



LOS ANGELES BASIN GEOLOGICAL SOCIETY

March 2024 Meeting Announcement

Three-Dimensional Pore Networks in Stevens Sandstone at Elk Hills Oil Field, California: Implications for CO₂ Injection and Trapping

*Dr. Liaosha Song, Associate Professor, Department of Geological Sciences
CSUB and Director, California Well Sample Repository*

Thursday, March 28th, 11:30AM

Signal Hill Petroleum, 2633 Cherry Ave., Signal Hill

2nd floor Conference Room,

Abstract

The Miocene Stevens sandstone in the San Joaquin Basin (SJB) of California is a promising target for CO₂ geological sequestration. Significant heterogeneity in reservoir properties has been noticed in this formation attributed to the complicated geology in the Miocene sedimentation in the SJB. In the research directed at CO₂ sequestration, six Stevens sandstone core samples were collected from a well in the Elk Hills oilfield of California. High-resolution X-ray micro-computed tomography (micro-CT), a non-destructive imaging method, was utilized to create a three-dimensional (3D) model for the investigation of the pore networks. Three rock phases were identified: mineral grains, pores, and cement. Porosity and permeability are key petrophysical properties for the assessment of CO₂ injection and storage. On a pore scale level, porosity and permeability define the storage capacity and injectivity of a reservoir. These properties correlate to the 3D pore structure and the connectivity of the pores. Absolute permeability and residual trapping of CO₂ were simulated. The results demonstrate the great CO₂ sequestration potential of Stevens sandstone at Elk Hills oilfield.

Biography

About the speaker: Dr. Liaosha Song is an Associate Professor in the Department of Geological Sciences CSUB, and the Director of California Well Sample Repository. He received his Ph.D., degree in geology from West Virginia University in 2018. Liaosha also holds a Master of Science degree in marine geology (2013) and a Bachelor of Science degree in geology (2010) from China University of Petroleum. Prior to Joining CSU Bakersfield, he worked for the EQT Corporation and the US-China Clean Energy Research Center. His research focuses on reservoir characterization, CO₂ and H₂ geologic storage, and unconventional reservoirs.

Luncheon prices, cash or check

Lunch and Talk (pre-registered)	\$25.00
Retired:	\$20.00
Student:	\$10.00
Walk-ins:	\$35.00

Reservations are required by noon, March 25th, at labgs.org/meeting_info.html or directly contact LABGS Secretary Joseph Landeros at (626) 497-1710 or landerosjd@gmail.com.

1924-2024: The Pacific Section of the AAPG is turning 100!

The Pacific Section AAPG was chartered as a stand-alone, west coast-based entity in 1924, then known as the Pacific Society of Petroleum Geologists. The center of the organization and early activities were right here in the Los Angeles Basin. The first regular newsletter was published in January of 1947 “in the hope that it will serve as a medium of establishing a closer contact between members of the Section.”¹ Martin Van Couvering added a few sentences later that this newsletter was “frankly an experiment.” If the ‘experiment’ has endured for 100 years, it is safe to say that it has added immense value.

We plan to host a 100-Year celebration later this year in cooperation-partnership with the Pacific Section AAPG. Our guiding concept in the planning is to have a fun and informative local meeting with a certain combination of talks, posters, and field trip(s).

Stay tuned for more details, it will be a must-attend opportunity to celebrate our economic-historical heritage.

¹ Van Couvering, Martin, 1947, Greetings, Pacific Petroleum Geologist, Newsletter of the Pacific Section, American Association of Petroleum Geologists, January 1947, Volume 1, Number 1.

The Geologic Book/Paper Giveaway Continues! Students take note!

Many good books were scooped up by several fortunate students at last months' meeting: key compendiums on the San Joaquin basin, Four Corners Geology, New Mexico State Geological Survey publications, a hardback on sequence stratigraphy, and dated but still-valuable textbooks, just to name a handful!

Please come and peruse the collection and keep the use of this valuable collection going. Note that when books go out of print, they get expensive and hard or impossible to find.

The LABGS extends its thanks and appreciation to the estate of Jean Paul Chauvel. "JP" Chauvel was a career geologist-geochemist with Union Oil of California. JP's curated collection of material has been made available to the Society.

Volunteerism! It's good for you, your network, and your resume!

The LABGS is currently looking for a Treasurer!

If you have been considering ways to be more involved and engaged in your local geological community, being directly involved as a member of the Society's executive committee is an excellent way to accomplish that. Contact daniel@ironhorseenergy.com, or any of us below, if you are interested, thinking about it, or seek more information about the role.

Thank You Signal Hill Petroleum!

The Society would like to sincerely thank Signal Hill Petroleum for their gracious and steadfast support of our monthly meetings by providing a very nice and roomy venue.

"Each problem that I solved became a rule which served afterwards to solve other problems."

- *Rene Descartes* (1596-1650)²

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² <https://www.cs.virginia.edu/~robins/quotes.html>