Pacific Petroleum Geology NEWSLETTER

Pacific Section • American Association of Petroleum Geologists November & December • 2010

Resurgent Resource

Miocene Monterey Formation A Big Hit ... Again


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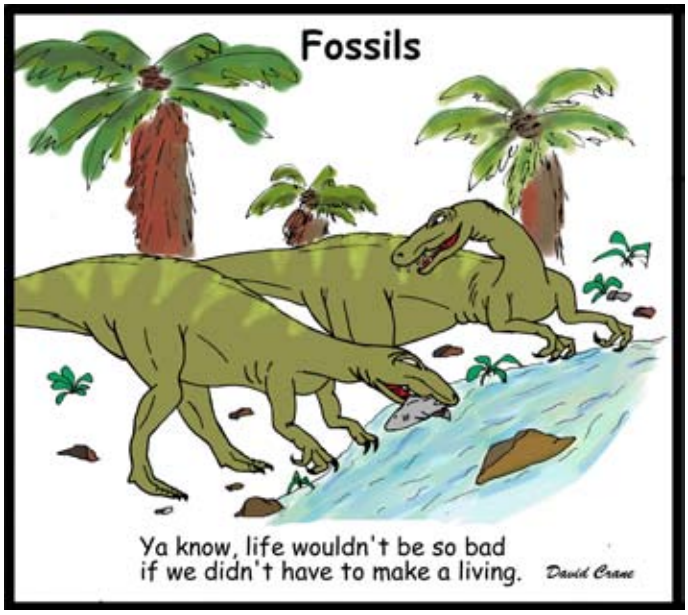
Cover photo of Monterey Fm outcrop, Sweeny Road, near Lompoc, CA courtesy E. Washburn

Every Issue

This Issue



Message from the President
Cynthia Huggins

WHAT IS OLD IS NEW AGAIN- A new way to look at recycling-

Once again we find ourselves in interesting times. There are big changes in our industry, big issues that have occurred in the past several months, and new exploration challenges in the Pacific Section.

Pacific Section is the focus of two major activities: new exploration plays in California and re-opening of exploration in the Alaskan Arctic Ocean. The current US oil shale fervor that started in the Rockies and swept the Midwest, South, and East, has arrived in full force in California. Technical articles, corporate investor relations reports, and investment periodicals have been singing the praises of the Monterey Shale play. Thousands of acres have been leased and top leased, millions of dollars have been invested in shooting seismic and drilling wells. New rigs are arriving on a regular basis, and land consultants are being brought in from out of state to deal with all the transactions and lease checks.

While this flurry of activity is exciting, and the promise of new discoveries is re-energizing many independents, one must recall that this play has been played before. The first Monterey siliceous shale production occurred in the Orcutt Field in the Santa Maria Basin in 1901. Fractured porous Monterey production in the San Joaquin Basin started at North Belridge in 1915. In 1919, geological studies of the Monterey exposed in Chico Martinez Creek showed the silica diagenetic transition, on the basis of grain density changes. About every 20 to 30 years another Monterey-resurgence occurs, with developments starting in the 1940's in Belridge. In the 1960's, multiple zones were completed in Lost Hills. Rose and North Shafter were developed with horizontals in the 1990's, and big acid treatments came to Elk Hills in the early 2000's. Oil shale in California is really nothing new. What is changing the game is a significant influx of money, sustained high oil price, drilling and completion technology, and the ability to compile significant amounts of subsurface information to designate prospective areas. The other big change is the realization that significant thicknesses of high Total Organic Carbon-rich rocks, in the right structural configuration, with the right combination of porosity and permeability, can in themselves be productive.

How this resurgence will play out is anyone's guess. Suffice it to say that there will be some new discoveries made, some significant, and that these will lead to more opportunities to develop the deeper, high TOC shales, when they are in just the right structural position and maturity, with the right reservoir properties. Let's hope this exploration play has a bright and successful future!

The other big Pacific Section action is offshore Alaska, in the Arctic Ocean. Outer Continental Shelf lease sales have been actively pursued by major players. 3D seismic has been acquired in the Beaufort and Chukchi Seas. Only the actual drilling of exploration wells is yet to take place.

Community and government affairs issues, environmental challenges, and lawsuits have been the order of the day. It appears that some of these issues have been addressed, and agreements have been reached between the oil companies and the local government agencies to enable neutral research activities to take place that will help address real concerns that the natives have with drilling, development, and the risks associated with the potential for spills.

The structures that are being assessed in the offshore have, in some cases, been penetrated before. In the Beaufort, many were identified using 2D seismic, and were drilled in the 1980's during the last Arctic exploration program, which was put on hold after the Exxon Valdez oil spill. So, after a several decade hiatus, exploration, and hopefully development, will proceed in the Arctic.

The re-emergence of "oil shale" in California, and the re-opening of the Arctic bring many new opportunities for our business and for Pacific Section AAPG. Most of the people that made earlier inroads in these plays have retired. The current generations, experienced and inexperienced, now face a range of challenges, from making the most out of legacy information, understanding what our predecessors did, merging new data with old, and trying to make our way in a world where environmental issues, community engagement, permitting, and industry perception throw a whole new set of challenges, both technical and non-technical, in front of us. How we deal with these challenges will determine our immediate success, and perhaps more importantly, how future development will progress.

