

Association of Environmental and Engineering Geologists

Inland Empire Chapter

of the Southern California Section

Vol.7 No. 11

November Newsletter

Yellowstone National Park, 2010, from the Eyes of a Geologist

Stephen E. Jacobs, PG, CEG,
Consultant Engineering Geologist

Thursday, November 17, 2011

6:00 – Social	Temecula Public Library, Community Room A
6:30 – Dinner	Temecula Public Library, Community Room A
7:30 - Speaker	Temecula Public Library, Community Room A

Location

Temecula Public Library, 30600 Pauba Road, Temecula, CA
(Meeting Cost \$25; Students \$5); see meeting details on page 3

AEG-IE

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Abstract

Stephen E. Jacobs, stephenejacobs3019@gmail.com

The Yellowstone region of Wyoming and Montana is one of the most interesting places in the world to see geology, scenery and wildlife. This region includes not only Yellowstone and Grand Teton National Parks, but it also has the site of the 1959 M 7.5 earthquake at Lake Hebgen, spectacular Precambrian and Pleistocene (glacial) geology along Beartooth Highway, Hot Springs State Park at Thermopolis, and Precambrian Stillwater (Ultramafic) Complex.

Yellowstone was the country's first national park established in 1872 as a result of the famous survey of the area by Ferdinand V. Hayden in 1870-1871. Yellowstone has an active volcano, experiences approximately 2,000 earthquakes annually, contains approximately 10,000 thermal features, more than 3,000 geysers, approximately 290 waterfalls, 15 feet or higher, flowing year-round, and one of the world's largest calderas, measuring 45 by 30 miles (72 by 48 km). It also has one of the world's largest petrified forests.

The Yellowstone hotspot is the largest hotspot under a continent and among the largest of some thirty active hot spots on Earth. The North American plate of the Earth's crust has drifted southwesterly over the Yellowstone hotspot at about 1 inch per year. About 16 million years ago, the hotspot was beneath what is now northern Nevada near its border with Oregon and Idaho. As the continent drifted southwest, the hotspot (even though stationary) in effect moved northeast beneath Oregon's southeast corner (by 10 my), then across Idaho to Wyoming (by 6.6 my). It ended up beneath Yellowstone about 2 million years ago. The 3

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more information visit the
Chapter website:*
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Submittals: Deadline, 28th of the
month. Employment notices,
job position announcements, and
advertisements can be posted for
a minimal fee. *Newsletter
circulation about 170 in greater
inland areas of Southern
California, and elsewhere.*

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Abstract (continued)

Yellowstone calderas emitted about 300 to 2,500 times the volume of ash as compared to that emitted by the Mt. St. Helens eruption in 1980.

In the tour of Yellowstone, I will illustrate features of volcanism and hydrothermal activity including spectacular travertine hot springs terraces at Mammoth Hot Springs, geysers, multi-colored thermal pools and springs in the Norris, Lower, Midway, Upper and West Thumb Geyser Basins, and spectacular waterfalls and volcanic deposits in the Grand Canyon of the Yellowstone River. As a special treat the tour will include one of the famous (but one of the best kept secrets in the park) fossil petrified forests in Yellowstone with upright tree trunks and stumps. While petrified wood is not the rarest of fossils what is so remarkable about these fossil trees is the fact that the trees were preserved in an upright position. In addition, many forms of wildlife were seen during my visit including geese, elk, deer, bison and wildflowers. Bears, moose and wolves were not seen, but do live in Yellowstone.

After Yellowstone, the tour continues on to the Grand Teton created as a result of normal faulting and sculpted by glacial erosion as illustrated by the spectacular views of glacially carved peaks and lakes. Beartooth Highway offers another opportunity to view glacial topography. At Hebgen Lake, the tour will show some fault scarps photographed during the 1959 earthquake and current views of the area, and the Madison Canyon landslide that created Earthquake Lake. More travertine deposits will be seen at Hot Springs State Park in Thermopolis, Wyoming. Finally, we will visit the Benbow Chromite Mine in the Precambrian Stillwater Complex in the Beartooth Range of Montana. The Stillwater Complex consists of layered ultramafic plutonic rocks of mainly anorthosite, gabbro, norite, bronzitite, and peridotite. The chromite from the Benbow Mine is in a peridotite.

Speaker Biography

Steve Jacobs received a B.S. degree in geology at U.C.L.A in 1971, an M.S. degree in geology specializing in paleontology at the University of Nebraska-Lincoln in 1973, and another M.S. degree in geology specializing in engineering geology at California State University-Los Angeles in 1982. Mr. Jacobs has practiced engineering geology since 1979. He has worked on a variety of projects throughout California, Nevada and Arizona involving geologic and geotechnical investigations for residential and commercial developments and litigation studies, fault investigations, seismic hazards and groundwater studies, and geologic home inspections for feasibility of purchase. Most recently Mr. Jacobs has performed geologic mapping in the San Vicente Water Pipeline and Mission Trails Pipeline Tunnels for San Diego County Water Authority from July 2007 to December 2009 and of shoring walls for the new Downtown San Diego Library from September 2010 to March 2011.

