



April 2007

Los Angeles Basin Geological Society Newsletter

April 26, 2007 Meeting: Kristin Hepper of UC - Riverside

PS-AAPG 2006 Grant recipient will speak on

Paleoecological Analysis of New Great Valley Group Hydrocarbon Seep Localities

Speaker Synopsis / Abstract

Throughout the Late Mesozoic (Late Jurassic to Latest Cretaceous), the western North American continental margin was a dynamically evolving fluid-tectonic-biotic system that consisted of an eastward migrating volcanic arc, a westward migrating subduction zone, and a forearc basin that opened in between the two. Throughout this 85 Ma period, organic and siliciclastic detritus from the surrounding Sierra Nevada and Klamath Mountain Ranges was deposited on the basin floor via deepwater turbidites. Today, these sediments are collectively known as the Great Valley Group (GVG) forearc strata and crop out in northern and central California, from Redding to Santa Barbara (~700 km). The GVG hosts an uncommonly high concentration (~23) and temporal distribution of concurrently deposited (deposited over 85 Ma) petroliferous and variably fossiliferous white limestone; however, limestone rarely forms in deepwater environments and its presence cannot be explained by the deepwater depositional settings that controlled turbidite deposition during this tectonically active period.

To date, four of the GVG limestone outcrops have been studied in detail, including their geotectonic, petrographic, paleontologic, and isotopic context (e.g., Campbell et al., 2002; Hepper, 2004). These studies included limited paleontology and no paleoecology and have been interpreted as hydrocarbon seeps. Since these initial studies were performed, approximately nineteen new GVG limestone outcrops have been identified. They range from a few meters to hundreds of meters across and have variable exposure as discrete lenses of limestone eroding out of a hillside or creek bed, as small to medium-sized mounds, and as extensive and continuous *in situ* outcrops.

The origin of the nineteen new localities has not been established; therefore, the first objective of this study is to test the hypothesis that they are hydrocarbon seeps using means independent of their associated macrofossil communities, since some seep fauna can live in numerous environments (i.e., lucinid bivalves and worm tubes). This objective will be accomplished by initially compiling a detailed physical and chemical framework for each locality through field reconnaissance and sample collection, followed by testing each against four sedimentological and geochemical criteria diagnostic of hydrocarbon seeps.

If the null hypothesis is false, the depositional setting of the nineteen localities must first be established followed by a comparison between the non-seep and seep limestone. If the

null hypothesis is not falsified, the next objective will be to establish the paleoecological signature of each locality using standard paleoecological measures such as species richness, relative abundance, and diversity to test the hypothesis that hydrocarbon seep variability, including paleontological and geochemical variability, is predominantly the product of local factors.

Cumulatively investigating the life histories of these largely unstudied and uncharacterized outcrops offers the unique opportunity to document the evolution of their paleoecological and geochemical signatures, despite temporal and spatial segregation. With continued identification of new localities, the GVG depositional system can be viewed collectively as a temporally continuous dynamic system, with the potential to reveal larger evolutionary, biogeographic, geotectonic, geochemical, and paleoecologic patterns of hydrocarbon seep processes and associated faunas through geologic time.

Kristin Hepper is a third year PhD student at the University of California, Riverside, studying under Dr. Mary Droser. Her undergraduate work was performed at the University of California, Davis and resulted in a BS in Anthropology and a minor in geology in 2001. From 2001 to 2004, her MS work was done with Dr. Lisa White at San Francisco State University and focused on the identification and description of a previously unknown hydrocarbon seep locality cropping out in Napa County.

Kristin's research at the University of California, Riverside is a continuation of her MS work, although on a much larger scale. She is addressing the large scale spatial and temporal patterns of hydrocarbon seep distribution and the composition of their faunal communities throughout the evolution of the western North American margin from the latest Jurassic through the Cretaceous. Thus far her research has yielded at a minimum of twenty limestone localities, many of which have extensive faunal communities. These communities are highly variable although how these localities were established and why they were inhabited by their specific faunal communities remains unknown. Her work will establish whether there is a link between faunal composition outcropping today and the physical or biological environment in which they formed. She will address this on a scale that spans 700 km and 70 Ma.