We work in challenging times. I hope you all find these challenges to be fun, good learning experiences, and real opportunities for us, as an industry, to demonstrate our desire to shepherd our resources responsibly. I encourage you to learn more about these activities at the upcoming Section meeting in Anchorage next May, or at the National meeting in Long Beach in spring of 2012.

Cheers,
Cynthia

P.S. Have a Wonderful Holiday Season and a Happy, Healthy, and Prosperous New Year!!!

Miocene Monterey Formation, Sweeny Rd, CA

Miocene Monterey Formation, Jalama Beach CA

Happy Holidays,

Pacific Petroleum Geologists.

For those of us who moved to this part of the country from the midwest or northeast, this time of year may bring friends and relatives looking for an escape from harsher climates. While simply being able to walk comfortably from a store to a vehicle without boots, winter jackets, hats, etc. may be impressive enough to visitors, it's also a great opportunity to introduce them to west coast geology. Although many of us can get our fill of wintery weather in the mountains if we choose, there are plenty of areas where the temperatures are very fall-like, the outcrops are not covered with snow, and the summer-time crowds in scenic areas are greatly reduced.

In addition to the physical benefits of getting out and about in the winter-time (walking off the extra holiday calories, for example), the mental excercise of learning something new, such as the story of how the major geographic features of our states came to be, can be a good break from the relentless relaxation of a vacation. It can certainly be difficult to convince visitors to turn their backs on the ocean and take a closer look at the coastal cliffs during the summer, but in December and January, it sure beats shoveling snow. It also provides an opportunity to tell family and friends how subsurface data gathered for energy exploration and production has been of great benefit for geologists in enhancing our understanding of Earth history.

Recommended Changes to the Pacific Section AAPG Constitution and By-Laws: Call for Comments from the Membership

The Pacific Section's Constitution and By-laws governs how the Executive Committee conducts its business. As our organization matures, the rules we operate under periodically need revision. At the request of the 2009-2010 President Scott Hector, a committee was formed (consisting of Larry Knauer, Bob Countryman and myself) to review the Constitution and By-laws and to recommend changes that reflect our current activities and processes.

The committee submitted a draft of recommended changes to the Executive Committee in March 2010. President Hector appointed Dalton Lockman to select a small group (including Mark Wilson and Terry Thompson) to provide an independent assessment of the draft. Their recommendations were submitted to the Executive Committee at our September 17 meeting. After final revisions by the Executive Committee, a motion was approved to forward the proposed changes to the PS AAPG membership for comments.

Numerous changes are recommended, and the significant ones are discussed below:

1. Second Treasurer. We are out of compliance with the Constitution in several sections, including voting in the Executive Committee and in authorization for accounts. The fix (Treasurer-Elect) is rather simple to invoke although several specific changes are required.

2. Article IV, Officers, elected terms. The language here is complicated due to previous changes and it will only get worse with the new Treasurer-Elect spot. These passages are removed and placed in a new article in the By-laws.

3. Article IV, Officers, duties. New language for the Editor defined some duties, but the other officers are not defined. These passages are removed and placed in the By-laws in an article that defines the key duties of all the officers.

4. Article IV, Section 3. This new section requires that officers can not concurrently hold offices of local societies or the National AAPG (except for the House of Delegates).

5. Article V, Property. This new article defines what is the property of the Section and how it is managed.

6. Article VII, Meetings. This article combines comments from other areas of the Constitution into three sections that described our convention, public and Executive Committee meetings. The Executive Committee voted to raise the quorum for their business meetings to 8, which is half of the eligible voting members.

7. Article VIII, Section 2. A new passage corrects who is eligible to vote in the Advisory Council election.

8. By-laws Article I. New article defines the terms for the officers.

9. By-laws Article II. New article defines the duties of the officers.

10. By-laws Article III, Membership. Deletes Associated Members.

11. By-laws Article IV, Committees. Removes the Planning and Legislation Committees. This committee has been inactive for several years.

12. Numerous edits to correct inconsistencies in grammar including use of capitalization.

Members are encouraged to review the proposed changes on drafts posted on our website at www.psaapg.org. Your comments are welcome and should be address to secretary@psaapg.org.

Tony Reid
Secretary, PS AAPG

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

Stephan A. Graham, W.J. and M.L. Crook Professor
School of Earth Sciences, Stanford University, Stanford, California

The dissertations reproduced on this DVD largely predate the digital era, so many have been scanned from original hard copies of variable states of preservation; as a result, the quality varies in this product. The original dissertations are on file and accessible to the public at Branner Earth Sciences Library, School of Earth Sciences, Stanford University. Scans for this DVD derive from two sources. Some were produced as part of a program at Stanford to digitize all older dissertations, with thanks to Julie Sweetkind-Singer, (Acting Head Librarian) and her staff at Branner Library, for facilitating access to previously scanned dissertations. However, the majority of the dissertations in this collection were scanned pro bono by PayZone, Inc. of Bakersfield, thanks to the considerable efforts of Deborah Olson and her colleagues. Larry Knauer, Pacific Section AAPG, encouraged and facilitated production of the DVD. Ultimately, principal credit for this compilation goes to Deborah Olson, who first suggested the idea of this DVD in order to facilitate greater public access to these dissertations, because most were previously unpublished or published in regional publications of limited circulation. This body of research would not have been possible without the support of the San Joaquin Project consortium member companies, which over time included: Amerada-Hess, Amoco, Arco, BP Alaska, Champlin, Chevron, Cities, Conoco, Exxon, Getty, Gulf, Husky, Marathon, Mobil, Natural Gas Corp, Occidental, Phillips, Santa Fe Energy, Shell, Sohio, Superior, Tenneco, Texaco, and Unocal.

