

# NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



## JUNE MEETING ANNOUNCEMENT

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**NCGS Newsletter:**

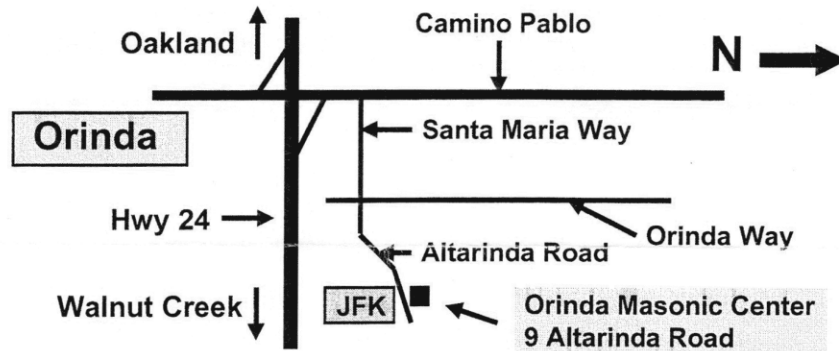
925-294-7530

**DATE:** Wednesday, June 23, 1999

**LOCATION:** Orinda Masonic Center, 9 Altarinda Rd., Orinda

**TIME:** 6:30 p.m. Social; 7:00 p.m. talk (No Dinner)  
Cost is \$5.00 per person

**RESERVATIONS:** Leave your name on the recorder at 925-294-7530 anytime before the meeting.



**SPEAKER:** H. Gary Greene, Moss Landing Marine Laboratory and  
Monterey Bay Aquarium Research Institute

### *Fluid Flow and Mass Wasting in the Monterey Bay and Santa Barbara Channel Regions*

Recent multibeam seafloor imagery of the Monterey Bay region collected by the Monterey Bay Aquarium Research Institute (MBARI) reveal a complex geomorphology that appears related to fluid and gas flow at the ocean bottom. Large (100-200m diameter, 10-20m deep) pockmarks, reverse slumps, retrogressive slumps, thin sediment flows, rills, pits, cusps and other morphologic features observed in this data set suggest considerable flow from depth. Rills and pits that resemble piping associated with onshore groundwater morphologies have been identified both in Monterey Bay and in the Santa Barbara Channel regions.

Many of the fluid induced features mapped in both the Monterey Bay and Santa Barbara Channel regions lie in close proximity to major hydrocarbon containing sedimentary basins. In Monterey Bay the continental slope just north of the heads of the Ascension submarine canyon system lies along the southwestern high that bounds the Outer Santa Cruz Basin. In the Santa Barbara Channel regions the heads of

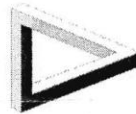
*Continued on the back page of the newsletter*

# NCGS Spring/Fall 1999 Calendar

Please note that some of the agenda topics below are tentative and may be subject to change

June 23	Gary Greene Moss Landing Marine Lab	<i>Tectonics of Offshore California: Oil Seeps and Biotic Communities</i>
June 26	Ron Crane	<i>Ohlone Wilderness Field Trip</i> (see trip list)
August 7	Russ Graymer, USGS	<i>River Rafting and Geology on the South Fork of the American River</i> (see trip list)
August 21	Ron Crane	<i>Del Puerto Canyon Field Trip</i> (see trip list)
Sept. 8	Dr. David L. Jones	<i>Tectonostratigraphic Terrane Analysis in California Geology: History and Future Trends</i>
September*	Mel Erskine	<i>Vallecitos Syncline Field Trip</i> (see trip list)
October*	Andrei Sarna-Wojcicki	<i>Volcanics of the Bay Area Region Field Trip</i> (see trip list)
Oct. 13	Dr. Ben Santer Lawrence Livermore Lab 1998 McArthur Grant Winner	<i>Global Climate Change: Natural or Human-Induced?</i>
Nov. 10	Richard Blake	<i>Evidence of an Ancient Asteroid Impact Scar in the Sacramento Valley Area, California</i>

\*Dates and specific titles to be announced



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Bill Howell Phone/Fax: (925) 484-3111 Web Resume: <http://home.att.net/~bhresume>

## 22<sup>nd</sup> BIENNIAL GROUNDWATER CONFERENCE

*“Interconnected Water Supply in California”*

September 20-21, 1999

Hyatt Islandia Hotel, San Diego

Sponsored by: University of California Water Resources Center      State Water Resources Control Board  
California Department of Water Resources      Water Education Foundation  
Groundwater Resources Association of California

For more information call:      Jeff Woled      (530) 752-8050  
Sue Enos      (530) 752-8057

# NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



## Ohlone Wilderness Field Trip

Saturday, June 26, 1999

Led by Ron Crane, Consultant

This trip will traverse the Ohlone Wilderness Trail beginning at Sunol Regional Wilderness Park (near Sunol), and ending at Del Valle Park in Livermore. It will involve crossing a major portion of the northern Diablo Range (most of it through private land). Along the way, Ron will discuss (and we will see): a plunge view of the Calaveras Fault and associated "flower" structures; Cretaceous deep-sea fans unconformably overlain by Miocene sands; the northern plunge of the Diablo range (with unconformably overlying Miocene, Pliocene, and Pleistocene sands that strike at almost 90 degrees from the underlying Franciscan); dismembered thrust sheets (including the Maguire Peaks thrust sheet which is a tightly folded syncline of Pliocene through Upper Miocene sands lying unconformably on a pillow basalt sequence); fault bounded Franciscan terrains with both N-S and NW-SE strikes; a tear fault; a major anticlinorium AND a major synclinorium; and a bunch of other stuff. Our journey will culminate at Del Valle Reservoir with a spelling test on all the terms used during the trip.

