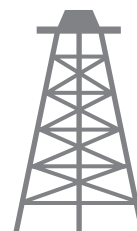




Pacific Petroleum Geology



NEWSLETTER

Pacific Section • American Association of Petroleum Geologists

March & April 2020



2020 PSAAPG-PSSEPM-PCSSEG Annual Meeting
Embassy Suites by Hilton Mandalay Beach Resort
April 4-8, 2020

psaapgconvention.org/2020

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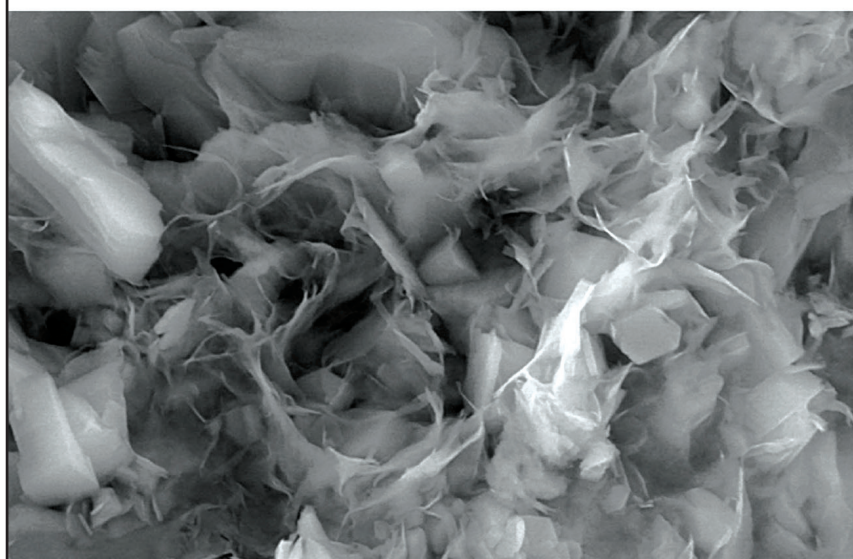
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PSAAPG Newsletter has now gone DIGITAL!

In an effort to reduce overhead and provide meaningful programs to our membership and the community, PSAAPG has decided to go DIGITAL!

For those members still wanting hard copies of the newsletter, please email editor@psaapg.org or write to us at:

Pacific Section AAPG
P.O. Box 1072
Bakersfield, CA, 93302

- CONTACT THE EDITOR at editor@PSAAPG.org
- Images (graphics, photos, and scans) must be at least 300 dpi resolution. Text should be at least 600 dpi.
- Scanned photos, illustrations (line art) or logos should preferably be submitted as a .tif, .gif, or .bmp; .jpeg

Advertising Rates

New, Lowered Rates for Full, Half and Quarter Page Ads

Members	Single Issue	Year (6 issues)
Full Page	\$200.00	\$600.00
Half Page	\$125.00	\$400.00
Quarter Page	\$75.00	\$200.00
Business Card		\$100.00

Societies Free Advertising:

Convention: Unlimited Space in PSAAPG Newsletter
Societies: 1/4 Page in AAPG Explorer

Hello Pacific Section members,

It is with great pleasure that I invite and encourage you to attend our 2020 PSAAPG-PSSEPM-PCSSEG Convention in Oxnard, CA. Co-General Chairs Renee Richards, Mark Leung and the rest of the Convention Committee have been hard at work cultivating and curating a spectacular meeting for us all to enjoy. After five years we return to Oxnard, CA to celebrate both innovation and challenges that are unique to the Pacific Section and beyond. 2020 Vision: Producing the Future is sure to refocus us all on the distinct geology local to the Ventura area through a wonderful arrangement of field trips, short courses, and a technical program that the Convention Committee has put together.

We are very fortunate to have ample locations to explore the diverse geologic settings that the Coast has to offer. Field Trip Chair, Jerry Nichols has worked diligently to put together six field trips venturing off the coast to Santa Cruz Island to examine intraplate motion and deformation, back to shore to sort through geologic hazards relating to Montecito and Santa Barbara debris flows, through an active petroleum system in Santa Barbara Basin and another field trip to the south looking at sedimentation, tectonics, and petroleum systems in the Eastern Ventura basin. The last two field trips travel inland to explore the Ridge Basin transition from marine to non-marine sedimentation and lastly a structural transect along Highway 33 and 166. There is something for everyone, regardless of your area of geology. These field trips are a wonderful opportunity to get up and close with the rocks, a reminder of what piqued our interest in geology in the first place.

Short Course Chair, John Williams has brought two distinct additions to our meeting, neither have been offered at our meetings in recent years. Short courses are a great, cost effective way to get training. These classes are offered at a fraction of what it would cost to send yourself, or have your company send you elsewhere so please take advantage. There will be a Sequence Stratigraphy course for grad students and early career professionals, and Mitigating Uncertainty, Risk, and Bias in Geotechnical Decision Making.

Technical Program Co-Chairs, Jon Schwalbach and Eric White have worked endlessly with the John Abeid and Bobby Kurtz to put together a program that will energize and educate the vast disciplines that our Pacific Section serves.



Thank you to all that submitted an abstract for both the oral and poster sessions. The technical content is the core of our meetings. We gather for the science, the discussions, discoveries, and debates. The social aspect is indeed a bonus. I always look forward to seeing many of my friends and colleagues at our annual meeting.

Lastly, thank you to the Exhibitors and Sponsors. Without your support these conventions would not happen. Thank you for taking Larry Knauer and Eric Whites' incessant phone calls and emails. Thank you for reaching out to Afton Van Zandt and David Arellano, this year's Exhibitor's Chairs. Pacific Section shares the proceeds with each local society. The host society, this year Coast Geological Society, gets a higher percentage. The remaining proceeds ensure that Pacific Section can continue to support students through our Scholarship Program and support its members through various programs and provide technical information through our newsletter and publications.

Please note, that there are many others that I did not mention, that have been hard at work for months to ensure that this convention is a success. My deepest gratitude to you all. We're all volunteers carving out a little (or a lot) of our "spare time," so thank you for sharing your time and resources with us!

I hope to see you in Oxnard!

Becca Schempp

President – Pacific Section AAPG 2020



Annual Meeting

Pacific Section AAPG

Pacific Section SEPM

Pacific Coast Section SEG

Mandalay Beach, Oxnard, California

April 4-8, 2020

Welcome

Note from the Convention Co-Chair

We are very excited to host the 2020 Pacific Section AAPG Convention in Oxnard, California at the beautiful Embassy Suites Convention Center at the Mandalay Beach Resort. Our host is the Coast Geological Society along with our Pacific Section SEPM, and Pacific Coast Section SEG partners. As we work towards a future of energy sustainability with environmental responsibilities, we see a theme that will bring all of us together. "2020 Vision: Producing the Future." The convention committee is excited to feature a technical program and extended lecture series, field trips, and short courses that will appeal to every earth scientist. We look forward to seeing you in 2020!



~Renee Richards, Convention Co-Chair

Registration

Register online by March 1 to receive the best pricing!

Membership Price: \$295

Non-Member Price: \$355

Special pricing for early registration, guests, one-day passes, and field trip/short course only are also available.