A 2-DVD set containing the information described above may be purchased from the Pacific Section American Association of Petroleum Geologists (PSAAPG) Publications Committee for $39.00 by contacting (and including a check or credit card information and a shipping address)

PSAAPG Publications
P.O. Box 1072
Bakersfield, CA 93302

or

Larry Knauer (Publications Chair)
larryknauer@chevron.com
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The Sharktooth Hill Bone Bed and Buena Vista Museum of Natural History– two San Joaquin Valley Treasures

Submitted by Tim Elam
Board of Directors, Buena Vista Museum of Natural History and
President-elect, San Joaquin Geological Society

The Sharktooth Hill Bone Bed, a thin sediment layer within the middle Miocene Round Mountain Silt, is known worldwide for its abundant and diverse fauna. The Bone Bed outcrops in dissected foothills of the southeastern San Joaquin Valley near Bakersfield, where Miocene sediments are exposed along the breached cross-valley Bakersfield Arch.

The six-inch to one-foot thick Bone Bed has yielded at least 141 species of fauna and flora. The most abundant fossils found are those of marine vertebrates, but terrestrial vertebrates and flora also occur. These fossils indicate diverse life forms lived in an arm of the Pacific Ocean that occupied the southern San Joaquin Valley 15-16 million years ago. Surprisingly, few invertebrate fossils are found in the Bone Bed. The most celebrated Bone Bed paleontologic treasures are marine vertebrate fossils such as sharks, sea lions, turtles, whales, and other large life forms.

Discovery of the Bone Bed is often attributed to William P. Blake, a geologist and railroad surveyor, in 1853. Blake's discovery and recovery of fossils prompted a scientific examination of the fossils by famed geologist and naturalist Louis Agassiz in 1856. Agassiz named at least eight new species of animals. Because of its' significance as a paleontologic resource and role in United States paleontologic history, an area of Bone Bed outcrop at Sharktooth Hill was designated a National Natural Landmark (NNL) in 1976. The NNL is now overseen by Bakersfield College.

Scientific interest in the Bone Bed has been sporadic since the 1850's, but it has received significant interest in the last several years. Part of the reason for the interest has been due to Bone Bed accessibility provided by local landowner Bob Ernst. Ernst passed away after a brief illness in 2007. Researchers from the University of California Museum of Paleontology, the Natural History Museum of Los Angeles County, the San Diego Museum of Natural History, Occidental College, and others have provided new insights as to how the bone bed formed, and its age and fossil record. These researchers have documented their work in several recent publications, including the June 2009 GEOLOGY magazine article "Origin of a widespread marine bonebed deposited during the middle Miocene Climatic Optimum," by Nicholas D. Pyenson, et. al. Among the most significant conclusions presented in this article were:

1) The Bone Bed formed over a significant length of time in which there was little or no net sediment accumulation, coincident with the beginning of the middle Miocene Climatic Optimum;
2) It is unlikely Bone Bed formation was caused by red tide poisoning, a volcanic event, or any other catastrophic mass death event;
3) The Bone Bed age can be bracketed to between 15.9 and 15.2 million years old; age dating was done via land mammal, microfossil (diatom and foram), strontium isotope, and magnetostratigraphic methods.
4) The Bone Bed has approximately 200 fossil specimens per cubic meter of rock.

These researchers often worked through Ernst and Bakersfield's Buena Vista Museum of Natural History. Ernst was a self-taught paleontologist who recognized the importance of scientific study. Recovery, restoration, and display of fossils recovered by Ernst were the impetus for the creation of Buena Vista Museum in Bakersfield in 1995. Since Bob Ernst's death, his family graciously continued to display Bone Bed fossils at the Museum until 2010.

The most famous of the Ernst-collected fossils include a fully articulated sea lion, Allodesmus kernensis, in the sandy Bone Bed matrix. Other Ernst family fossils include:

1) a juvenile baleen whale
2) two sperm whale skulls
3) hundreds of shark teeth, including teeth up to six inches long from an ancestral large shark, Charcarocles megalodon. This shark, now extinct, grew to 60 feet in length
4) a leatherback turtle

Buena Vista Museum continues Ernst's legacy by showcasing Kern County's scientific wonders and providing a place and resources to learn about them. The Museum still displays Bone Bed fossils. Unfortunately, the bulk of the premier fossils collected by Ernst, which were on loan to the Museum, have been removed. The Museum still has close ties to the Ernst family, though.

The Museum has plans to try to recover key pieces of the Ernst collection and put them back on display permanently. The Museum has set up an "Exhibit Acquisition Fund," otherwise known as the "fossil fund," and is currently soliciting monetary donations for that fund. The fund will be ongoing, but the immediate goal is to raise at least $150,000 prior to December, 2010. That money would be used to reacquire Bone Bed fossil treasures at a December sale of Ernst fossils.

An important mission of the Museum is creating programs for school-aged kids to learn about science. These programs supplement formal education by stimulating their senses of sight and touch. The Museum has grown from being strictly one of Sharktooth Hill fossil displays to an integrated Museum with displays of:

1) Native American culture, including a restored Yokuts village
2) Geology, including rocks and minerals
3) Dinosaurs
4) Petrified wood
5) Hands-on, interactive biology displays in the "OH! Zone"
6) Astronomy
7) Taxidermy animals from Asia, Africa, Australia, and North America

The Museum welcomes thousands of visitors each year. It possesses a working fossil restoration lab, library, gift shop, and a classroom where classes, workshops, and presentations are given throughout the year.