*There's still time to sign up for this remarkable field trip. The meeting places are: The Chevron Building in Concord and Sunol Regional Wilderness Park southeast of Sunol. The meeting time at Concord is 8:00 am. Meeting time at Sunol is 9:30 am. Early risers who want to meet at Sunol can join the Concord Group at a pre-trip field stop at 9:00 am. Location is a railroad cut containing what may be the most tightly folded section of Briones Formation exposed anywhere in the Tri-Valley. From the South Bay/Fremont, take the Highway 84/Calaveras/Dumbarton Bridge exit. Go left at the stop sign, underneath the freeway overpass and proceed West on Calaveras Road toward the town of Sunol. At the stop sign, called Sunol Corners (about 1 mile from the freeway) take a right toward Pleasanton. Stay on Pleasanton-Sunol Road (past the 680 Freeway sign at Koopman Road) 2.3 miles from Sunol Corners. Pull over next to the railroad tracks and the near-vertical dipping rock outcrop.*

**Note:** You will NOT receive a phone call confirming your reservation. If you send in a check, (and it doesn't bounce) then you're on the bus. If you're not sure and want to confirm that your check was received, or if you have any questions at all, please don't hesitate to call Bill Howell at (925) 484-3571.

**Time:** Saturday, June 26, 1999 Concord at 8:00 a.m.

**Departure:** **Concord** - Chevron Parking Lot, 2001 Diamond Blvd, Concord, at 8:00 a.m. Exit I-680 at Willow Pass Road. Go 1 block east, turn north (left) onto Diamond Blvd. Turn left again at the third stoplight into the Chevron office complex just north of the Willows Shopping Center.

**Sunol Regional Wilderness Park - Meeting time 9:30 a.m.** From Fremont/South Bay, take 680 North to the Niles Canyon Highway 84 exit and turn right at the stop sign onto Calaveras Road. From Pleasanton take 680 South to the Niles Canyon Highway 84 exit, turn left at the stop sign onto Calaveras Road and go under the freeway overpass. Proceed down Calaveras Road about 4 miles to Geary Road (it's just past Welsh Creek Road and at a bend where Calaveras Road begins to climb up steeply). Go down Geary Road 2 miles, past the entrance kiosk and Park buildings, to the parking lot at the end of the paved road. Park your car and start hiking about 10 miles in a westerly direction till you come to a gas station. Go into the gas station and ask the attendant, "Hey Pops, where the hell am I?" If he answers, "What's the matter, don't you like it here?", then you're at the wrong gas station. In this event, start hiking about 10 miles in an easterly direction and look for a parking lot full of cars. Then find your car, get in, and go home as we have long since left.

**Cost:** \$20 for members; \$30 for nonmembers. This price includes transportation, breakfast pastries, lunch, and refreshments.

\*\*\*\*\* REGISTRATION FORM \*\*\*\*\*

Name \_\_\_\_\_

Address (Street/City/Zip) \_\_\_\_\_

Phone (day) \_\_\_\_\_ Phone (evening) \_\_\_\_\_

E-mail or Fax No. \_\_\_\_\_

Indicate if you are a nonmember (cost is \$30) \_\_\_\_\_

Dead Animal Parts (a.k.a. Regular Lunch) \_\_\_\_\_ Vegetarian Lunch \_\_\_\_\_ (Check one)

I am willing to drive my van or SUV on this trip \_\_\_\_\_ (check if YES) Mileage will be paid by the NCGS

Please write a check to the NCGS and mail it with the completed registration form to: Bill Howell, 6651 Alisal Street, Pleasanton CA. 94566

If you have any questions or need additional information, call or fax Bill at (925) 484-3571

To help NCGS estimate the volume of beer to purchase, please give us some feedback of the other field trips you might attend during 1999 (this will not be considered a commitment). Please indicate your level of interest using the following code:

y = yes, am definitely interested; m = maybe; n (or blank) = no thank you.

Del Puerto Canyon: \_\_\_\_\_ American River Rafting \_\_\_\_\_ Vallecitos Syncline: \_\_\_\_\_ Bay Area Volcanics: \_\_\_\_\_

Pinnacles National Monument: \_\_\_\_\_ Long Valley Caldera: \_\_\_\_\_ Pigeon Point Turbidites: \_\_\_\_\_ Vasco Caves: \_\_\_\_\_

## *Contributions of Soil Analysis to Fault Analysis Reviewed at April NCGS Meeting*

Soil tectonics expert **Glenn Borchardt** entertained NCGS members at the April 14th meeting with applications of soils science principles and radiocarbon dating to fault dynamics in the East Bay and Honey Lake areas. "*Soil Tectonics Along the Hayward, Concord, and Honey Lake Faults*" probed the the relationships between soil structures observed in fault trenches and recent movement along these fault systems.

The Hayward Fault provides many sites for determining creep rates. Glenn selected the Fremont Civic Center, the Union City Masonic Home, Boalt hall in Berkeley, and Point Pinole in Richmond to illustrate his techniques. His trench photos revealed telltale manganese redox color changes across the Hayward Fault near Fremont's Lake Elizabeth that show different oxidizing conditions across the fault trace. The redox change is accompanied by a 60 foot difference in the water table across the fault, attesting to the barriers these faults pose to groundwater flow. Radiocarbon dating of wood in the soil layers provides a timetable for seismic events as well as important paleoclimatic information. The latter is reflected in caliche (calcium carbonate) deposits in the soil representing dry conditions dated at ~7000 years ago. Cross sectional trenching of the Fremont site also revealed a fissure Glenn links to the 1868 Hayward earthquake.

The Union City Masonic Home site provided offset alluvial deposits where Masonic Creek intersects the fault. Six soil layers exposed in parallel fault trenches provided the following radiocarbon chronology: 500 year old overbank deposits; a 4700 year old paleosol; 7100, 8300, and 10,700 year old caliche deposits; and a 17,100 year old basal soil layer. The carbonate was formed by fungal biological activity and represents a 3000 year long dry period from 10,700 to 7100 years ago. The caliche was preserved where the overburden is over 100 cm. Thick. Similar trenching across the Hayward Fault at Boalt Hall in Berkeley exposed a liquified gravel layer which Glenn interprets as evidence for a ground rupturing event associated with fault movement.

Another important site on the Hayward Fault that Glenn and his associates have examined is at Point Pinole Regional Park in Richmond. A 1939 aerial photograph of this locale clearly shows the white streak of an "E" soil horizon formed by a water barrier that developed on a displaced embayment which crossed that fault 122,000 years ago. A trench at nearby Parchester Village records ~15 cm. of creep offset on slickensides that were preserved by redox conditions that accompanied a higher water table on one side of the fault. Glenn saw no features that he would interpret as evidence of tectonic rupturing in the Point Pinole trenches. The 122,000 year old embayment is a terrace feature representing a high sea level stand that can be traced around San Pablo Bay into Marin County. Glenn is currently attempting to correlate points across this segment of the Hayward Fault to determine its slip rate there.