Meeting Time, Place, Cost and Reservations

Time:

Thursday, April 26, 2007

Typical Meeting Agenda

Lunch Served: 11:30 AM to 12:00PM

Announcements: 11:50 AM to 12:15 PM

Guest Speaker: 12:15 PM to 12:45 PM

Place:

The Grand at Willow Street Conference Center located at 4101 East Willow Street, Long Beach, CA. (562-426-0555). Take Lakewood Boulevard south from the San Diego Freeway (405), turn west onto Willow Street and turn right onto Grand Avenue at the sign for the Center. Park free in the garage structure.

Cost:

**Lunch and Speaker: \$20.00 with reservations
\$25.00 without reservations**

Student: FREE (Lunch and Speaker)

Meeting Reservations:

Make your reservations using our web site at www.labgs.org, emailing iaburto@breitburn.com or calling Ivan Aburto at (213) 225-5900 ext. 234.

Reservations must be made prior to Tuesday before the meeting, but walk-ons are always welcome.

Upcoming 2007 Speaker Schedule

April 26, 2007 – The speaker this month will be Kristin Hepper speaking on “**The Evolution of Great Valley Group Hydrocarbons**”. Ms. Hepper is a UC-Riverside student given a grant by the Pacific Section AAPG for her work on this subject.

May 24, 2007 – The speaker next month will be Dr. David K. Lynch speaking on “**Traveling the San Andreas Fault – from Los Angeles to San Francisco**”.

If you have a speaker suggestion, please mention it to a Board member !!

AAPG – National

Policy Statement: Climate Change Policy

The American Association of Petroleum Geologists, an international organization of over 30,000 earth scientists, supports expanding scientific climate research into the basic controls on climate, specifically including the geological aspects of climate change. This research should be undertaken by appropriate federal agencies involved in climate research and their associated grant and contract programs. Such support includes major research efforts into potential effects of decreasing as well as increasing temperatures and the mitigation of such effects. This research is important to sustain the ability of agriculture to feed the growing global population as well as to understand the effects of a colder climate upon society.

Geologists who study past climate variations understand that current climate warming projections fall well within documented natural variations in past climate. Therefore, for scientific reasons, the American Association of Petroleum Geologists does not support placing a carbon tax upon fossil energy sources as a tool to reduce carbon dioxide emissions, nor do we support any implementation of the Kyoto Protocol prior to Senate ratification.

Rationale

One of the most contentious debates in American public policy today encompasses proposals to restrict emissions of the minor atmospheric gas carbon dioxide in order to mitigate a perceived human influence on global climate. Current proposals (Kyoto Protocol signed by the executive branch of the U.S. government, but not ratified by Congress) would federally tax crude oil at the rate of about \$43.50 per barrel (1). No reduction in existing levels of carbon dioxide in the atmosphere would result from this massive transfer of wealth from the private sector into the federal government.

Recognizing the potential impact on the United States and world economy of such taxation and restriction of energy use, it is important that greenhouse theories be tested thoroughly and quickly.

Scientific examination of the government case for such draconian taxation does not support the supposition of human-induced global climate change; in fact, the study resulted in recognition that the supposition is neither provable nor disprovable. The following observations are germane to the position:

1. Scientific research has been stimulated by the proposal. Recently published research results do not support the supposition of an anthropogenic cause of global climate change (2).
2. Detailed examination of current climate data strongly suggests that current observations do not correlate with the assumptions or supportable projections of human-induced greenhouse effects.