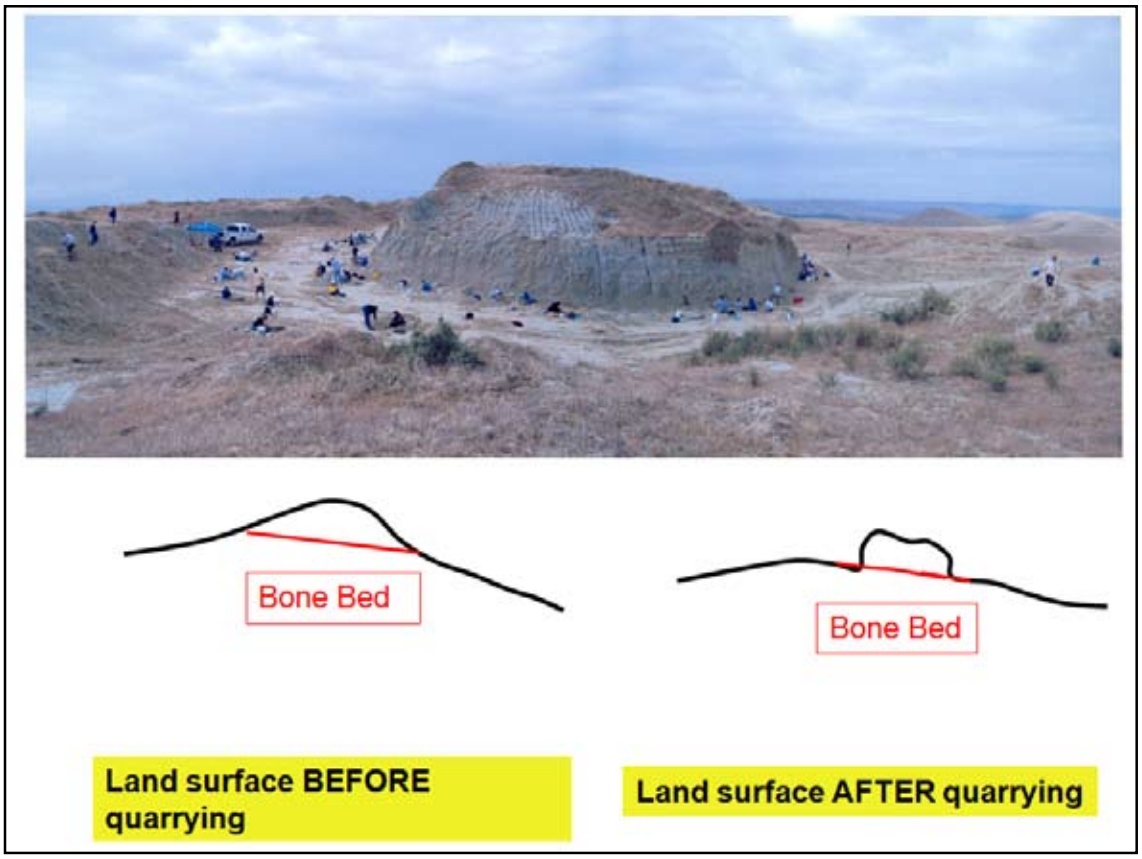
The Sharktooth Hill Bone Bed and Buena Vista Museum of Natural History are treasures of the San Joaquin Valley.

-Tim Elam

OTHER INFORMATION
Website: www.sharktoothhill.org
Location: 2018 Chester Ave
Bakersfield, Ca, 93301
Phone: 661-324-6350
OPEN: Thursday, Friday, Saturday 10:00 AM- 5:00 PM
The Museum makes off-site presentations for a modest fee.

Filming "California's Gold" TV program- Left to Right: Museum Paleontologist Ben Nafus, TV Host Huell Howser, Landowner/paleontologist Bob Ernst, Museum Executive Director Koral Hancharick

Jacketing of a sperm whale skull has just completed.



Photos courtesy Tim Elam

An Examination of the Surface Rupture Gap in the Landers Earthquake between Johnson Valley and Eureka Peak Faults, San Bernardino County, California

David J Crane
Chevron North America Exploration and Production Company, Bakersfield, CA

Abstract

A 5 km ground rupture and seismic gap associated with the 1992 M 7.3 Landers earthquake occurs at the intersection of the Johnson Valley and Pinto Mountain faults, near the town of Yucca Valley, California. Field mapping reveals a family of curvilinear faults that occupy this region, but are undisturbed by the Landers seismic event. Wholly contained within Section 25, this family of faults strikes N20W at the northern border of the section and rotates eastward, striking N70W where last seen at the eastern section boundary. Dips range between 60° to 80° NE. Whereas relative motion on the Johnson Valley fault is predominately dextral strike-slip, field evidence supports the curvilinear faults to be high-angle dip-slip. This study concludes the curvilinear faults parallel and mimic the warping of regional rock stresses brought about by differences in the relative motion between the Pinto Mountain and Johnson Valley faults.