Glenn's interest in paleoclimatology led him to the Honey Lake area in Plumas County to study the Honey Lake Fault system. Honey Lake is a dry lake bed that is part of the Lake Lahontan glacial lake system in the Basin and Range province. Detailed study of a streamside fault crossing revealed four events offsetting soils that can be correlated with tectonic, volcanic, and climatic events that occurred over the last 11,000 years. Many of these features can be detected only from offsets preserved in the soil horizons. Paleoclimatic features indicate a dry climate 11,000 years ago followed by wetter conditions 7000 years ago that were recorded in the Lake Mazama (Crater Lake eruption) ash deposits, and an ensuing dry spell that commenced about 3500 years ago. Sorting through soil layers to differentiate climatologic and volcanic events that aid in identifying tectonic activity require well-trained eyes.

Galindo Creek on the Concord Fault was Glenn's final example of soils tectonics applications to fault dynamics. After an unsuccessful attempt to trench the fault near the Concord BART station, the fault plane was discovered at nearby Galindo creek. It exhibited ~3 meters (0.45 mm/yr.) uplift on the east side, indicating a vertical component to its movement, as well as 3.4 mm/yr. horizontal slip. The fault transects the Plio-Pleistocene Tulare Formation, where investigators uncovered a *Camelops* skull while trenching the fault. Glenn showed trench wall diagrams and fielded some questions from the audience. Discussion pointed out that creep along the Concord Fault has only been monitored for the last 15 or 20 years, making predictions of potential catastrophic earthquakes on this strike-slip fault somewhat speculative at best.

Dr. Borchardt's presentation provided an insight into the application of soil analysis to fault tectonics. His work has provided some of the first Holocene slip rates on the Hayward and Concord Faults. He has championed the use of clay mineralogy and soil stratigraphy for studying faults in tectonically active areas. His approach complements other methods of fault trench evaluation used in paleoseismic research. The NCGS offers Glenn its sincere thanks for describing his methods of applying soil horizon analysis and radiocarbon dating techniques to determine fault slip rates. His work has been instrumental in defining recent movement on these major East Bay strike-slip fault systems.

# 1999 NCGS Field Trip Calendar

**June 26, 1999**                      **The Ohlone Wilderness Trip**                      **Ron Crane (consultant)**

This trip will traverse the Ohlone Wilderness Trail beginning at Sunol Regional Park (near Sunol), and ending at Del Valle Park in Livermore. It will involve crossing a major portion of the northern Diablo Range (most of it through private land). Along the way, Ron will discuss (and we will see): a plunge view of the Calaveras Fault and associated "flower" structures; Cretaceous deep-sea fans unconformably overlain by Miocene sands; the northern plunge of the Diablo range (with unconformably overlying Miocene, Pliocene, and Pleistocene sands that strike at almost 90 degrees from the underlying Franciscan); dismembered thrust sheets (including the Maguire Peaks thrust sheet which is a tightly folded syncline of Pliocene through Upper Miocene sands lying unconformably on a pillow basalt sequence); fault bounded Franciscan terrains with both N-S and NW-SE strikes; a tear fault; a major anticlinorium AND a major synclinorium; and a bunch of other stuff. Our journey will culminate at Del Valle Reservoir with a spelling test on all the terms used during the trip.

**August 7, 1999**                      **River Rafting Down the American River with Russ Graymer (USGS)**

We just received word that Professor Sullivan is exercising his forearms and will be ready to do ALL the rowing so, **THE RIVER TRIP IS ON!**. (We're not sure how Ray will manage to do this since there will be multiple rafts, but that's his problem.) This one-day experience will start west of Lotus (downstream from Sutter's Mill near Coloma). During the day, we will glide through (and over) the Coloma granite pluton and numerous suspect terrains related to the Nevadan Orogeny. In geology-speak, specifics include the opportunity to observe: debris flows from volcanic seamounts that formed during the Triassic-Jurassic (Mount Ararat terrane); Mesozoic olistostromes (American River Terrane); the Bear Valley Fault Zone including a serpentine melange of the Bear Mountains Ophiolite; and oceanic metavolcanics and upper greenschist to amphibolite-grade metamorphics (French Creek Terrane). In plain English, this means you have the opportunity to: float down the American before it disappears on January 1st, 2000, get wet, get some sun, look at some really neat old rocks, go through some rapids, watch some professional armwaving and pontificating, and have one heck of a good time. In universal language-speak, all the gibberish above simply means:

### **Don't miss this one!**

Everyone who makes it through the "Gorge Rapids" at the end of the voyage will receive a complementary bus ride back to the NCGS vans. On the way back, you can look out over the Mesozoic wilderness you just rafted through and contemplate just what in the world you were thinking when you signed up. For those of you who don't make it through the Gorge Rapids, NCGS will notify your next of kin IF you donate a 6-pack of Sierra Nevada. For those of you who aren't sure if they'll make it, this is pretty cheap insurance (and makes good economic sense). Teenagers are invited IF accompanied by a responsible adult (i.e. not a geologist).

**August 21, 1999**                      **The Del Puerto Canyon Trip**                      **Ron Crane (consultant)**

This trip is designed to acquaint the geologist with the eastern flank of the Northern Diablo Range. This geology includes sediments from the Quaternary and Pleistocene, rocks from the Miocene and Eocene, deep-sea fan deposits from the Cretaceous, a siliceous volcanic sequence of probable Jurassic age, the Jurassic Lotta Creek tuff, greenstones and sheared Franciscan sediments, serpentine, gabbro, and peridotite. The structural/tectonic setting of this area involves an east-vergent wedge which has produced, among other features: a syncline of Jurassic-Cretaceous deposits; a backthrust fault that dips 30+ degrees to the east; isolated "blobs" of serpentine; tear/thrust faults; and Pleistocene and Quaternary-aged sediments with dips up to 40 degrees.

**September**                      **Vallecitos Syncline**                      **Mel Erskine (consultant)**

This (possibly) overnight trip is still **UNDER CONSIDERATION**, but it's looking good. It turns out that Mel is one of those rare geologists who is also a teetotaler. Although I'm wondering why he got into geology in the first place, his work is top notch (maybe there's a connection?). I just need to arrange some final logistics and we'll get to see some very unique structural geology that Mel says is of great tectonic importance for understanding California geologic history. The Vallecitos "Syncline" is located in the central Diablo Range south of Hollister. It is the outcrop of a complex active thrust system that has been reactivated several times since the late Cretaceous. The trip will include access to areas on private property that are not open to the general public.

