

NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



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ANNOUNCEMENT OF MARCH 1997 MEETINGS

The NCGS will be hosting two speaker meetings in March.

The times and locations of the meetings are listed below. More detailed topic abstracts and speaker biographies for each are listed separately in the newsletter, along with maps and directions to each location.

Tuesday, March 4, 1997

Doris Sloan, University of California, Berkeley

Sedimentary History of San Francisco Bay: What We Do and Don't Know About the Bay

12:00 noon at California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Room 4B/C, Oakland, CA.

Attendance is free; Brown bag lunches are permitted

Thursday, March 20, 1997

Roger Greensfelder, Greensfelder & Associates

Induced Seismicity in the Geysers Geothermal Field as a Result of Proposed Wastewater Injection

Concord Holiday Inn
1050 Burnett Avenue
Concord, CA.

6:30 p.m. Social; 7:00 p.m. talk (no dinner).

Cost is \$5:00 per person.

Leave your name on the NCGS voice mail at 510-842-0592 anytime before the meeting.

NCGS Spring 1997 Calendar

March 4 (Tuesday), 1997 Doris Sloan, Dept. of Geology & Geophysics, U.C. Berkeley

"Sedimentary History of San Francisco Bay"

12:00 noon at the California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Room 4B/C, Oakland, CA.
Attendance is free; Brown bag lunches are permitted.

March 15, 1997 Monterey Bay Aquarium and Research Institute, and Moss
Landing Marine Laboratories Field Trip

Please see Field Trip Announcement in newsletter

March 20, 1997 Roger Greensfelder, Greensfelder & Associates

*"Induced Seismicity in the Geysers Geothermal Field as a Result of Proposed
Wastewater Injection"*

Concord Holiday Inn; 6:30 Social / 7:00 p.m. talk; \$5.00 cost. No meal.

April 17, 1997 Frank Picha, Chevron Overseas Petroleum Inc.

*"Exploration for Hydrocarbons Under Thrust Belts - A Challenging New Frontier
in the Carpathians and Elsewhere"*

Concord Holiday Inn; 6:30 Social / 7:00 p.m. talk; \$5.00 cost. No meal.

June 7-8, 1997 NCGS Summer Field Trip (see registration form in newsletter)

"Gold Deposits of the Sierra Nevada"

Led by: David Lawler, FarWest Geoscience Foundation
Dr. Greg Wilkerson, BLM Bakersfield District

Thursday, March 20, 1997

**7:00 p.m. at the Concord Holiday Inn
1050 Burnett Avenue, Concord, CA.**

Roger Greensfelder, Ph.D., Greensfelder & Associates, Martinez, CA.

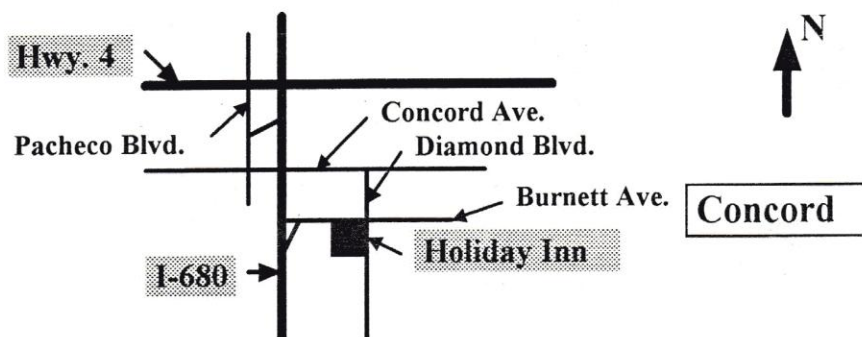
***Induced Seismicity in the Geysers Geothermal Field as a Result of
Proposed Wastewater Injection***

The City of Santa Rosa, in an EIR prepared in 1995, undertook a major study of alternative methods of disposing of its municipal wastewater. The EIR was prepared by Parsons Engineering Science/Harlan Bartholomew and Associates, using many subcontractors. Greensfelder & Associates was responsible for analysis of induced seismicity which could result from deep well injection of the wastewater (about 20 Mgd) in the Geysers Geothermal field.

Our study predicted that considerable induced seismicity (IS) would be caused by the proposed reinjection, at least doubling the current level of IS, and would include many shocks with magnitudes in the range 3 to 4. These shocks would be felt in the immediate area of Cobb Mountain, including the nearby town of Cobb. The return periods of Modified Mercalli intensities from III to VI, and of peak ground accelerations, were predicted. The principal reason for conducting this analysis is that residents of Cobb have been greatly concerned by what they perceive as the nuisance value of small induced earthquakes experienced during the past 20 years of operations in the Geysers geothermal field.

The talk will describe all facets of the analysis and predictions, using many maps and plots.

Dr. Greensfelder began his professional career in 1965, after receiving an M.S. in Geology from the University of Nevada, Reno; his research involved seismological study of crustal structure in the region of Walker Lake, NV. He received his Ph.D. in Geophysics from Stanford University in 1981, where his research concerned crustal velocity structure, and crustal evolution, beneath the eastern Snake River Plain of Idaho. Until 1987, his career was focused on applied seismology and geophysical exploration for geothermal resources. The seismological work dealt chiefly with the prediction of strong ground motion at sites of critical facilities, such as nuclear reactors. In 1987, he began work in the field of contaminant hydrogeology, which now occupies about half of his time, along with the older lines of endeavor (earthquakes and geothermics). Since 1988, he has worked as an independent consultant, based in Martinez, CA.