Field findings also suggest the lack of ground rupture and seismic activity within this sector of the Lander earthquake is the product of both the curvilinear and the Pinto Mountain faults. Seismic inactivity to a depth of 3 km beneath the surface trace of the curvilinear faults may be attributed to the oblique orientation and opposing dips of the curvilinear fault planes relative to the north-south aligned stress field of the Landers earthquake. This enabled the curvilinear faults to resist strike-slip motion that occurred elsewhere along the Landers ground rupture. At depths greater than 3 km, seismic activity truncates in the subsurface against a plane plunging 77°N that originates at the surface trace of the Pinto Mountain fault, documenting the under-thrusting of the Mojave Block by the Pinto Mountain. Field mapping also discovered high-angle reverse faulting (newly named Sawtooth fault) along the central axis of the Sawtooth Range to the west of Section 25. These data are consistent with the Pinto Mountain fault under-thrusting the Mojave Block and uplifting this eastern extension of the San Bernardino Mountains. Field relationships also suggest that this occured coincident with the activation of the San Andreas fault and rotation of the East Transverse Range province, thus suggesting a late Neogene to Holocene age of faulting.

Due to the under-thrusting of the Sawtooth range by the Pinto Mountain fault, dip-slip took local precedent over strike-slip separation in the ground rupture gap region, and thus represents a localized tectonically locked region. Because of this, the area between the Sawtooth Range and the Johnson Valley fault may be experiencing extension and pull apart, as supported by a northeast-southwest strike in the surface trace exhibited by the southern-most surface expressions in the Johnson Valley fault.

Introduction

The June 28, 1992 Landers earthquake measured a magnitude (M) 7.3 producing approximately 70 km of continuous surface rupture in the Mojave Desert floor of southeastern California, near the towns of Landers and Yucca Valley (Figure 1). Primary rupture occurred along an en-echelon chain of north to northwest-trending faults (Camp Rock, Emerson, Homestead Valley, Landers, and Johnson Valley faults). Average displacement measures 3 meters of dextral slip, with up to a maximum of about 6 meters (Hart, et al., 1992). South of the Johnson Valley fault, the surface expression associated with this event is lacking for a distance of about 5 km before resuming again for another 10 km with minor, but discernable off-set south along the Eureka Peak, Long Valley, and Burnt Mountain faults.

The presence of a ground rupture gap in this large magnitude earthquake was considered noteworthy by this study as it should aid in the understanding of the heterogeneity within the stress fields acting on the bedrock, particularly with the gap located only 5 km south of the main shock epicenter. This anomaly suggests a

significant change in subsurface conditions to account for the absences of surface expression. The question arises as to what unique local conditions are responsible for focusing seismic forces northward, thus limiting propagation of the fault trace to the south. Documentation of local geological and tectonic conditions within the gap region were the primary tools for assessing the ground rupture gap. Field mapping, as well as a review of moderate to strong aftershock epicenter data records, provided insight into the internal anisotropy of this study area.

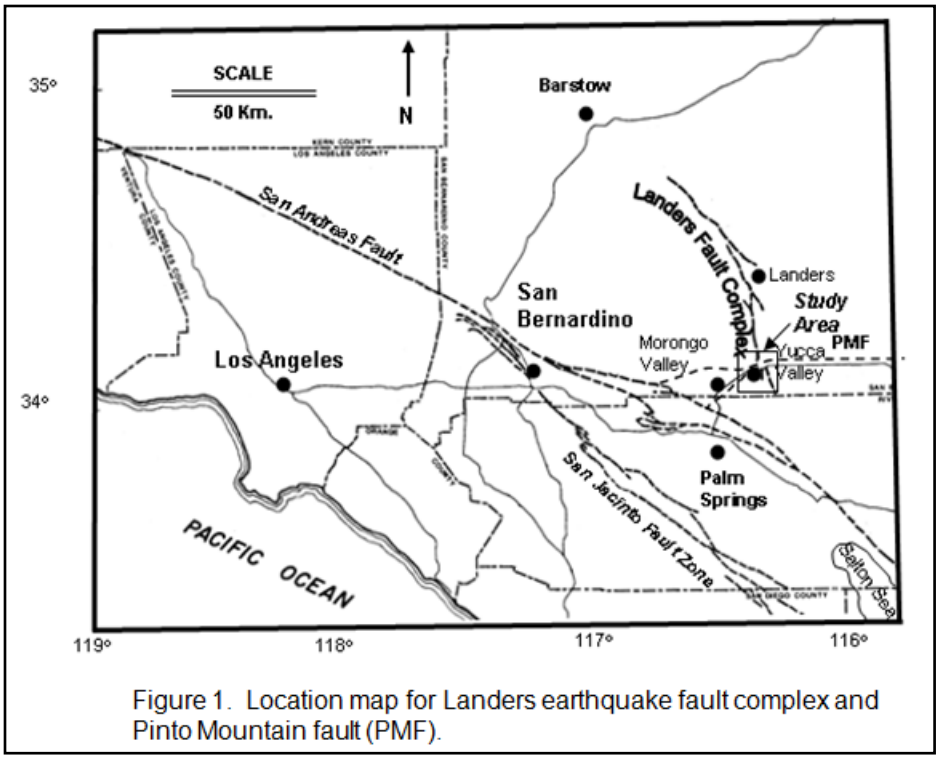


Figure 1. Location map for Landers earthquake fault complex and Pinto Mountain fault (PMF).

Field Methods and Fault Identification

Field work conducted for this study covers 7.7 km2, inclusive of the ground rupture gap (Figure 2) approximately one kilometer north of the town of Yucca Valley and State Highway 62. Acidic crystalline rock comprises the study area defined by Sections 25, 26, and 27, T1N, R5E (SBBM) and is the provenance of the bordering alluvial deposits. Attitude readings of fault planes employed standard field techniques and a pocket transit. The Joshua Tree quadrangle sheet, enlarged to a 1:12000 scale was used in mapping. Subdued topographic relief, rock textural changes, and color variance aided in fault identification in this highly weathered terrain.