**October**                      **Volcanics of the Bay Area Region**                      **Andrea Sarna (USGS)**

This trip will discuss the age and correlation of tephra layers in the greater San Francisco Bay Area. We will visit an area near Mount Diablo where there are several tuffs that formed 12 to 3.4 million years ago. Dr. Sarna will describe how these tuffs can be chemically characterized and correlated, their eruptive sources, and his recent work re-dating tuffs using the Argon-Argon method. Current results indicate many tuffs are older than previously reported on the basis of conventional K-Ar dating. Dr. Sarna will also discuss other regional tephra deposits, including a proposed reconstruction across the San Andreas fault system involving units south of Mount Diablo, within the northern Berkeley Hills, in the area north of San Pablo Bay, in the Wilson Grove Formation northwest of Petaluma, and in the Delgada submarine fan west of the San Andreas fault and Cape Mendocino.

*The Following Trips Are Under Consideration for the Year 2000 (providing the Earth abides).*

**Pinnacles National Monument** / Vincent Matthews                      **Deep Sea Turbidites at Pigeon Point on the San Mateo Coast**  
**Mammoth/Long Valley Caldera** / David Hill & Roy Bailey                      **The Vasco Caves in the Altamont Hills North of Livermore**

Note- suggestions for future trips are always welcome. Please contact **Bill Howell** at (925) 484-3111 or 484-3571.

## May 8th Mission Peak Landslide Field Trip Draws a Record Crowd

Excellent weather on Saturday, May 8th, greeted nearly 70 geoscientists eager to view the Mission Peak landslide in Fremont and hear commentary by landslide expert **Dr. David Rogers** of Geolith Consultants. David's firm was commissioned by the City of Fremont to make a preliminary evaluation of the slide to assist the city in emergency response and future planning decisions.

The Mission Peak landslide is the largest historic landslide in the Bay Area. It is approximately one mile long, 800 to 1400 feet across, and has a 1300 foot elevation difference from its headscarp to its base. The Mission Peak area itself was extensively mapped in the 1950's by Clarence Hall, who was the first to recognize the Mission fault. It is a prominent boundary between the Briones Sandstone exposed on Mission peak and Mission Ridge, and the younger Plio-Pleistocene nonmarine rocks tightly folded in the overturned Tularcitos syncline below the ridge. This feature is thought to be a step-over between the Calaveras and Hayward Faults. Although microseismic activity recorded in this area between 1969 and 1989 indicated the existence of a near-vertical fault surface 4 to 5 km. long at depths of 3 to 7 km., no one has yet been able to excavate enough of the Mission Fault to describe either its surface expression or ascertain its slip rate. This tectonic feature is important because it controls uplift in the region that influences landslide development on Mission Ridge. During the 1970's HUD (Housing and Urban Development) and USGS mapping pinpointed thousands of landslides in the San Francisco Bay Area. These studies included fifty-seven 7.5 minute quadrangle landslide maps prepared by USGS geologist Tor Nilsen. His mapping provided a very detailed appraisal of landslides on Mission Peak and Mission Ridge. This massive body of work received more serious consideration following the rainy winters of 1981-83, when numerous older bedrock slides in the Bay Area were reactivated.

The city of Fremont beneath the Mission Peak / Mission ridge area has undergone enormous growth in the last two decades. Over 18,000 new businesses and thousands of new homes have been built to accommodate the rapidly growing population serving Silicon Valley. Housing developments threatened by recent landsliding were a key reason Geolith Consultants were hired by Fremont to study the slide and make recommendations to mitigate the situation, and to guide city planning on land use in the area.

The initial landslide activity began on Sunday, March 22, 1998 in response to five years of unprecedented precipitation in this area. Cumulative rainfall over this period recorded at the Niles station suggested all-time high totals following a six-year period of record low precipitation (1986-92). Some earthflow activity occurred in the landslide area after the very rainy 1983 season and involved 8 to 15 feet of headscarp movement. On May 22, 1998, the top of the slide began to fail and Geolith installed an 8-pin extensometer array to monitor movement there. Blocks began shedding off the headscarp in late July now that the lateral restraint had been removed and the exposed face began dilating. To date about 30,000 cubic yards of rock have sloughed off the headscarp face, with more expected. The East Bay Regional Parks District is currently monitoring the face via helicopter.

At a neighborhood park just west of the landslide, David lectured to the group on the extensive rainfall records and recent rainfall data from the Niles Canyon station that his firm had compiled to monitor climatic conditions in the slide area. No runoff in the slide area was recorded from 1986 through March, 1995. The first six years were a severe drought, followed by heavy rainfall and groundwater recharge from 1992 to 1995. The extreme ranges in rainfall set the stage for landslide reactivation in March, 1998.

The group reassembled at the toe of the landslide and stood on the ancillary lateral thrust wedge preceding the main body of the landslide. Forty-three GPS-located benchmarks have been placed in the slide base and in surrounding terrain to monitor slide activity. Movement of these benchmarks can be determined to within 5 mm. No slide activity occurred between April and July, 1998. As the group climbed up the lower landslide slopes, David pointed out large Briones Formation coquina (shell debris) blocks on the toe mound transported from the slopes above, and an old stock pond that had moved ~300 feet downslope. The channel profile in this drainage indicates a "hydraulic choke" (landslide debris-choked) condition and high landslide activity. David feels these features are further evidence that Mission Peak is uplifting rapidly between the east and west branches of Mission Fault.

The crowd crossed over to the south side of the toe complex to view the drainage channel of Aliso Creek on the lateral slide scarp. The channel was lifted about 13 feet by landslide activity and threatened nearby homes. Corrective action was taken and an emergency channelization project was instigated to construct a deflective levee with 17 feet of freeboard to protect adjacent homes from potential debris flows that may shed off the toe complex or the lateral scarp edge. A short jaunt took the group to a ravine exposing sediments with matrix-supported blocks typical of debris flows. The site is believed to be Pleistocene age and formed during a period of higher rainfall that caused slumping failure.