TO REGISTER, GO TO: <http://www.psaapgconvention.org/2020/>

Where to Stay

Embassy Suites by Hilton Mandalay Beach Resort

2101 Mandalay Beach Road, Oxnard, CA 93035

Call 805-984-2500 and mention GEO for event pricing.

Limited number of rooms are available at a preferred convention rate of \$189 USD/night (before tax). Parking is \$17 for overnight guests. Daily parking for event is \$10.

Book before March 1 to receive exclusive convention rate!

Convention Daily Schedule

Saturday, April 4

Short Course Sequence Stratigraphy for Graduate Students and Early Career Professionals

Field Trips Southwest Santa Cruz Island: Intraplate Motion Deformation
Montecito and Santa Barbara Debris Flows

Sunday, April 5

Short Course Sequence Stratigraphy for Graduate Students and Early Career Professionals
(continued)

Field Trips Petroleum Migration in an Active Petroleum System, Santa Barbara Basin, CA
Sedimentation, Tectonics and Petroleum Systems of the Eastern Ventura Basin

Events Registration, Exhibition, and Student Workshop, and Icebreaker

Monday, April 6

Events Registration, Exhibition, Technical Sessions, Student Event and Brew & Browse

Special Events All-Convention Luncheon, Leadership Breakfast, PS-SEPM
Reception, Clam Bake Beach Dinner

Tuesday, April 7

Events Registration, Exhibition, Technical Sessions, Extended Lecture Series, and Brew & Browse

Special Events Awards Luncheon, and Wine Tasting Guest Event

Wednesday, April 8

Short Course Mitigating Uncertainty, Risk, and Bias in Geotechnical Decision Making

Field Trips The Ridge Basin: Transition from Marine to Non-marine Sedimentation in a Basin-
filling Cycle
Structural Transect along Highways 33 & 166: Petroleum Geology of the Ventura
and Cuyama Basins, California

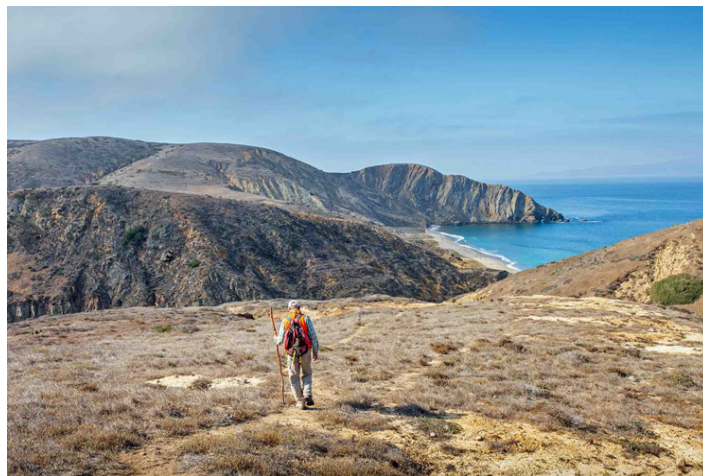
Field Trips

SOUTHWEST SANTA CRUZ ISLAND: INTRAPLATE MOTION AND DEFORMATION

Leader: Jim Boles, UC Santa Barbara

Cost: \$250, participants are responsible for their transportation to the Ventura Harbor

Summary: Participants in this one-day field trip will travel by boat from Ventura Harbor to Prisoner's Harbor on the island. Then, travelling by jeeps and trucks along the spine of Santa Cruz Island, we will drop down to the southwestern coast of the island, an area not open to the public. Outcrops include the oldest rocks on the island, the Santa Cruz Island Schist, as well as a diverse sequence of Paleocene to Miocene sedimentary rocks exposed in arroyos and beach cliffs. These rocks include spectacular fossil beds, conglomerate and breccia that reveal intraplate motion and deformation, and volcanoclastic "Monterey-like" sequences with an unknown source. We will also visit major structural features such as uplifted marine terraces, offset stream drainages, and the famous Santa Cruz Island strike-slip fault that juxtaposes these rocks with the Santa Cruz Island volcanics.



Join Jim Boles on a thrilling field trip to Santa Cruz Island

MONTECITO AND SANTA BARBARA DEBRIS FLOWS

Leader: Ed Keller, UC Santa Barbara

Cost: \$110

Summary: Field trip stops are: 1. Montecito Debris Flow of 2018 at and upstream of a debris basin in Montecito. 2. Several Pleistocene debris flows on the beach at Montecito Shores near the Biltmore Hotel, ~2000-year-old earthquake marine terrace and Chumash Site on top of the earthquake terrace. 3. Faulted and folded < 100 ka debris flow deposits and Holocene sediments that are folded and faulted in a sea cliff exposure at Summerland Beach East. 4. Very large (several times larger than Montecito Debris Flow of 2018), ~1ka old debris flow at Rocky Nook Park in Santa Barbara. 5. ~100 ka debris flow folded over the Mission Ridge Anticline. Discuss at lunch the role of active tectonics in influencing the exposure of people and property to the debris flow hazard in Montecito and Santa Barbara.

PETROLEUM MIGRATION IN AN ACTIVE PETROLEUM SYSTEM, SANTA BARBARA BASIN, CA

Leaders: Rick Behl, CSU Long Beach and Mark Kamerling, Consultant

Cost: \$150 for professionals; \$50 for students

Summary: The northern coast of the Santa Barbara Channel is a superb location to observe a petroleum system in action. The primary source rock of southern and central California – the Miocene Monterey Formation – crops out along the coast while just a few kilometers offshore, it is currently generating hydrocarbons. This results in active migration culminating in over 35 known oil and gas fields, exhumed reservoirs, and abundant natural seeps along the coast and offshore. Thus, most components and many processes of an active petroleum system can be observed along the Santa Barbara coast. This field trip will visit 3 locations where active migration can be observed following different kinds of pathways.



Touch the Monterey Formation on an exciting trip on the Santa Barbara coast with Rick Behl and Mark Kamerling



SEDIMENTATION, TECTONICS AND PETROLEUM SYSTEMS OF THE EASTERN VENTURA BASIN

Leaders: Greg Gordon, Aera Energy and Stuart Gordon, CRC (ret)

Cost: \$100

Summary: The petroliferous Eastern Ventura basin (EVB) formed as a borderland-style, fault-bounded deepwater trough in the middle Miocene, and it contains excellent outcrops of turbidite systems such as the Modelo and Towsley Formations. The object of this field trip is to view 3-4 outcrop exposures and discuss the stratigraphic architecture, distribution of lithofacies associations, and interpreted evolution of EVB's Mio-Pliocene depositional systems. We will focus on implications for reservoir quality and geometries, as well as structure-stratigraphy interactions, hydrocarbon generation and migration, and evolution of this deepwater basin. This field trip will also highlight some of the EVB's fascinating oilfield history, which dates back to the 1880's.

Interbedded sandstone and conglomerate of the Towsley Formation on the steeply dipping north flank of the Pico Anticline. Photo by Tony Reid.