Where exposed in road cuts, fault planes appear as slickensided fractures, commonly in association with fault gouge. Fracture zones vary in width from 3 centimeters to 30 meters. The homogeneity of the crystalline basement rock lacks reliable perching point surfaces for measuring separation. However, acute dihedral fracture alignment of complementary shear fractures adjacent to the fault traces infer a vertical slip, parallel with the maximum principal stress axis of the fractures.

Geologic Setting

Figure 2 provides an overview of the local geology, adopted from Dibblee's 1967 work and updated with the findings of this study. The highlands, locally known as the Sawtooth Range is composed entirely of highly weathered quartz monzonite of Mesozoic age (Dibblee, 1991) with a maximum elevation of 1,160 meters. According to Dibblee (1991), uplift of this range, in conjunction with the San Bernardino Mountains, occurred as a result of compression forces from the conflicting movements along the left-slip Pinto Mountain Fault and the right-slip San Andreas fault systems. Approximately 40° of clockwise rotation in the Eastern Transverse range (Little San Bernardino Mountains) to the south of this site, resulted in the Pinto Mountain fault (Richard, 1993). Subsequent adjustments in the regional tectonics resulted in the opening of the Morongo Valley graben (Hopson, 2001), bordered by the Pinto Mountain and Morongo Valley faults that intersect and hinge west of the town of Yucca Valley.

Pleistocene coarse-clastic detrital sediment covers the crystalline basement on the north and south flanks of the Sawtooth Range. The overall thickness of the valley sediment fill in Yucca Valley exceeds 1,050 meters and may be as thick as 3,688 meters, estimated from gravity anomalies (U.S. Geological Survey, 2002).

Deep weathering of the highlands and its south-facing escarpment is the provenance of the sediment fill, resulting in a mountainous, barren, boulder-dominated terrain dissected by a tight network of steep-sided, ephemeral stream channels and gullies.

The prominent Pinto Mountain fault traverses the area of investigation and bisects the ground rupture gap. This fault trends east-west and lies at the base of the 150-meter high, south-facing escarpment forming the Sawtooth Range. The 73 km long Pinto Mountain fault has a combined Pleistocene and Holocene left-lateral slip of 16 to 17 km (Dibblee, 1991, Hopson, 1996) with a current estimated slip rate of 1.3 to 2.3 mm/yr (Cadena, et al., 2004).

Evidence of previously unrecognized and undocumented faulting was discovered during this investigation (Figure 2); yet no sign of recent ground rupture was detected based on extensive weathering exhibited by the fault traces. The westerly-trending fault traces in Section 26 and 27 are referred to in this report as the Sawtooth fault system. This system dies out at the eastern boundary of Section 26, terminating in juxtaposition with the discordant faulting in Section 25. The Sawtooth fault trace parallels the central axis of the Sawtooth Range and the Pinto Mountain fault, consistent with the fault trace first inferred by Dibblee (1967).