After lunch the group traveled to a turnoff near the summit of Mission Ridge where David described the overturned Tularcitos syncline, which exhibits ~65% compressive closure at this location. Here he reiterated his opinion that Mission Peak / Mission Ridge has experienced a high uplift rate (0.5 to 3 mm/yr.) and is consequently shedding material off its steepened slopes. He pointed out his inferred location of the Mission Fault, delineated by a fault-controlled valley to the south, and a segment of the fault covered by the landslide.

The final stop was atop Mission Ridge to examine the separation scarp at the head of the landslide and summarize its salient features. The Geolith study made seventeen balanced cross sections across the slide path which illustrate thrusting in the central section of the slide, and back thrust development in the toe area. From this lofty vantagepoint over 1800 feet above sea level, David fielded questions regarding the landslide and the geology of South San Francisco Bay, a large pull-apart basin. He also discussed Holocene climatology and its effects on landslide and debris flow generation over the last 11,000 years. The interests are driving studies to better understand San Francisco Bay sediments, particularly those adjacent to the Bay Bridge.

The NCGS and its members give David Rogers their sincerest thanks for taking time from his busy schedule to both lead the trip and prepare a nice handout on his investigation, complete with a 2 foot by 3 foot map of the slide and its contoured slip failure surface. The large attendance was tribute to Dr. Rogers' popularity and professional status in the Bay Area geological community. The NCGS also extends its thanks to David's associate **Patrick Drumm**, for his assistance. Logistics, registration, and other trip arrangements were ably handled by NCGS Vice president / Field Trip Coordinator, **Bill Howell**. Beverages and lunches were arranged by Past President **Tridib Guha** and the staff at the Martinez Nob Hill Foods store, who have been providing the NCGS with excellent lunches for several years. *Stay tuned for summer and fall seasons with more exciting field trips.*

# NCGS NEWS

## \*\*\* NCGS APOLOGY No. 1 \*\*\*

NCGS wishes to apologize to all those who attended the Mission Peak Field Trip. As promised, the weather was beautiful, in fact the wind on top was the least I've personally ever observed, but it wasn't perfect. The Board's witch-doctor (he prefers the term Pantheistic Engineer) has analyzed the situation and concluded that, while the Board did make the proper sacrifice to the Weather Gods (i.e. 3 cases of Sierra Nevada), we failed to pay special tribute to the Fog God. As a result, "Foggy", as we affectionately call him, got a little miffed and caused that light haze you observed in the distance (you know how petty those pagan gods can be). Anyway, we apologize for this oversight and assure you that it won't happen again. For all future field trips, the Board promise to do whatever is necessary to ensure that the weather is exactly what the membership deserves, even if it means sacrificing 10 cases of beer.

## \*\*\* NCGS APOLOGY No. 2 \*\*\*

NCGS also wishes to apologize to those of you who have attended past field trips sans beer. The problem has been that the NCGS legal department has been very persuasive in creating paranoia about the potential liability that NCGS could incur by providing beer on field trips. To drive their point home, they went so far as to threaten that if NCGS got sued, we would lose our beer fund! But with summer approaching, many Board members simply can not tolerate this intolerance any longer. So, an emergency Board meeting was recently called to resolve this issue. The Board's Classical Literati made a motion by quoting from Shakespeare's Henry VI, to wit, "The first thing we do, let's kill all the lawyers." A vote was held and the motion, of course, passed unanimously. We quickly adjourned the meeting to go find some tar, feathers, and a sturdy rope. As we approached the cornered and cowering legal staff, they held out a copy of a law book as if it were a cross to ward off vampires. Actually, this worked and had us stunned for awhile until someone yelled out, "We don't need no stinkin Penal Code!" The lawyers then tried another strategy to save their worthless hides by suggesting a compromise. Unfortunately, the Board reluctantly agreed. For our legalese-impaired members, this compromise is described in two languages.

The legal version is: *Henceforth, the presence on NCGS field trips of an empty cooler labeled with the word "Ambrosia" and depicting the symbol of a skull and crossbones, is either just a coincidence and/or is to be used for medicinal purposes only. Presence of said cooler should not be construed to imply that NCGS either encourages, condones, or approves of any politically incorrect activity such as beer drinking. Furthermore, the NCGS legal position is that beer drinking is a filthy and disgusting habit that can only lead to the moral decay of our society. NCGS firmly denies the common misperception that the only reason we go out in the field in the first place is to drink beer.*

The plain English version is: *While NCGS cannot officially sponsor or provide beer for reasons of liability, we can provide private rental vans with designated drivers. If members just happen to bring their own beer, NCGS will not violate their constitutional right to the pursuit of happiness. As the result of an ongoing logistical oversight, a cooler (or two) will inadvertently be filled with ice and made available. Anyone who is offended by this lack of political correctness has unfortunately confused us with someone who cares.*

It just goes to show that our legal system can work if the lawyers are sufficiently motivated.

## \*\*\* NCGS LOST & FOUND \*\*\*

To whomever the voluptuous young woman was that performed the, shall we say, "exotic dance" at the NCGS picnic, you left your black stretch pants. Brand Name: Sag Harbor. Size: Petite. Three peppermint candies were found in the pocket. To claim your trousers, please call Bill Howell at (925) 484-3571. P.S. Quite a few of the members expressed an interest in seeing you again. P.P.S. Please return my wife's lampshade.

## \*\*\* NCGS FIELD TRIP AWARDS \*\*\*

In recognition of the vast distances that some people will travel to attend one of our field trips, NCGS wishes to acknowledge and reward the special enthusiasm (or lack of common sense) exhibited by such people. After much debate, the NCGS Board has determined that an appropriate reward will be one free beer redeemable at any future NCGS field trip or lecture. In determining this reward, the Board recognizes the difficulty the winner may have in claiming the prize. We not only recognize it, we're counting on it.