NCGS 1997 SUMMER FIELD TRIP



GOLD DEPOSITS OF THE SIERRA NEVADA

June 7 (Saturday) and June 8 (Sunday), 1997

Led by: David Lawler, FarWest Geoscience Foundation
Dr. Greg Wilkerson, BLM Bakersfield District

The Northern Sierra Nevada region represents one of the most fascinating, but complex, geological provinces in Northern California. The highlights of this trip will focus on site visits to several active placer and lode gold mines in Nevada and Sierra counties where both the bedrock and economic geology aspects of these deposits will be discussed.

The Alleghany Mine District in particular contains world-class high-grade lode gold deposits where exposed in ultramafic rocks, as well as in metasediments and metavolcanic sequences of the highly dissected drainages of the Middle and North Forks of the Yuba River. Attendees will examine sedimentary exposures of the vast early Tertiary-age ancestral Yuba River System in part created by hydraulic gold mining operations during the last century. Placer gold resources produced from this ancient auriferous fluvial system figures prominently in the historical and economic development of California. Tectonic and geological aspects of the Sierra Buttes-Gold Lakes Basin District of Sierra County and the Taylorsville-Indian Valley-Quincy District of Plumas County will also be examined. The Cretaceous Chico Formation exposures and the Cherokee Hydraulic Mine site in the Pentz-Durham Valley of Butte County via the Feather River Canyon will be the final stop.

Time: Depart on Saturday, June 7, 1997 Concord - 7:30 a.m. / Sacramento - 9:00 a.m.
Return on the evening of Sunday, June 8, 1997.

Departure Points: Concord - Chevron Parking Lot (2101 Diamond Blvd.); exit I-680 at Willow Pass Rd. Go east one (1) block and turn left onto Diamond Blvd. Sacramento - location to be announced.

Cost: \$85 for members; \$100 for nonmembers (no exceptions). This fee includes trip guidebook, transportation, meals, refreshments, and lodging at San Francisco State University Camp.

---REGISTRATION FORM FOR "GOLD DEPOSITS OF THE SIERRA NEVADA" FIELD TRIP---

Name _____

Address _____

Telephone _____ E-mail / Fax _____

Vegetarian (circle if yes) Will provide a van for transportation: Yes No (circle one)

Make checks payable to NCGS, and mail with this registration form to:

Tim Ault, Field Trip Coordinator, 125 Banbury Way, Benicia, CA. 94510

PLEASE NOTE: Attendance is limited, and on a first come - first serve basis. However, preference will be given to persons providing vehicles (mileage will be paid by the NCGS). There will be moderate uphill hikes to numerous sites.

PLEASE remember to bring a sleeping bag!

For questions call David Lawler at 510-549-9694; Tim Ault at 510-372-9100 (days); or Tridib Guha at 510-370-0685 (evening).

NCGS
c/o Dan Day
9 Bramblewood Court
Danville, CA. 94506-1130



NCGS 1997 SPRING FIELD TRIP



Monterey Bay Aquarium and Research Institute, and Moss Landing Marine Laboratories

Saturday, March 15, 1997

Led by

**Dr. Gary Greene, California State University Moss Landing Marine Laboratories
Dr. Debra Stakes, Monterey Bay Aquarium Research Institute**

NCGS proudly invites the families of members of NCGS, AEG, AWG, AIPG, and GRA to attend this event. This trip will begin with donuts and coffee at Concord Chevron Park at 7:30 a.m. Buses will leave at 7:45 a.m. (San Jose pick up at 8:30 a.m.). The first stops will be at:

- 1) Moss Landing for an introduction to California State University's Moss Landing Marine Laboratories by its Director **Professor Gary Greene**, and
- 2) A tour and talk by **Debra Stakes, Ph.D.**, of the Monterey Bay Aquarium Research Institute. These stops will be followed by a picnic lunch at the Elkhorn Slough Wild Life Preserve. Then we will move on to the Monterey Bay Aquarium.

Added Attractions: March 15 is the opening day for the Aquarium's new special exhibit "*Fishing for Solutions: What's the Catch?*" This exhibit takes an in-depth look at shrimp fishing around the world and the impact the industry has on marine life. The special exhibit explores solutions to problems facing all fisheries worldwide.

Time: Saturday, March 15, 1997 Concord - 7:30 a.m. San Jose - 8:30 a.m.
Return Saturday evening to Concord at 7:00 p.m.

Place: **Concord** - Chevron Parking Lot, 2101 Diamond Blvd.; From I-680 exit at Willow Pass Road.
Go one (1) block east and turn left on Diamond Blvd.
San Jose - Location to be announced.

Cost: \$35 for adults (18 and over); \$30 for adolescent (13 to 17); \$25 for child (3 to 12). Cost includes transportation, lunch, refreshments, and admission fee to the Aquarium.

REGISTRATION FORM FOR *MONTEREY BAY AQUARIUM FIELD TRIP*

Name (or names; please indicate ages) _____

Address _____

Phone _____ Can you provide a van? Yes _____ No _____

Vegitarian (circle if yes) Are you a member of the Aquarium? Yes _____ No _____

Please make check payable to NCGS, and send with your registration form to:
Tim Ault; 125 Banbury Way; Benicia, CA. 94510

For questions call **Tim Ault** at 510-372-9100 X3160 (days) or **Tridib Guha** at 510-370-0685 (evenings 8 to 10 p.m.)

PLEASE NOTE: Seats are limited; first come first serve basis. Preference given to people with vans (mileage will be paid by NCGS)