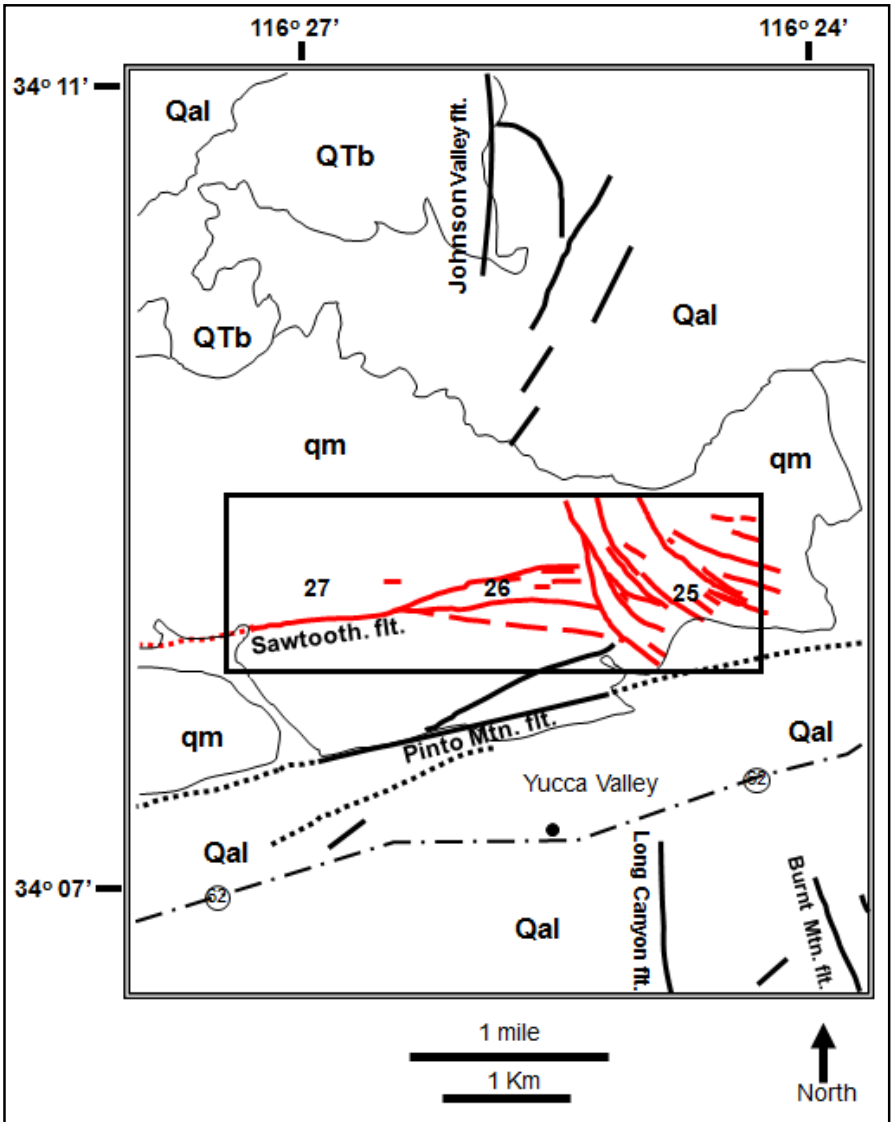


Figure 2. Geology of eastern Sawtooth Range. OTb (Miocene basalts), Qal (undifferentiated alluvium), qm (quartz monzonite). Sections 25, 26, and 27 outline study area. Heavy lines represent surface fault traces.

Differential weathering of the fault gouge associated with this fault system is expressed as both steep-sided river-cut canyons (Section 27) and as low relief, rounded, hilly terrain (Section 26). In contrast to Dibblee's 1967 work, the fault system bifurcates eastward into three major branches, defining an intervening zone of intense horst and graben style faulting that widens to the east. A three-point solution reveals the northern branch of the Sawtooth fault dips 80° north. Resequent fault-line scarps forming the headwall measure a minimum relief of 73 meters and infers a high-angle reverse component of slip on the fault.

Faults mapped in Section 25 exhibit an uncharacteristic curvilinear trend concave to the northeast. These traces contain a N20° W azimuth where first seen at the northern boundary of Section 25, consistent with faulting in the Mojave Desert province. However, to the southeast they become subparallel with the Pinto Mountain fault through progressive counterclockwise rotation to an N70°W alignment where last observed at the eastern boundary of the Section. Fault plane dips change from 60° to 80° NE along the western border, and become progressively shallower to the east, ranging between 45° to 60° NE. Relative abundance of fault gouge material within the fault trace suggests fracture intensity decreased to the east. In the northeast, faulting is reduced to numerous small fractures with no dominant through-going fault trace.

To be continued ...
Look for part 2 in the Jan.-Feb. PPG Newsletter

DIBBLEE CENTER HAS COMPLETED THE DIGITIZING OF 96% OF TOM DIBBLEE'S MAPS

404 of the 419 maps have been digitized.
Only 15 of the maps remain to be digitized
We need help to finish the project

The AAPG is featuring Tom's maps in digital format in the Datapages section on their website for downloading as georeferenced, layered PDF files by end user. The Dibblee Geologic Map Collection is available to end users on a global level. Paper maps are still available.

Jason and I have been vigorously soliciting funds to digitize the original 76 maps of the Dibblee Collection that were prepared by hand. We need less than $75,000 of additional funding to accomplish our goal. I am asking you to consider helping us to obtain funding for all or part of our mission. Help us to finish this project.

To aid our funding quest, 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 help incorporate it into their data set.

The AAPG Foundation has the E.F. Reid Dibblee Fund, created by Bud Reid, to support the work of the Thomas W. Dibblee Jr. Center for Geology of the Santa Barbara Museum of Natural History. Contributions can be made through this fund, or directly to the Dibblee Map Digitizing Fund, Dibblee Geological Center, Santa Barbara Museum of Natural History.

John Minch, Editor, Thomas Dibblee Jr. Geological Center
Santa Barbara Museum of Natural History, 2559 Puesta del Sol, Santa Barbara, CA 93105
805-569-1800
<jmainc@earthlink.net>

PUBLICATIONS OF THE AAPG PACIFIC SECTION ON DVD

AAPG Datapages and the AAPG Pacific Section announce our recent release of the digital archive, "Publications of the AAPG Pacific Section on DVD" released by the AAPG Bookstore.

This fully-searchable volume contains 132 publications of the Pacific Section published from 1947-2001. Included are special publications, field trip guidebooks, and 32 special Cross Section publications. All documents are included as Adobe Acrobat (PDF) format.

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P. O. Box 101288
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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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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.

President:	Jon Schwalbach	805.648.8518	president@coastgeologicalsociety.org
Past President:	Mike Nelson	805.535.2058	president@coastgeologicalsociety.org
Vice President:	John Harris	805.407.7644	vicepresident@coastgeologicalsociety.org
Secretary:	Jerry Nichols	310.245.8897	secretary@coastgeologicalsociety.org
Treasurer:	Ed Magdaleno	805.535.2086	treasurer@coastgeologicalsociety.org

Los Angeles Basin Geological Society

www.labgs.org

515 So. Flower Street, Ste 4800
Los Angeles, CA 90071

Contact: Bill Long
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.

President:	Bill Long	213.225.5900 x205	william.long@breitburn.com
Vice President/Program Chair:	Greg Hummel	213.225.5900 x251	ghummel@breitburn.com
Treasurer:	Bert Vogler	562.432.1696	hvogler@kleinfelder.com
Secretary/webmaster:	Marieke Gaudet	562.624.3364	Marieke_Gaudet@oxy.com
Scholarhsip Program	Jean Kulla	949.500.3095	k2mobile@msn.com

Northern California Geological Society

www.ncgeolsoc.org

9 Bramblewood Court
Danville, CA 94506-1130

Contact: Barb Matz
Barbara.Matz@shawgrp.com

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.