### NCGS Field Trip

NCGS Picnic  
Mission Peak Field Trip

### Winner

Ms. Pat Anderson, RWQCB-Central Region, Sacramento, CA  
Mr. Mike Hart, Engineering Geologist, San Diego, CA

### **\*\*\* The Infernal Revenue Service v. The Northern California Geological Society (Part 1) \*\*\***

Recently, the NCGS Board held yet another emergency session at our corporate headquarters to discuss a serious crisis. Although a generous allocation had been budgeted for 1999, our treasurer had discovered that the beer fund is already seriously depleted. Just as the President was pouring his first pale ale to officially open the meeting, the NCGS receptionist opened the door and in walked a very dour looking man who said he was from the Infernal Revenue Service (IRS). Being a cordial group, we offered him a beer. When he replied that he didn't drink beer, a stunned silence fell across the room and we, of course, became immediately suspicious. He told us that red flags were popping up all over our 1998 tax return and that he had come to ask a few questions. Specifically, he noted that while our tax return showed a net profit for 1998 of zero dollars, the total revenues generated were \$352,495.07. Our deductions had included only 2 line items. One line item cited operating expenses such as publishing costs and equipment rental fees in the amount of \$5,286.29. The other line item cited miscellaneous expenses in the amount of \$347,208.78. The agent said he needed to know what the miscellaneous expenses were.

Since the NCGS accountant had just been reviewing the books in preparation for our emergency meeting, she quickly looked it up and answered that it was for beer-related expenses. Now, you would think, as we did, that this would be the end of discussion but instead, it seemed to be his turn for a moment of stunned silence. Without changing his somber expression, he finally asked if we thought this was a reasonable expenditure for a non-profit organization. We were, of course, puzzled by such a question but the entire Board answered honestly and said yes. From his lack of expression we realized he didn't comprehend, so I added that most of us were geologists. At this, the entire Board began nodding their heads up and down and mumbled concurrence as if this should certainly clear up any confusion the agent had.

But I guess there's a cultural gap between geologists and IRS agents. In any event, he responded (again without changing his expression) that the IRS would deny the miscellaneous expenses deduction unless we could provide better justification. I then tried to explain to him that drinking beer is the main reason people become geologists and that it's part of our professional culture. For some reason, however, this didn't seem to help matters any because, after another prolonged silence, he responded with just seven words, "Tax fraud can result in jail time." Well, upon hearing this, there was nothing else we could do but to start pointing fingers and ratting each other out. We quickly reached consensus, however, that it was all Professor Sullivan's fault.

We then explained to the agent how it had all started back in 1998 during an special NCGS Board meeting that was called to sample a new batch of Dr. Wakabayashi's home brew (well, actually, it wasn't just some, it was a lot). We were just finishing up the last drops with our straws when Dr. Sullivan asked if we would all like to step out and sample some good Welsh Ale. This sounded like a worthwhile research project so the Board unanimously authorized Dr. Sullivan to use the NCGS credit card and make the necessary arrangements. As we have a very large Board, we weren't particularly surprised to see stretch limousines pulling up, and we just assumed the chauffeurs were there as designated drivers cuz lord knows, none of us were in any condition to drive. Anyway, before we realized it, we were at the airport boarding onto a few private Lear jets and on our way to Wales.

For some reason, none of us seem to recall what happened after that. We were, however, a little puzzled to discover fresh tattoos on our arms and that a couple of days seemed to be missing. But we just figured the missing time was the result from an alien UFO abduction and pretty much forgot about it until a later Board meeting when the treasurer asked us to approve payment of an NCGS credit card expense totaling \$347,208.78. We were at a complete loss to explain this charge so she provided the following details: Flights - \$200,000; Limos - \$4,000; Pretzels & Beer Nuts - \$800; Beverages - \$10,000; Entertainment - \$20,000; Property Damage - \$100,000; Bail Bonds & Fines for Creating a Public Nuisance - \$12,348, and Meals - \$60.78. You would think this accounting would have helped but we were still baffled until a Board member blurted out, "So THAT'S how I got this tattoo!!!"

After we explained all of this to the IRS agent he just stood there in dumbstruck silence. Then he slowly walked over to a chair, sat down, put his hands against his temples, and started groaning. His mind had boggled. As we had all seen this behavior before, we knew exactly what to do. You see, it's a typical reaction familiar to any geologist who has ever tried to synthesize the details of California geology into a coherent conceptual model. So we calmly poured him a large glass of stout ale, called in the NCGS masseuse, and sent him off for a soak in the NCGS Hot Tub and a Swedish massage.

With that taken care of, we turned our attention back to official Board business. Being tired of discussing financial matters, however, we moved on to the next agenda item which was a discussion of sugar content versus fermentation rates. A heated discussion soon developed, of course, and we completely forgot about the IRS agent. After a couple of hours, as we were deep into some calculations of the G forces that will result when the earth stops spinning on January 1st, 2000 (see previous NCGS Newsletters), the IRS agent walked back in. Although he looked more relaxed and his eyes were a bit glassy, he still had that same dour expression on his face. The agent told us that since the Board had pre-identified the trip as a "research project" and had then duly authorized the expense, the IRS would not be able to prosecute. He added, however, that unless NCGS could demonstrate that it provides some significant form of community service, our non-profit status would be revoked. We replied that our field trips provide a valuable community service, but this only resulted in the agent having another stunned silence. Then, his dour expression finally changed. In fact, he was laughing so hard he fell down.

Now, most of us took this reaction to mean that the agent didn't agree that the field trips were a valuable community service, especially when he added that our field trips were just a flimsy cover for extensive beer drinking. But we're not rocket scientists and perhaps we were just being too sensitive. The Board's rocket scientist, for example, thought the agent was paying us a compliment. Anyway, when the agent finally got up off the floor, he said we would have to come up with something else if we wanted to save NCGS. As we contemplated just what in the world we could do that was of any actual benefit to the community, it got so quiet in the room that you could hear the boys in the Research Department opening beer bottles. This prompted a motion that we should adjourn so we could go get some, but the President wouldn't let us leave until this issue with the IRS was resolved.

Hours went by in complete silence. Some Board members twiddled their thumbs, others removed lint from their navels, and a few just sat there shuffling their feet looking dejected. Finally, a hand was raised. Everyone looked up expectantly as the President called on him to speak, but he only asked for permission to go to the bathroom. More hours went by and we were all definitely looking like a bunch of school kids in detention hall when another hand suddenly went up. Our hope turned to sighs, however, as we realized it was just the Board's biogeochemist. But instead of asking to use the bathroom, he said, "How about if we solve the MTBE groundwater contamination problem?" The IRS agent thought about this for a minute and then said he would agree providing we came up with a solution within 30 days. The agent also said that the only reason he was accepting this offer was because he had to use the bathroom too. Anyway, the Board meeting was quickly adjourned and we all rushed down the hall toward the Research Department.