THE RIDGE BASIN: TRANSITION FROM MARINE TO NON-MARINE SEDIMENTATION IN A BASIN-FILLING CYCLE

Leader: Dan Schwartz, Daniel E Schwartz LLC

Cost: \$25

Summary: The unique interplay between tectonics and sedimentation in Ridge Basin presents an extraordinary opportunity to examine depositional environments of deep- water turbidites, shallow marine, delta plain, and fluvial/alluvial deposits. This region provides visible examples of geological processes in an active tectonic setting. This trip will visit classic outcrops of the Ridge Basin en route from Oxnard to Bakersfield. Participants will be responsible for their own transportation and meals.



See world-class outcrops with Dan Schwartz

STRUCTURAL TRANSECT ALONG HIGHWAYS 33&166: PETROLEUM GEOLOGY OF THE VENTURA AND CUYAMA BASINS, CALIFORNIA

Leader: Thom Davis, Geologic Maps Foundation, Inc.

Cost: \$75

Summary: A one-day trip from the Ventura anticline oil field, north along Hwy 33 across the western Transverse Ranges fold and thrust belt, and then through the Cuyama Basin and oil fields along Hwy 166. Emphasis will be on the structural geology, oil field traps, and petroleum systems. Trip is led by Thomas L. Davis from the Geologic Maps Foundation.

Short Courses

SEQUENCE STRATIGRAPHY FOR GRADUATE STUDENTS AND EARLY CAREER PROFESSIONALS

Instructors: Morgan Sullivan and Kenn Ehman, Chevron

Cost: \$200 for professionals; \$50 for students

Summary: This two-day short course is designed to teach the principles, concepts, and methodologies of sequence stratigraphy. Sequence stratigraphy is a methodology that uses a hierarchy of stratal surfaces to subdivide the stratigraphic record. This methodology allows the identification of coeval facies, documents the time-transgressive nature of classic lithostratigraphic units, and provides geoscientists with an additional way to analyze and subdivide the stratigraphic record. Using exercises that utilizes outcrop, core, well-log and seismic data, this course provides hands-on experience for learning sequence stratigraphy. The exercises include classic case studies from which many sequence stratigraphic concepts were originally developed.

MITIGATING UNCERTAINTY, RISK, AND BIAS IN GEOTECHNICAL DECISION MAKING

Instructor: Creties Jenkins, Rose and Associates

Cost: \$150 for professionals; \$25 for students

Summary: This one-day course provides an introduction to strategies, tactics, and tools that can help you more effectively evaluate opportunities, avoid pitfalls, and improve results in your geotechnical decision-making. Numerous examples and exercises will change your perspectives on the everyday challenges we face and provide you with techniques to surmount them.

Special Events Highlights

Icebreaker- Welcome to the convention! Mix and mingle with convention attendees. Enjoy complimentary beverages and food while you browse the Exhibit Hall and Poster Session.

Date and Time: Sunday, April 5 from 5 to 7 pm

Cost: Included with registration

Clam Bake on the Beach- Join us for a luxurious outdoor dinner with ocean views. Meal includes soup, salad, clambake pots and s'mores for dessert. Unwind on the beach in the ocean breeze!

Date and Time: Monday, April 6 from 7 to 9 pm

Cost: \$75

Brew & Browse- Head upstairs following the Technical Session to browse the Exhibit Hall and Poster Session.

Date and Time: Monday, April 6 & Tuesday, April 7 from 4 to 6 pm

Cost: Drink tickets included with registration

All-Convention Luncheon- Join us for an exciting talk from Dr. Mike Malaska, scientist in the Planetary Ices Group at NASA/JPL, on "Exploration of Saturn's moon Titan: A Hydrocarbon world in our Solar System."

Date and Time: Monday, April 6 from 11:30 am to 1 pm

Cost: \$45

PS-SEPM Reception- PS-SEPM will be holding their Executive Committee meeting which is open to the public.

Date and Time: Monday, April 6 from 5 to 7 pm

Additional Special Events

Awards Luncheon- Celebrate the award winners from the PSAAPG and PS-SEPM communities. Featuring guest speaker, Mike Party, AAPG President.

Date and Time: Tuesday, April 7 from 11:30 am to 1 pm

Cost: \$45

Wine, Beer, and Spirits Tasting- Ventura County has so much to offer and you get to experience it all in one spot! You will learn about the products from the distributors themselves. Enjoy samples of local wine, beer and spirits. Snacks are also included.

Technical Session Themes

The Environment, Regulations and Water Issues

Sponsored by DEG

Monday, April 6 from 8:05-11:30 am & 1:20-1:40 pm in Mandalay Ballroom A

Case Studies in Exploration and Development

Sponsored by PSAAPG

Monday, April 6 from 1:55-4:50 pm in Mandalay Ballroom A

Structure and Deformation

Sponsored by SEG

Monday, April 6 from 8:05-9:30 am in Harbor

Seismic Technology and Interpretation

Sponsored by SEG

Monday, April 6 from 9:45-11:30 am in Harbor

Source to Sink Studies

Sponsored by PSAAPG

Monday, April 6 from 1:15-4:30 pm in Harbor

The Monterey Formation and Similar Strata Across Space and Time

Sponsored by PS-SEPM

Tuesday, April 7 from 8:05-11:30 am in Mandalay Ballroom A

Petrophysical Applications and Operations

Sponsored by AAPG

Tuesday, April 7 from 8:05-9:30 am in Pacifica

Sedimentary Basins and Tectonics, a session in memory of Eric D. Hendrix

Sponsored by PS-SEPM

Tuesday, April 7 from 9:00-11:30 am in Harbor

Extended Lecture Series

Deep dive into topics that need more time.

Integrated Age Control of the Monterey Formation and Its Relationship to Miocene Climatic Evolution *by Gregg Blake.*

Source-to-sink concepts aid in understanding the genesis of gorge-fill sediments observed in Mio-Pliocene (Neogene) Capistrano Formation deposits at Dana Point, California and their relationship to deep marine fan deposits in the California Borderland, offshore Orange County, California *by Dan Schwartz.*

Current Status of Stratigraphic Practice in the Environmental Industry: Petroleum vs Remediation Geology *by Colin Plank, Rick Cramer, and others.*

The Quaternary Depositional Systems of the Santa Barbara Channel and Shelf *by Alex Simms and others.*

Seismic Interpretation for Geologists *by Lisa Alpert.*

Machine Learning for Enhanced Understanding of Petroleum Systems *by Allegra Hosford Scheirer.*