AAPG – Policy Statement (cont)

Background

Geologists know:

1. Climate is constantly changing, and has varied significantly over human history. Climate changes over any time scale chosen, whether as small as a decade or as long as a geologic era.
2. Natural variability has been demonstrated to exceed any supportable estimate of human-induced variability.
3. Earth is still emerging from the Little Ice Age (A. D. 1250 - 1850). Significant rises in global temperature are a predictable consequence. The current level of global warming is real and natural.
4. Geologic controls on climate are significant. Long term changes can be demonstrated to occur congruently with geologic tectonic changes. Little is truly understood of the controls on short term changes. Solar variability, for instance, is significant in centennial to millennial changes, among other possible controls that should be examined.
5. Attempts to engineer Earth's very complex climate before understanding natural controls on climate are risky, if not impossible.

Summary

Science requires that all aspects of theory be investigated and that assumptions be tested.

Human-induced global temperature influence is a supposition that can be neither proved nor disproved. It is unwise policy to base stringent controls on energy consumption through taxation to support a supposition that cannot be substantiated.

Climate naturally varies constantly, in both directions, at varying rates, and on many scales. Warming events have been historically good for most human society, while cold events have been deleterious to much of society. It is vital that climate research to examine the effects of a colder climate also be supported. Critical target areas of this research should include the potential impact of climate change on food production. Further research should concentrate on mitigation techniques to combat any serious effects of either colder or warmer climate, naturally or artificially caused, on the ability of the world to feed itself.

The AAPG urges that any actions to implement or to ratify the Kyoto Protocol and any future declarations of climate policy be delayed until there is better understanding of present climate and the impacts of policy implementation, as well as some provision for mitigating errors in policy. There is no current viable substitute for petroleum-based fuels in the world's energy budget and economy.

1. The Energy Information Administration has estimated that implementation of the Kyoto Protocol would result in a carbon tax of \$348 per ton of carbon (E.I.A. SR/OIAF/98-30). Murphy Oil Company estimates of about .12 ton of carbon per barrel of oil (or 8 barrels per ton of carbon) (Oil

and Gas Journal, Nov. 2, 1998, p.30) results in an estimated \$43.50 carbon tax per barrel of oil.

2. All geologists who are interested in the climate debate probably should read two books:
 - Moore, Peter D., Bill Chaloner, and Philip Stott, 1996, Global environmental change: Blackwell Science, Oxford, England, 244 p.
 - Lamb, H. H., 1995, Climate, History, and the Modern World: 2nd Ed., Routledge, NY, 433 p.
 - Three recent papers of interest to scientists are:
 - Bluemle, J. P., J. M. Sabel, and W. Karlen, 1999, Rate and Magnitude of Past Global Climate Changes: Environmental Geosciences, v. 6, n. 2, p. 63-75.
 - Fischer, H., M. Wahlen, J. Smith, D. Mastoianni, and B. Deck, 1999, Ice Core Records of Atmospheric CO₂ Around the Last Three Glacial Terminations: Science, v. 283, p.1712-1714.
 - Fan, S., M. Gloor, J. Mahlman, S. Pacala, J. Sarmiento, T. Takahashi, and R. Tans, 1998, A Large Terrestrial Carbon Sink in North America Implied by Atmospheric and Oceanic Carbon Dioxide Data and Models: Science, v. 282, p. 442-446.

LABGS and the 2007 AAPG National Convention field trips

The LABGS sponsored three great day-trips to these areas:

The Santa Monica Mts Geology Los Angeles Urban Oil Fields Palos Verde Peninsula Geology

All of the trips were well-attended, attendees learned a lot, the weather was great, and they were a good show for the Society.