Northwest Energy Association
www.nwenergyassociation.org

P. O. Box 6679
Portland, OR 97228-6679

Contact: Tim Blackwood
503.656.0156

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 at 503-226-4211.

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

Sacramento Petroleum Association

P. O. Box 571
Sacramento, CA 95812-0571

Contact: David Hartley
530.304.4277

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	TBD		
Editor/Treasurer	Pam Ceccarelli		

San Joaquin Geological Society
www.sjgs.com

P. O. Box 1056
Bakersfield, CA 93302

Contact: Kurt Johnson
kurt_johnson@oxy.com

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:	Jack Grippi	JGrippi@aeraenergy.com
Past President:	Kurt Johnson	kurt_johnson@oxy.com
President-Elect:	Tim Elam	paselam@peoplepc.com
Vice-President:	Stephano Mazzoni	Stephano_Mazzoni@oxy.com
Secretary:	Mike Minner	MMinner@chevron.com
Treasurer:	Linji An	LAn@aeraenergy.com

- Images (graphics, photos, and scans) must be at least 300 dpi resolution. Text should be scanned at least 600 dpi.
- Scanned photos, illustrations (line art) or logos must be scanned at 300 dpi minimum and saved as a tiff or eps.
- Avoid clip-art and images from the internet. These images are low-resolution (72 dpi).

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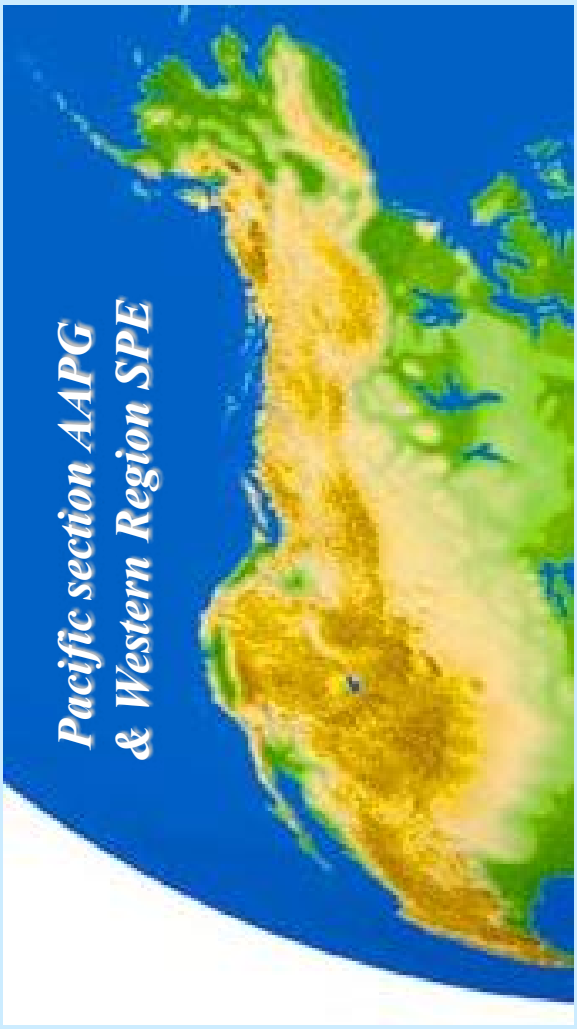
January & February Issue

January 1st



Arctic to the Cordillera: Unlocking the Potential

The 2011 Pacific Section of the American Association of Petroleum Geologists (PS-AAPG) meeting will be held in Anchorage, Alaska – the gateway to the 'Last Frontier'. The Pacific Section of SEPM and the Pacific Coast Section of SEG will also be participating in the conference and will sponsor several of the technical sessions. The Western Region of the Society of Petroleum Engineers will be co-hosting the conference and helping to provide a cross-discipline forum that offers attendees a wide variety of technical presentations, poster sessions, short courses and field trips.

The themes for the conference will include exploration, development and reservoir characterization case studies, technology applications and recent advances, alternative energy, environmental geology and geohazards in resource development, and petroleum systems in Alaska, the circum-Arctic and the western US.

For this to be a successful meeting we need you, your ideas, and your participation. We look forward to a series of stimulating and insightful sessions that will continue to address and lead to solutions for many of the technological, environmental, and political challenges the industry is faced with today.

You are invited to get involved and help shape this conference by submitting an abstract for an oral or poster presentation in the technical program. So, please review your recent work and put together an abstract for a contribution to the technical program. Abstract submissions can be made at the following website between **October 1, 2010 and February 11, 2011**.
http://aapg2011ps.abstractcentral.com

For additional information please contact:
David Hite, PS-AAPG, General Co-Chair: hiteconsult@acsalaska.net
Sandy Phillips, PS-AAPG, Oral Session Chair: sandra.phillips@bp.com
Steve Wright, PS-AAPG, Poster Session Chair: sswr@chevron.com

Pacific Section American Association of Petroleum Geologists

Society for Sedimentary Geology

Society of Exploration Geophysicists

Alaska Geological Society

Society of Petroleum Engineers

PACIFIC SECTION AAPG
P. O. BOX 1072
BAKERSFIELD, CA 93302