**\*\*\*\*\* End of Part 1 \*\*\*\*\***

**Will NCGS be able to save the world from MTBE (before it is destroyed by Y2K)  
or will the Board's free-beer pass be permanently revoked?  
Tune in next month for ... The Rest of the Story!**

## \*\*\* ASK UNCLE NCGS \*\*\*

As partial fulfillment of the Board's settlement with the IRS (**see related article, this issue**), NCGS is adding a new service to promote community awareness in the geosciences. As you know, the NCGS Board is composed of a broad range of professionals, many of which are published and/or held in high esteem among their peers, and the rest of which have never actually been convicted of a felony. Our new service is called ASK UNCLE NCGS. If you have a question, any question, just email it to Uncle NCGS c/o 3DE@worldnet.att.net. Note: Luddites can send snail mail to Uncle NCGS care of Bill Howell at 6651 Alisal St. in Pleasanton, California (94566). Our first question comes from Betty-Joe Bikowski. She asks ...

**Dear Uncle NCGS, My friend told me that the 20-story office building in Concord which has the two top floors built out and nothing but steel girders below it, belongs to NCGS. Is this true?**

Yes, Betty-Joe, it is true. As you may know, the NCGS Board includes a lot of geologists and engineers. When a subcommittee was formed to design our new corporate headquarters, the geologist said they didn't care what the engineers did as long as there was a good view. Since we only needed two floors to house our staff, we saved money by not building the lower floors. Pretty smart huh!

Our second question was submitted by Audrey Farber. It reads ...

**Dear Uncle NCGS, It sounds like you guys have a pretty good time at the Board meetings. I am a party animal with a PhD in astrophysics. Can I join the Board?**

That's a very good question Audrey! You won't believe how many times Uncle NCGS has heard that very question... Well come to think of it, I've never heard that question before. So I asked the research department to look into it. They extensively searched the NCGS archives and it turned out that there never has been an actual NCGS Board election. We were as surprised to learn of this as was the IRS (**see related article, this issue**). When we asked some of the old timer's if they knew how the Board came to be, one grizzled geologist said that as near as he can remember, the first Board was created when someone tapped a keg of Anchor Steam and offered free beer to anyone who would join the Board so he could claim the keg as a tax write off.

Although this time-honored tradition has been passed down through the generations, this is the 90's and tradition is no longer politically correct. In keeping with the times, our President decided it was not fitting that such a prestigious organization as NCGS should continue to form a Board in this manner. (This is 90's-speak for: the IRS "strongly recommended" that we hold an election.) As a result, an emergency meeting was called to form a subcommittee for the purpose of establishing the criteria and requirements for becoming an NCGS Board member. This subcommittee came up with a list of seven insightful questions that they said could actually determine whether a nominee had the necessary qualifications to become a Board member. They even established a point system to score each nominee's response.

For some reason, the IRS is requiring us to document and publish all Board activities (**see related article, this issue**). We're still not quite sure why because when we asked the IRS, they only said, "So that the membership can see what you clowns are up to!" Although we tried to explain that there was only one professional clown on the Board, it didn't seem to matter. The IRS is a strange breed and the NCGS legal staff has strongly advised us to comply fully with any "request" they make. Accordingly, we are publishing the questionnaire AND the point system. Since you will be able to see how we judge a person's qualifications, all nominee's will now have to declare on their scout's honor that they didn't cheat. The minimum score to qualify is 100 points.

Question	Response (points)	
1) Are you interested in geology?	Yes: 10 pts.	No: 0 pts.
2) Do you like to go outdoors and get away from human cultural artifacts?	Yes: 10 pts.	No: 0 pts.
3) Do you have professional experience in any earth science <u>OR</u> have you ever looked at a rock?	Yes: 10 pts.	No: 0 pts.
4) Do you have a college degree (what level)?	No: 15 pts. MS: 5 pts.	BS: 10 pts. PhD: 0 pts.
5) Do you like to drink beer?	Yes: 15 pts.	No: 0 pts.
6) If you became a Board member would you donate beer to the meetings?	Yes: 10 pts.	No: 0 pts.
7) How often?	Once: 0 pts. Often: 10 pts.	Sometimes: 5 pts. Always: 100 pts.

## AGI GOVERNMENT AFFAIRS PROGRAM MONTHLY UPDATE: MAY 1999

### \*\*\* Congressional Exhibition of NSF Research \*\*\*

Earthquake and seismology research were the focus of an exhibit cosponsored by AGI and the American Geophysical Union (AGU) at a Capitol Hill event on May 19. The exhibit was one of 30 displays highlighting current research sponsored by the National Science Foundation (NSF). Organized by the Coalition for National Science Funding, this display of geoscience research aims to show members of Congress NSF's role in meeting the nation's research and educational needs. The AGI-AGU exhibit showcased the work of the Incorporated Research Institutions for Seismology (IRIS), a consortium of 91 universities having research programs in seismology. Supported by the NSF and the U.S. Geological Survey, IRIS maintains a worldwide system for monitoring earthquakes and other powerful seismic events, such as nuclear tests, in near-real time. Rick Aster, associate professor of geophysics at the New Mexico Institute of Mining and Technology, illustrated current technology with an exhibit featuring a working seismograph that allowed participants to walk and jump and create and record their own earthquakes. The AGI-AGU seismology exhibit was very timely because the House recently passed the 1999 Earthquake Hazards Reduction Authorization Act.

The geosciences were well represented at the exhibition, which drew a dozen members of Congress and more than 100 congressional staffers. Barbara Tewksbury, professor of geology at Hamilton College, represented the National Association of Geoscience Teachers (NAGT) at its booth, which focused on NAGT's programs for improving undergraduate geoscience education. Other geoscience-related exhibits included "The Soil Record of Past Climates and Atmospheres" by the University of Tennessee, "The Virtual Earth System" by the University Corporation for Atmospheric Research, and "Measuring the Earth with Quasars" by the American Astronomical Society. (update adapted from news note by Kasey Shewey White to appear in July 1999 Geotimes)

### \*\*\* FY 2000 Budget Process Gearing Up \*\*\*

As May winds down, the first of the appropriations bills for fiscal year (FY) 2000 are beginning to emerge from committee. The Administration and congressional leaders playing brinkmanship over who will propose breaking the budget caps set by the 1997 balanced budget agreement. So far neither side has blinked, leaving appropriators to contend with major cuts in spending from last year. Their response has been to allocate increases for defense, small cuts for most non-contentious domestic spending areas, and draconian cuts to high-profile domestic areas in order to force the issue. Consequently, the House allocation for the bill funding NSF, NASA, and EPA is 8.4 percent less than last year, for the bill funding NOAA it is 13 percent less, and for the bill funding the Department of the Interior it is 19 percent less. Unless the caps are removed, this strategy could produce a major financial crunch for these agencies. Consequently, the chairman of the House Interior Appropriations subcommittee has vowed to delay consideration of that bill as long as possible in hopes that an agreement can be reached. More at the AAAS R&D Budget Policy Page at <http://www.aaas.org/spp/dspp/rd/rdwwwpg.htm>.