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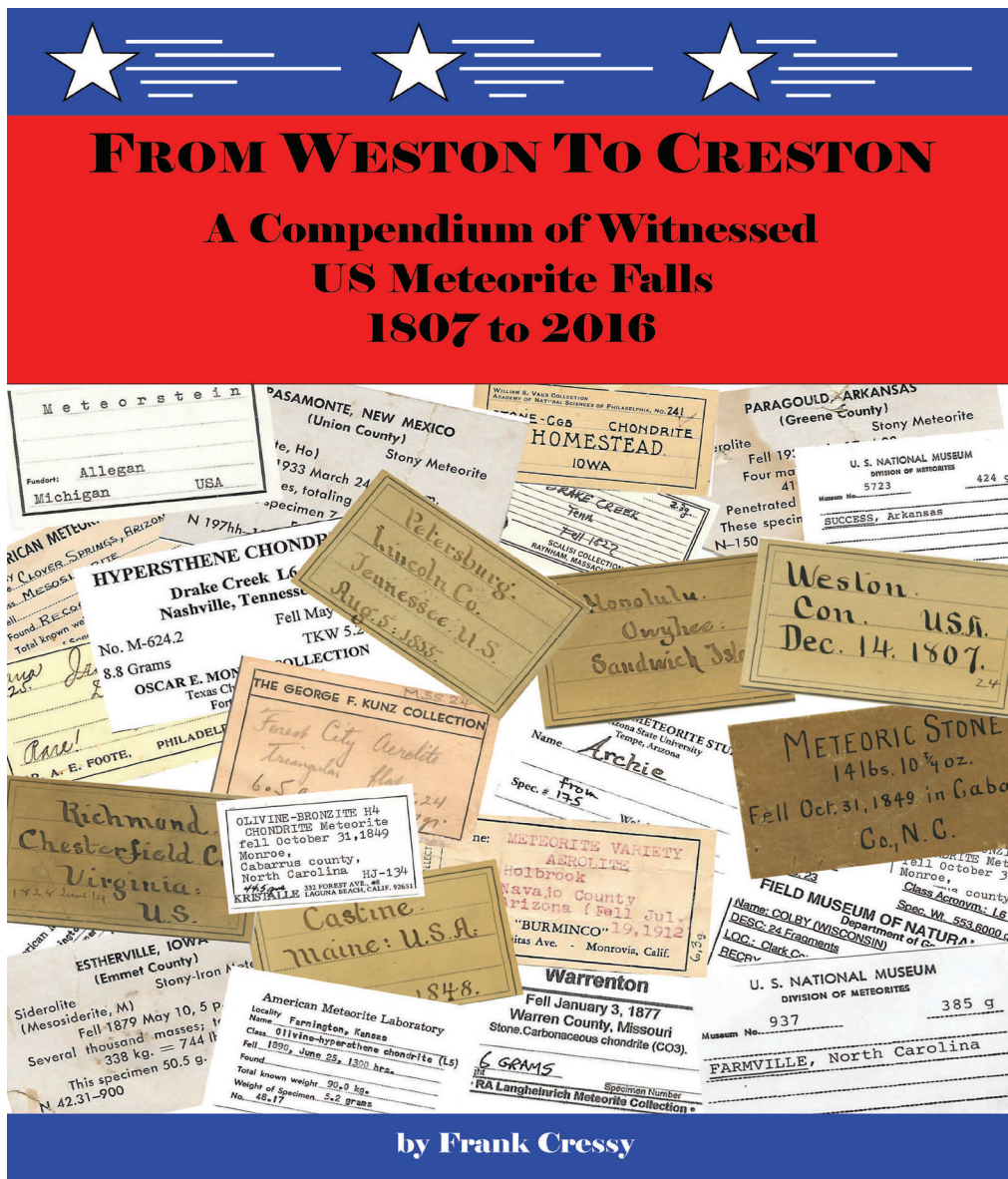
New Publication

"FROM WESTON TO CRESTON – A Compendium of Witnessed US Meteorite Falls – 1807 to 2016"

by Frank Cressy

The violent display of blazing light and explosive sounds ending with meteorites crashing to the ground is an unforgettable event to those who witness it firsthand. This book summarizes the fall histories of nearly 170 witnessed meteorite falls that have occurred in the United States since the first documented fall at Weston, Connecticut in 1807. It is written not only for the collector of these rare objects, but also for those interested in the history and the growth of the branch of science known as Meteoritics. The accounts of the fall phenomena and recoveries associated with these extraordinary events are the focus of the book. However, the book is more. The reader will learn about those individuals responsible for the growth of the science and their contributions, together with interesting facts and coincidences about these visitors from space; 257 pages with over 300 color photos plus maps, figures and illustrations.

Soft Cover books \$36.00; for ordering, contact: fcressy@prodigy.net



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by Steven R. Lipshie

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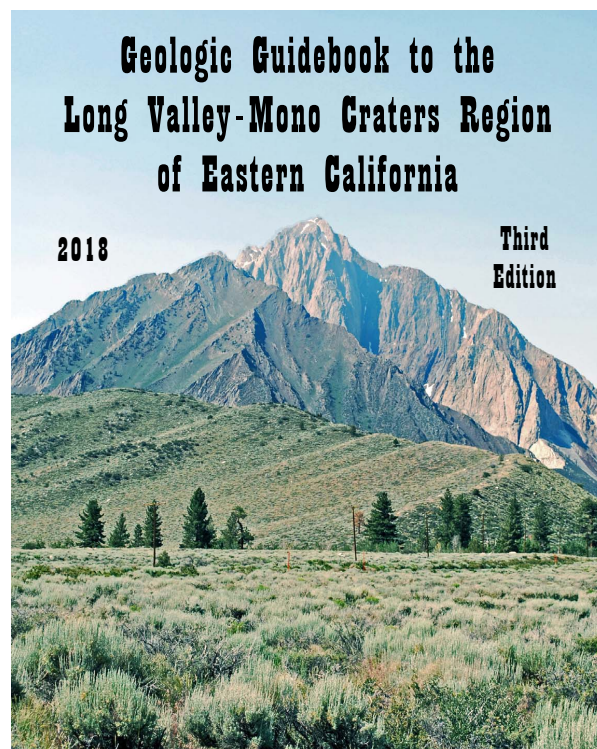
Price: \$50 plus shipping

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Geological Society of Nevada

email: gsn@gsnv.org

phone: (775) 323-3500



Geological Society of Nevada

PSAAPG Membership Directory

The PSAAPG website will have a members-only password-protected membership directory available as of March 1, 2018

Please email SKChehal2@aeraenergy.com if you do not want your name listed. There will also be a checkbox for this on the PSAAPG membership renewal form that goes out before the end of this year.