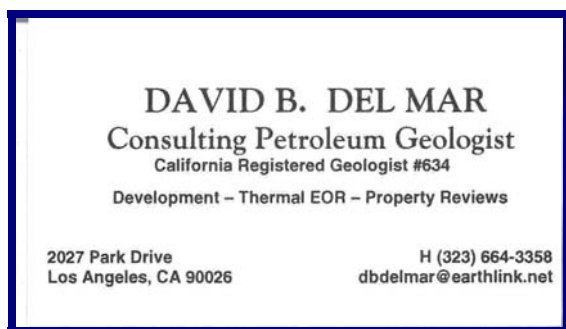
We have some extra Palos Verde field trip guidebooks for sale. These will be available at the next monthly meeting.

Thank you to the trip leaders and congrats on a great job!

Your Name Here!
Advertising in newsletters is available!
Advertising rates for a business card size ad is \$90 for one year (9 issues). These fees help offset our publishing costs. If interested please contact a Board member.

2007 TSOP STUDENT GRANT PROGRAM THE SPACKMAN AWARD

The Society for Organic Petrology (TSOP) invites applications for one or two graduate student research grants of up to US\$1000 each. The purpose of the grants is to foster research in organic petrology (which includes coal petrology, kerogen petrology, organic geochemistry and related disciplines) by providing support to graduate students who demonstrate the utility and significance of organic petrology in solving the thesis problem. The Spackman Award supports qualified graduate students from around the world who are actively seeking advanced degrees. Each grant is to be applied to expenses directly related to the student's thesis work such as summer fieldwork, laboratory expenses, etc. Grant application deadline is May 1, 2007. The award(s) will be made in August 2007. Detailed information and an application form are on the TSOP web site (<http://www.tsop.org/grants.htm>) or from S. J. Russell, 2218 McDuffie St., Houston, TX 77019-6526 USA; e-mail: sj russ@sbcglobal.net.



The LABGS Brunton Award

The LABGS Brunton Award is given to a qualified undergraduate student attending a four-year LA Basin College or University currently pursuing a baccalaureate degree in Geology or the Earth Sciences.

The Society is currently looking for qualified applicants for the 2007 award.

SELECTION PROCESS

The award winner is selected from candidates nominated by a faculty member. The winner is selected based on the following criteria:

- Grade point average in earth science classes.
- An enthusiastic or special recommendation from the college advisor, department chair, or mentor professor

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The Don Clarke Award

The Don Clarke Brunton Award is given to a qualified student graduating from an LA Basin Community College with an Associate Degree, enrolled in a Geology or Earth Science curriculum with plans to pursue a baccalaureate degree in Geology or the Earth Sciences.

The Society is currently looking for qualified applicants for the 2007 award.

To qualify for this LABGS award, the student must meet the following criteria:

- Plan to graduate in 2006 with an Associate Degree from a Los Angeles Basin Area Community College.
- Complete a Geology or Earth Science curriculum.
- Must be pursuing plans to enroll in a four-year college or university with Geology, Geological Sciences, or Earth Science as their designated major.

2007 CSOP/ ICOP/TSOP ANNUAL MEETING

The Canadian Society for Coal Science and Organic Petrology (CSCOP), the International Committee for Coal and Organic Petrology (ICCP), and The Society for Organic Petrology (TSOP), Joint Annual Meeting, August 19-25, 2007, Victoria, British Columbia, Canada. Information: Andrew Beaton, Alberta Geological Survey, 4th floor, Twin Atria Building, 4999-98 Avenue, Edmonton, Alberta T6B 2X3 Canada, Phone: 780-427-0809; Fax: 780-422-1459; Email: Andrew.Beaton@gov.ab.ca; Further details can be found at <http://www.cscop-tsop-iccp-2007.com>

Abstracts due 4/15/07. Conference oral session themes include unconventional petroleum systems; advances in organic petrology, organic and inorganic geochemistry: coal, oil shale, source rocks, paleo- and recent-environments and -climates. General organic petrology and geochemistry poster sessions.