Steve has published several articles and abstracts on paleontology, landslides, geologic structures, and Pleistocene deposits, and prepared several geology field trip guidebooks. Most recent research includes two or three articles on the Pleistocene Paleontology and Stratigraphy of the Palos Verdes Peninsula in southern California. He is a member of the Geological Society of America, Association of Engineering Geologists, San Diego Association of Geologists, and South Coast Geological Society.

Yellowstone

National Park
Montana, Wyoming, Idaho

(Photo from NPS website)



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OTHER MEETINGS

AEG-Southern California Section:

Nov 8, 2011 (Tuesday). ***"Subsurface Characterization at LADWP Headworks Reservoir Site, City of Los Angeles."***
Speaker: **David L. Perry**; AMEC Engineering and Consulting, Inc. Location: Cisco's Restaurant, 925 S. Westlake Blvd., Westlake Village, CA. For more information visit <http://www.aegsc.org/>

ASCE (Los Angeles Branch): Nov 9, 2011 (Wednesday).
"Double Presentation: Recent Earthquake and Tsunami in Japan." Prof. Daniel Pradel, Group Delta Consultants, Inc.; and Marc Percher, P.E. of Halcrow, Inc. **Location:** Ports O' Call, Harbor View Room-Berth 76, San Pedro CA. For more information visit www.ascelasection.org

IGS: Dec 7, 2011 (Wednesday). ***"Basin Conceptual Model Development Process as a Precursor to Updating a Regional Groundwater Flow Model."*** Speakers: **Tony Morgan and Tim Moore, United Conservation District.** Location: LSA Associates office, Riverside. For more info visit <http://www.inlandgeo.org/>

SCGS: Dec 5, 2011 (Monday). ***"Annual Poster Session."*** Location: Double Tree, Santa Ana. For more info about SCGS visit: <http://www.southcoastgeo.org/>

SDAG: Nov 16, 2011 (Wednesday). ***"Rough-Hewn Land: A Geologic Journal from California to the Rocky Mountains."*** Speaker: Keith Meldahl. Location: Marina Village. For more info visit <http://www.sandiegogeologists.org/>

SME: Nov 8, 2011 (Tuesday). ***"Kramer Deposit: Geology, Mining history, & Current Operations at the Boron Mine."*** Speaker: Brandon Griffiths, Hydrologist for Rio Tinto Minerals –Boron Operations. Location: Angels Roadhouse, Apple Valley, CA. For more information visit <http://www.mine-engineer.com/socalmining/>

November AEG-Chapter Meeting Info

Temecula Public Library

30600 Pauba Rd., Temecula, CA, (951) 693-8900

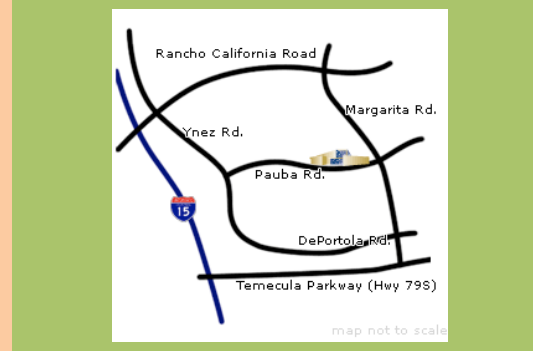
- Social/Dinner: Community Room A
- Presentation: Community Room A

Directions:

From I-15, EXIT at Rancho California Rd. and proceed 0.2 miles northeast to the first light at Ynez Rd and take a right (south). Proceed 0.8 miles southeast on Ynez to the second light at Pauba Road. Take a left on Pauba Rd. and proceed 0.9 miles northeast. The Temecula Public Library is the large building on the north side (left) of the road.

Go through the Library's main sliding glass door entrance and Community Room A will be on the right past the large glass sculpture.

SEE MORE DETAILED MAPS ON LAST PAGE



Dinner Menu (catered by Pat n' Oscars Restaurant):

- Hot breadsticks
- Baked Chicken
- Baked pasta
- Non-alcoholic drinks and water
- Barbeque Wings
- Greek Salad
- Barbeque Ribs

Cost: Professionals \$25; Students \$5

RSVP: RSVP by COB Monday November 14, 2011 by emailing : aeginland@gmail.com

AEG

*** Free Student Memberships ***

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Map to the Temecula Public Library (from I-15 and Rancho California Road)

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