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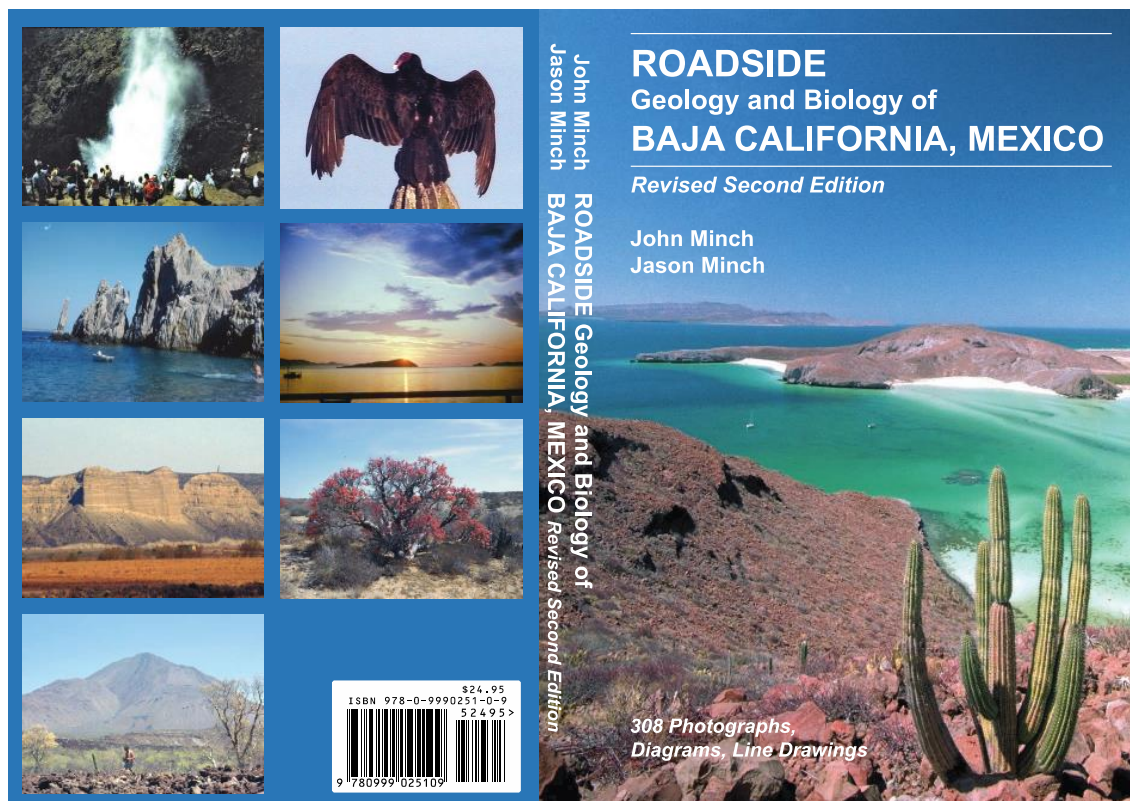
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AAPG Needs Visiting Geoscientists

The AAPG Visiting Geoscientist Program needs volunteers to give talks at colleges, universities and local societies.

<https://www.aapg.org/career/training/in-person/visiting-geoscientists>

Because travel time and cost is the largest impediment to getting good people to where they are needed, it is best to have a reservoir of good, interesting speakers available in each region.

The Pacific Section needs you!

To become a Visiting Geoscientist an individual must be:

- Be a current AAPG Member.
- Have five or more years of geology experience.
- Active in the petroleum geology field.
- Interested in encouraging career development in geology.
- Make at least one visit per fiscal year.

<https://www.aapg.org/career/training/in-person/visiting-geoscientists/become-vg>

Please register and apply to be an AAPG Visiting Geoscientist!

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Kobe Bryant and his Impact on California Geology

By Don Clarke

John Randall, Past President of Pacific Section AAPG and Chevron geologist lived in the Baldwin Hills essentially above the Inglewood Oil Field. He had a neighbor across the street named Michael Cooper. John and Michael became quick friends due to their love of basketball. Michael was a professional basketball player who worked as a scout for the Los Angeles Lakers. He has 5 NBA titles under his belt and played with basketball greats including Magic Johnson and Kareem Abdul-Jabbar. One day Michael told John that he was being sent to Pennsylvania to scout a bright 17 year old high school basketball player. He did and came back with the recommendation to Jerry West that the Lakers hire Kobe Bryant as soon as possible. Over the years John got to know Kobe too.

One day about ten years back I got a call from John Randall asking me if he could help me with my class at Compton College. I taught Physical Geology for 14 years part time at Compton College which primarily serves underprivileged inner city students. Athletics was the strength not science. John wanted to know if he could help me motivate the students. I said yes and invited John to come and talk to my class. He did and told them about his career as a geologist. John grew up in Chicago and escaped the inner city. The talk went very well. John called me back and suggested an even better motivator for my students. He would provide an official Lakers Jersey with Kobe Bryant's autograph to any student who got an A in my class. It was worth a try. So I said let's try it.

I announced this to the class. Most of the class was skeptical. Until now I had very few A's. That semester ended with one A. I asked her to come back to class the first day of the next semester. She showed up along with a few of her fellow students from last semester and her boyfriend. John Randall made good and showed up to my class on the first day. We made the presentation of the jersey and the class was totally blown away. The young woman gave the jersey to her boyfriend who put it on over his clothes and paraded around the room. John continued this until I left Compton College. My class was always full after that and had a waiting list. Each year there were more A's.

Eventually there were many A's and I told John that buying jerseys must be costing him a fortune. He said don't worry about this I have it under control. It never occurred to me that Kobe may have been part of this plan of John's to motivate young college students.

Kobe's passing brought this back strong. I now think John and Kobe planned this all along. I may not be able to thank Kobe but I can certainly thank John.

John Randall and Kobe Bryant.

Thank you both for helping to motivate these young students at Compton College.

That was truly a selfless gift.

John Randall is a Professional Geologists in California, Texas and Louisiana. He lives in Log Angeles and was the Pacific Section AAPG President in 1991-1992. He provides petroleum-related services through John Randall Geological Services, LLC.