Elections

The time is fast approaching for two different election needs. Elections will be held in the spring:

- The LABGS needs individuals interested in being Secretary, Treasurer, Program Chair and President. This is a real issue, your elected officers have been in office for close to 4 years. Although the tasks are not great, the need for help is. Please volunteer or nominate somebody.
- We are searching for candidates for the House of Delegates positions. Although we do not have an open spot now I would like to have some staggering of future terms. Names would be appreciated.

Student Sponsorship

Both Halliburton and Schlumberger are defraying the cost to the Society of our students-at-the-monthly meetings program. **Students are free at all meetings.** Thank you.

Contact Us – The LABGS Board

President: Jon Kuespert (213) 225-5900
jkuespert@breitburn.com

Program Chair: currently vacant

Treasurer: Steve Zigan, (949) 355-4467
szigan@eri-us.com

Secretary: currently vacant

OUR WEB SITE ADDRESS IS:

www.labgs.org

President's Note

To all our members,

This month's talk will be given by Kristin Hepper of UC-Riverside on "**Paleoecological Analysis of New Great Valley Group Hydrocarbon Seep Localities**". Ms. Hepper has received a PS-AAPG grant for her work and should give a great talk at the meeting. Please come and support a student speaker ! ! ! ! !

I have again included the AAPG – National Policy statement on **Climate Change** for you to read. In February there was a heated debate at the Leadership Conference on this formal position. Approximately half of the attendees at the Conference thought the statement should be different. Your job and lifestyle today will be impacted, and your future generations need a direction! This is too important of a subject to be evaluated by politicians. Please give me your feedback. I have heard from some members but I want to hear from more.

And it is ELECTION time. We need volunteers to help with the Society. I will remain here as President, unless a volunteer comes forward. The VP/speaker coordinator, treasurer and newsletter editor spots are not time-consuming, and do not require a PhD, just somebody willing to put some effort in. I want people who are interested, referrals are nice but I want the nominator to be doing the legwork of contacting the candidate. We will not have elections as late as last year. Please help NOW!

Thanks!

Jon



Los Angeles Basin Geological Society Membership Form

Join the LABGS and become a member of the Pacific Section AAPG all for one low price of \$12.00 per year - 2 West Coast Geoscience Organizations for the price of one



Membership Benefits

- LABGS Membership
- Monthly Luncheon Meetings with Strong Technical Programs
- Pacific Section AAPG Membership
- Pacific Section AAPG Bi-Monthly Newsletter
- Discounts for PSAAPG Bookstore Publications
- Bi-Annual West Coast Geoscience Directory - *next edition 6/03*
- Networking and Social Opportunities with Fellow Geoscientists

Current Annual LABGS/PSAAPG Dues

1 Year Option = \$12.00 \$ _____
 3 Year Option = \$36.00 \$ _____

Extended E-Mail Announcement List Fees

To receive meeting notices from SJGS and CGS

1 Year Option = \$12.00 \$ _____
 3 Year Option = \$36.00 \$ _____

PSAAPG Foundation Contributions

B. Hacker Publication Fund \$ _____
 Martin Van Couvering Fund \$ _____
 Dibble Map Foundation \$ _____
 California Well Sample Repository \$ _____
 John Kilkenny Scholarship Fund \$ _____
 PSAAPG Foundation Trust Fund \$ _____

TOTAL PAYMENT

Total Amount Enclosed \$ _____

Essential Member Information

Last Name _____
 First Name _____
 Middle Initial _____
 E-Mail Address _____
 Mail Address _____
 Res or Bus ? _____

Additional Directory Information

Employer _____
 Position / Title _____
 Bus Phone # _____
 Res Phone # _____
 Fax Phone # _____
 Spouse's Name _____
 Education *Highest Degree* *Year*
 School _____

Signature _____

Annual membership is handled through PSAAPG and runs from July 1, through June 30. If you are already a current member of PSAAPG and you selected LABGS affiliation you are already a member of the LABGS.

**Please Make Checks out to PSAAPG and mail along with member form to:
 PSAAPG P.O. Box 1072, Bakersfield, CA 93302**