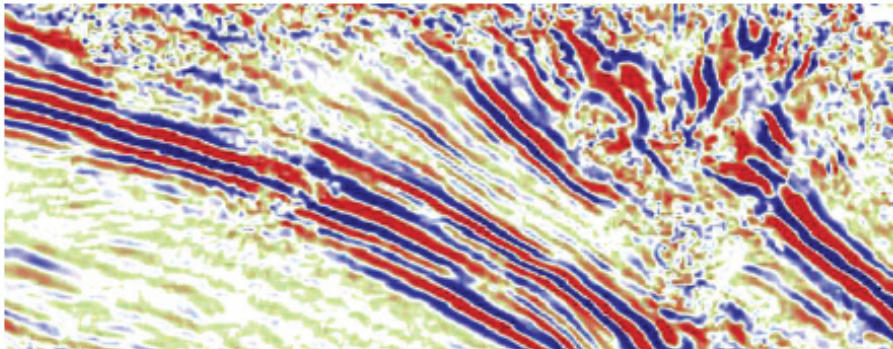
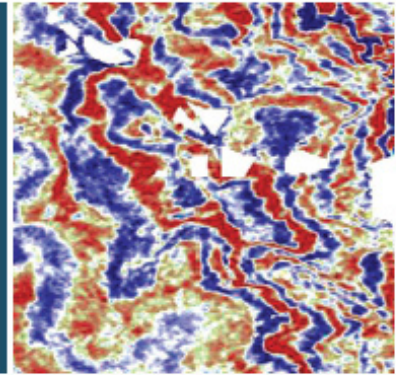
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