Reprinted from the February 2020 AAPG Explorer

The Hunt for California Crude

by Mike Nelson

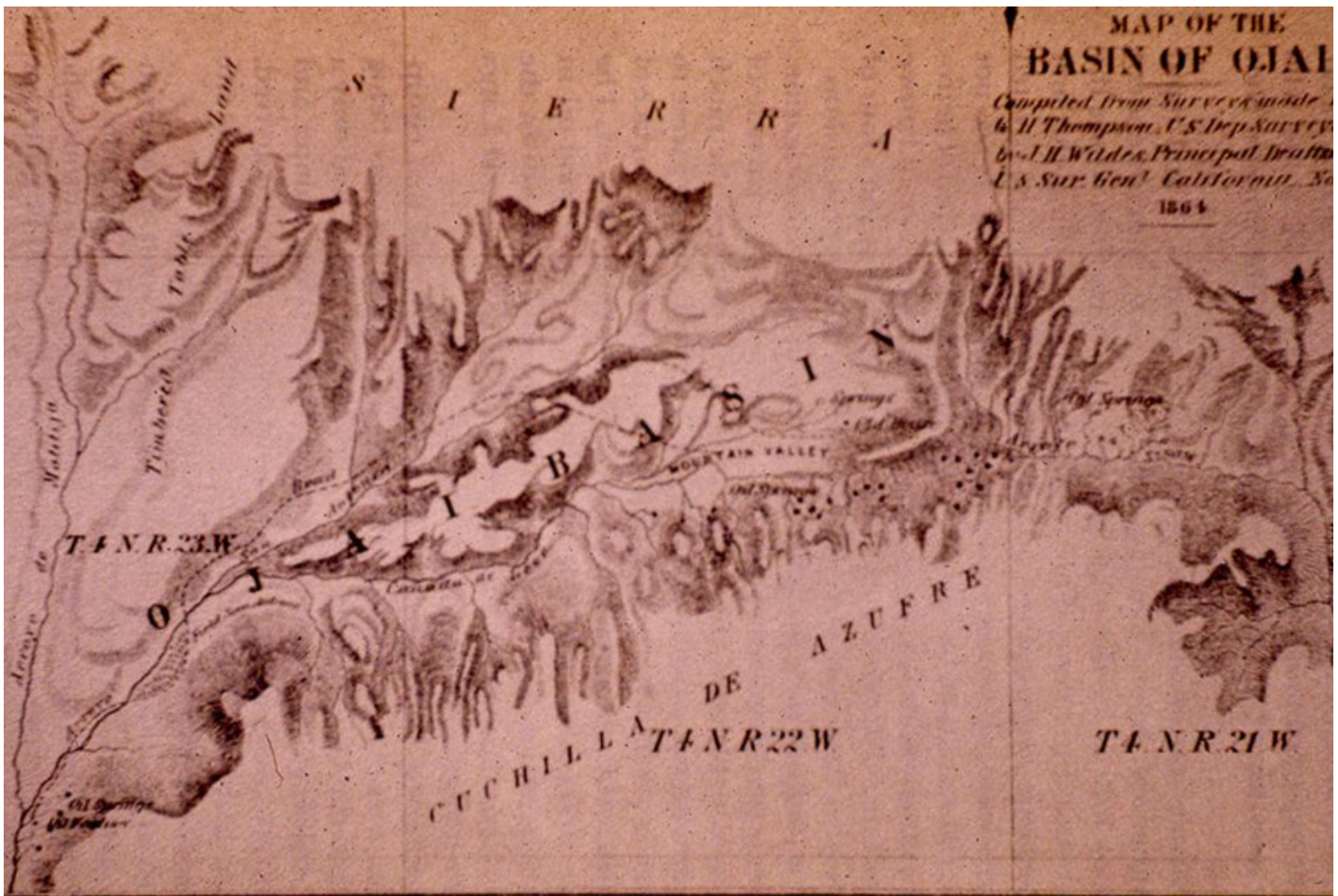
In the summer of 1865, Thomas Bard arrived in Ventura County, Calif., to begin exploration drilling on properties owned by his uncle, Thomas Scott, in the area of Sulphur Mountain. Scott had made a fortune investing in Pennsylvania railroads in the 1850s and in Titusville oil fields in the early 1860s.

Scott undertook petroleum exploration in California on the basis of sensational reports of the oil potential there published by Yale professor Benjamin Silliman in 1864. Writing to Scott about the Sulphur Mountain area, Silliman said, "Its great value is in its almost fabulous wealth in the best of oil." He based this assessment on mapping of the abundant oil seeps on the north side of Sulphur Mountain. On this basis, entrepreneur Scott bought 277,000 acres of prospective oil property in California, including land on the north flank of Sulphur Mountain in the Ojai Valley. He then

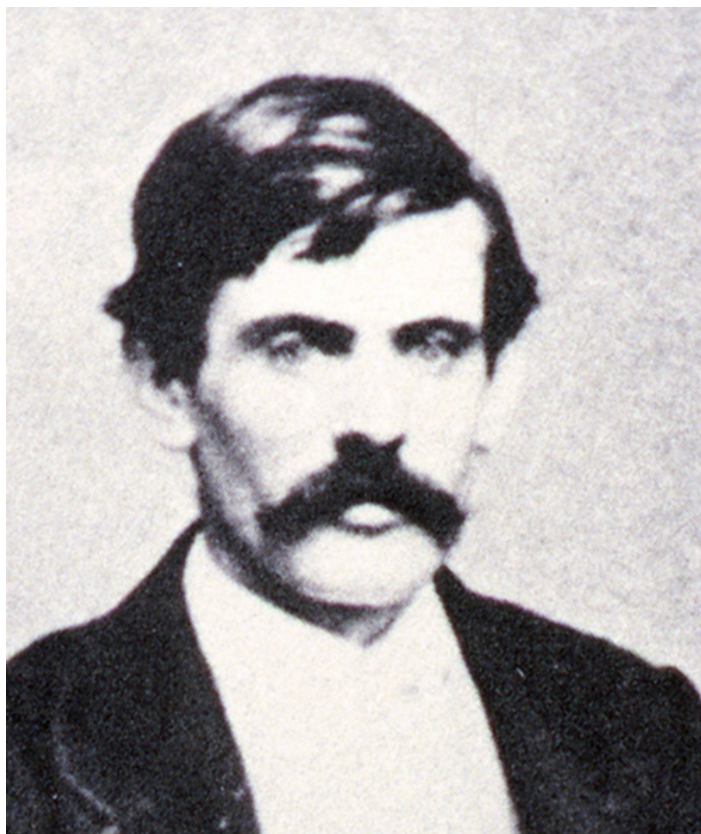
sent his 24-year-old nephew, Thomas Bard, around Cape Horn with a steam-powered, cable-tool drilling rig to begin exploration of his properties in Ventura County.

Rising Demand

The demand for oil on the West Coast had been rising steadily since the 1859 discovery of oil by Edwin Drake at Titusville, Pa. Drake's discovery touched off a boom in production of petroleum-derived kerosene because of its popularity as a fuel for oil lamps. Kerosene was cleaner burning than camphine lamp oil and cost less than whale oil. However, as a result of the Civil War, shipments of oil and kerosene from the east declined and interest rose in exploring for a source of petroleum in California. Despite drilling in Humboldt County in 1861 and in other areas of the state, no commercial oil production was found.



Professor Benjamin Silliman's oil seep map of the Ojai Valley (1864).

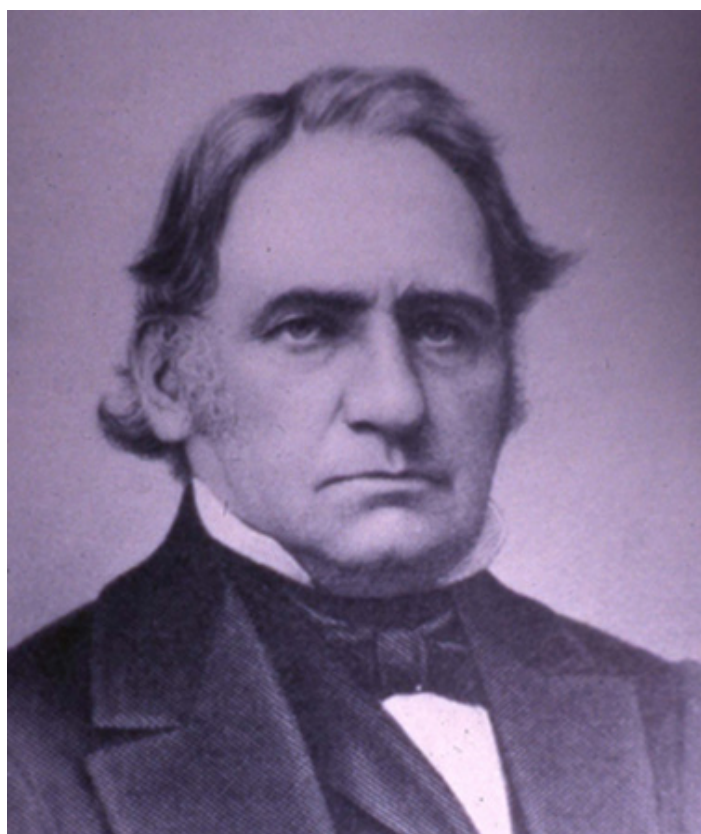


Thomas Bard, the first person to establish sustained production of petroleum from a drilled well in California, in 1867.

However, Silliman's enthusiastic report in 1864, combined with the Civil War-induced scarcity of kerosene, renewed interest in oil exploration in California, and the state's first drilling boom began in 1865.

King of the Mountain

Bard became a part of this boom when he arrived in Ventura County in 1865 to begin drilling on the north side of Sulphur Mountain. However, he was not alone in his interest in the area. Another party was intent on finding a source of oil in California – the Stanford Brothers illuminant business in San Francisco. The company imported and sold kerosene shipped from the East Coast and had refined small amounts of scarce California oil to produce kerosene. Josiah Stanford leased property on the south side of Sulphur Mountain, hoping to find a steady source of California crude from which to refine kerosene for the Stanford Brothers business. Being a mining engineer, his approach was different from Bard's: Stanford tunneled for oil. Using Chinese labor from Ventura, Stanford dug an 80-foot tunnel into the north-dipping Miocene strata of Saltmarsh Canyon and began producing 20 barrels of oil per day in 1866. Crude shipments to the Stanford Brothers refinery in San Francisco began by boat in August of 1866. By tunneling, Josiah Stanford became the first person to establish commercial production of petroleum in the Golden State.



Josiah Stanford (brother of Leland Stanford, of Stanford University fame), the first person to establish commercial production of petroleum in California in 1866

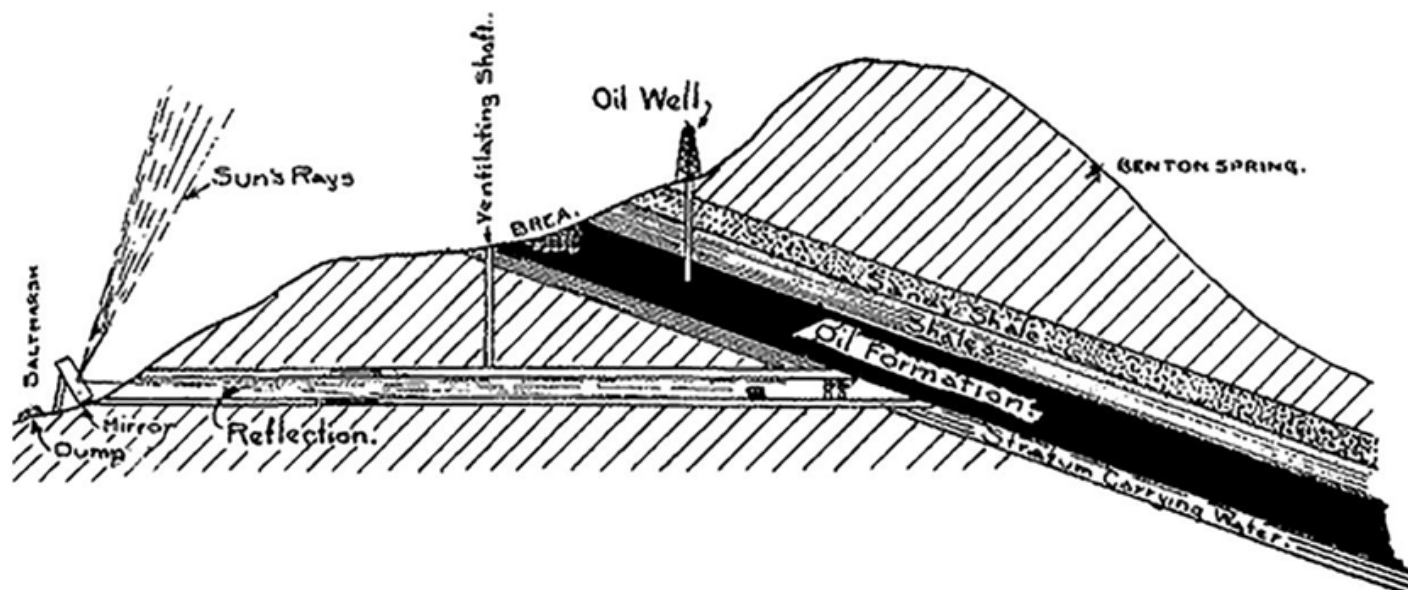
Meanwhile, several miles to the north, Thomas Bard had drilled five dry holes on the north side of Sulphur Mountain by the end of 1866. He spudded the "Ojai" No. 6 well early in 1867 in the upper Ojai Valley near the present-day Thomas Aquinas College.

On May 29, 1867, at a depth of 550 feet, California's first oil gusher came in with oil rising over the top of the 60-foot derrick for 15 minutes. The discovery well for the Silverthread area of the Ojai Field settled to production of 10 to 20 barrels of oil per day of 20-gravity oil. Thomas Bard became the first person in the state of California to establish sustained production of petroleum from a drilled well.

End of the Boom

However, with the end of the Civil War on April 9, 1865, shipments of oil and kerosene resumed from the Pennsylvania oil fields to California. Consequently, the price of kerosene in San Francisco dropped from \$2.50 per gallon in 1865 to \$1.70 per gallon in 1866 and then to 54 cents per gallon in 1867, a total decline of 78 percent. During the same time, the price of oil declined from \$6.50 per barrel to \$2.50 per barrel, a 61-percent decline.

Stanford and Bard soon found that they could not



Cross-sectional diagram of an oil tunnel at Sulphur Mountain

economically compete with cheaper imports of eastern petroleum products. As a result, Stanford Brothers again focused on importing oil and kerosene from the East Coast and selling it in the San Francisco market. Bard turned to developing the real estate properties that his uncle, Thomas Scott, had originally purchased for oil exploration.

The California oil boom, begun in 1865, was over within two years – a victim of falling oil prices at war's end. Oil exploration and development in the state would not begin again in earnest until the discovery of oil in Pica Canyon (near present-day Magic Mountain) in 1876 by Pacific Coast Oil Company, a predecessor of Chevron.

Bard, however, would get a second chance in the oil business, becoming the first president of Union Oil Company of California in 1890. Stanford's tunneling approach to oil field development proved economic in the 1890s when Union Oil Company dug approximately 50 oil tunnels at Sulphur Mountain to increase the company's production. These tunnels continued to produce small amounts of oil until being officially plugged and abandoned in 1998.



Mike Nelson

Mike Nelson is currently geoscience manager for DCOR LLC, based in Ventura, Calif. DCOR assets are primarily in the California offshore with eight oil and gas fields and 11 platforms in the company's portfolio. He began his career as a geologist with Union Oil Company in the late 1970s working California onshore exploration and offshore development. Nelson performed geologic evaluations for many of Unocal's oil field assets, ultimately managing geologic asset teams in the major California basins. In the early 1990s, he accepted a position as executive director at the California Oil Museum in Santa Paula. In 2006 he joined DCOR to help the company manage and grow its oil field asset base.

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Member Society News

Alaska Geological Society

March 17, 2020, Tuesday

Speaker: Dave Buthman, Hilcorp

Topic: Cook Inlet Exploration: Past, Present, and Future

April 17-18, 2020, Friday - Saturday all days

2020 AGS & UAF Technical Conference - Website

2020 Vision: "Standing with the University of Alaska Geosciences"

University of Alaska, Fairbanks, Reichardt Building

May 21, 2020, Thursday

Speaker: Tom Douglas, Cold Regions Research and Engineering Laboratory

Topic: TBA

Coast Geological Society

March 17, 2020: TBD

April 21, 2020

Speaker: Gregg Wilkerson

Topic: Known Geologic Structure Program

L.A. Basin Geological Society

Thursday February 27

Speaker: Mackenzie Day

Topic: Wind and Aeolian Sandstones on Mars

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Be a part of the bi-monthly newsletter by sending in your technical articles to:

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Articles for the newsletter should be no more than 7 pages in total. Any figures or images (graphics, photos, and scans) must be at least 300 dpi resolution. Scanned photos, illustrations (line art) should preferably be submitted as a .tif, .gif, or .bmp; .jpeg format and should include titles and captions.

Northern California Geological Society

Wednesday February 26

Speaker: Donald A. Medwedeff

Topic: Tectonic Setting and Structural Analysis of Mt. Diablo and Vicinity

Wednesday March 25

Speaker: Roland Burgmann, UC Berkeley

Topic: Sea Level Rise and Subsidence in the Bay Area

Wednesday April 29

Speaker: Jared Gooley, Stanford University (Ph.D. candidate)

Topic: Tectonic evolution of the central California margin as reflected by detrital zircon composition in Mt. Diablo region

Wednesday May 27

Speaker: Raymond Jeanloz, UC Berkeley

Topic: Experimental mantle geochemistry and preliminary findings of the Deep Carbon Observatory

Northwest Energy Association

Thursday March 19, 2020: TBA

Thursday April 16, 2020: TBA

Thursday May 21, 2020: TBA

Sacramento

MARCH 18, 2020

Speaker: Robert G. Lindblom

Topic: TO BE ANNOUNCED

APRIL 15, 2020

Speaker: Robert Sterling

Topic: "What Is Next for the "Mature" Sacramento Basin? The West Side Story, A Brief Look into the Lower Cretaceous and Upper Jurassic Sediments"

May 20, 2020

Speaker: Dr. Jeff Unruh

Topic: "Deformation of the Ancestral Forearc During Late Cretaceous-Early Tertiary Blueschist Exhumation, Mt. Diablo Region"

San Joaquin Geological Society

Tuesday, March 10

Speaker: Dr. Sarah Milkovich

Topic: MARS 2020: SEEKING SIGNS OF ANCIENT LIFE ON MARS

Alaska Geological Society

www.alaskageology.org

P. O. Box 101288
Anchorage, AK 99510

Contact: Keith Torrance
ktorrance@gci.net



Geology meetings/talks 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 am to 1:00 pm. Open To The Public. No Charge to Attend.

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Coast Geological Society

www.coastgeologicalsociety.org

P. O. Box 3055
Ventura, CA 93006

Contact: Eric White
805-628-2312



Dinner meetings are held monthly September through May, on the third Tuesday of the month, at 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). For reservations, please email Shelby Fredrickson (secretary@coastgeologicalsociety.org), and should be made by 4:00 p.m. on the Friday before the meeting.

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Los Angeles Basin Geological Society

www.labgs.org

Contact: Bert Vogler
949-585-3103



Luncheon meetings are held monthly September and October; and January through June, usually on the fourth Thursday of the month, 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 \$30 (with reservations), \$40 (without reservations), \$20 for retired members, and \$5 for students. "Reservations can be made online at www.labgs.org or by contacting Wanjiru Njuguna at wanjiru.njuguna@gmail.com. Reservations are best made prior to Tuesday before the meeting.

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Northern California Geological Society

www.ncgeolsoc.org

803 Orion #2
Hercules, CA 94547-1938

Contact: Barbara Matz
barbara.matz@aptim.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.

(Continued on next page)

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Northwest Energy Association
www.nwenergy.us

P. O. Box 6679
Portland, OR 97228

Contact:
Jim Jackson or John Armentrout



Luncheon meetings are held monthly September through May, on the third Thursday of the month, at the Multnomah Athletic Club (1849 SW. Salmon Street) in Portland, Oregon. Meeting time is at 11:45 AM to 1:00 PM (speaker about 12:15 PM). The cost is \$25 for members and \$30 for non-members. For information or reservations email NWEnergyAssociation@gmail.com, or our Postal Box: Northwest Energy Association, P.O. Box 6679, Portland, Oregon 97228-6679.

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Sacramento Petroleum Association

P. O. Box 1844
Folsom, CA 95630

Contact: Pam Ceccarelli
916-439-0400



Luncheon meetings held monthly January through November, on the third Wednesday of the month. Location: Club Pheasant Restaurant in West Sacramento. The meetings start at noon. The cost is \$16 - \$20. For information or reservations, contact Pam Ceccarelli.

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San Joaquin Geological Society
www.sanjoaquingeologicalsociety.org

P. O. Box 1056
Bakersfield, CA 93302

Contact: Jennifer Prosser
jprosser@envirotechteam.com



We have dinner meetings on the second Tuesday of the month, October through June, at the American Legion Hall (Post 26) at 2020 H Street, Bakersfield, CA 93301. There is an icebreaker at 6:00 p.m., dinner at 7:00 p.m., and a talk at 8:00 p.m. Dinner is \$30 for members with reservations, \$35 for nonmembers and members without reservations and \$15 for Students.

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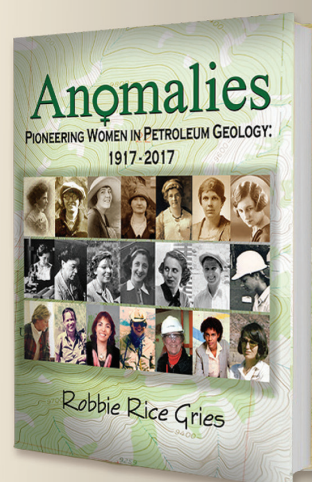
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Once released, the book can be ordered from the AAPG Store for \$50 plus shipping and handling. Please e-mail publications@AAPG.org expressing your interest and we will contact you as soon as the book is available. Don't want to wait? Visit the AAPG Center at the 2017 ACE meeting to purchase your copy.



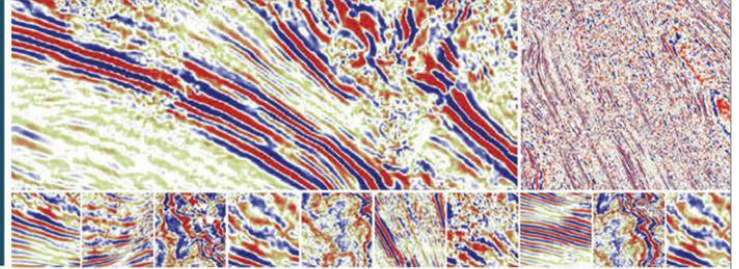


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