### \*\*\* White House Releases Next Year's Budget Priorities for Science \*\*\*

Even as Congress considers the FY2000 budget, the Administration is hard at work preparing the FY2001 budget, which will be submitted to Congress next February. In late May, the White House issued a list of priorities for science and technology spending. Although not binding on the departments and agencies, the priorities give a good indication of where next year's budget increases are likely to occur. As with the current budget, the top priority is information technology. That is followed by the U.S. Global Change Research Program and climate change technology, emerging infectious diseases, protecting against 21st century threats, aviation safety, plant genome research, food safety, integrated science for ecosystem challenges, educational research, and nanotechnology. Although "protecting against 21st century threats" might sound like it would include a focus on natural hazards, alas it is described solely in terms of terrorism. Perhaps the Administration's crystal ball suggests that the \$50 billion per year cost of natural disasters will vanish in the millennium.

### \*\*\* Further Delays for Oil Valuation, Mining Rules \*\*\*

The Department of the Interior's proposed oil valuation rule saw more action on the Hill this past month and will likely remain an unresolved issue for some time to come. Since the new rule was first proposed in February, 1998, it has been repeatedly delayed by Congressional moratoriums. The Emergency Supplemental Appropriations Act (H.R. 1141), signed by President Clinton on May 21st, extends the moratorium until the start of FY 2000 this October. In addition, new allegations of payoffs to two federal employees in the Interior Department and the Department of Energy have led Senators Frank Murkowski (R-AK), Pete Domenici (R-NM), and Don Nickles (R-OK) to ask Interior Secretary Bruce Babbitt to "suspend the proposed oil valuation rule until issues surrounding its propriety are resolved." See [http://www.senate.gov/~energy/oil\\_valuation.htm](http://www.senate.gov/~energy/oil_valuation.htm) for the complete press release from the Senate Committee on Energy and Natural Resources.

In related news, the Senate Energy Research, Development, Production, and Regulation Subcommittee held a hearing on S. 924, the Federal Royalty Certainty Act, on May 18th. The bill, introduced by subcommittee chair Nickles, requires that the value of royalty payments be calculated in marketable condition at the lease and relieves the oil or gas producer of marketing and transportation costs. The Minerals Management Service, the branch of the Interior Department in charge of handling royalty collection, is opposed to the new legislation. For more information on this bill and other oil royalty updates, see <http://www.agiweb.org/gap/legis.html>. The emergency spending bill signed by President Clinton also included a mining-related provision to require an additional minimum 120-day comment period on the Bureau of Land Management's surface management regulations for mineral exploration and development activities conducted under the authority of the General Mining Law of 1872. The regulations (known as 3809 regulations after their federal code number) apply to "hardrock" minerals, such as copper and gold, on nearly 270 million acres of public lands managed by

BLM throughout the Western United States. Last year's omnibus appropriations bill required BLM to delay the rule until the National Research Council could complete a study, due July 1st, assessing the adequacy of state and federal statutes and regulations affecting hardrock mining on federal lands that are intended to prevent unnecessary or undue degradation of federal lands. The study will not address the larger issue of reform of the comprehensive mining law. More on the study can be found at <http://www4.nas.edu/cger/besr.nsf>.

**\*\*\* Superfund Legislation Being Considered in Congress \*\*\***

The Superfund issue has come around again and currently there are two Senate bills (S. 1090 and S. 1105) and one House bill (H.R. 1300) under debate in Congress. Each bill is streamlined to avoid many controversial issues that prevented legislation passing last Congress. However, there are still stumbling blocks, the biggest of which is reauthorization of the Superfund tax. The Environmental Protection Agency promises to oppose any bill not continuing the Superfund tax -- this includes S. 1090 and H.R. 1300. In a recent House hearing, EPA Administrator Carol Browner stated her concerns that H.R.1300 shifts financial burden of clean up to taxpayers and that could cause increased litigation.

On May 25th, the Senate held a hearing on S.1090, which begins downsizing Superfund and shifts more power to the states. State officials supported provisions increasing state control over cleanups such as requiring a governor's request to list a site on the National Priority List and giving states the authority to declare finality at a site, thereby protecting the owner from future clean-up requirements by the EPA. Environmental groups, however, testified that these provisions put too much power in state hands and would potentially jeopardize clean-up standards at sites and prevent cleanup if a site is not politically beneficial for a governor to add to the National Priority List (NPL) of sites. Senate Democrats have submitted S. 1105 which, while similar to S. 1090 in many respects, does not cap the number of sites that can be listed on the NPL to 30 annually, does not require governor involvement to list sites, and does not give liability relief to small businesses. S. 1105 is the only Superfund legislation on the table that reinstates the Superfund tax.

All of the current bills include provisions for "brownfield" redevelopment, a rare area of agreement between the many sides in the Superfund debate that has not been allowed to pass separately in order to force broader reform. Brownfields are plots of contaminated land in the urban centers that are left vacant but if cleaned up could enhance economic development in urban centers and help prevent urban sprawl by encouraging businesses to redevelop existing urban areas, not pristine open space. Brownfields exist because owners fear high costs of clean up and lack of finality, which leaves them open to future requests to clean the site by the EPA. All three Superfund bills provide funding for states to investigate, identify, and begin mitigation of brownfields. More on Superfund legislation at <http://www.agiweb.org/gap/legis.html#superfund>.

**\*\*\* House Hearing on Methane Hydrate Research \*\*\***

On May 25th, the House Subcommittee on Energy and Mineral Resources held a hearing on H.R. 1753, the Methane Hydrate R&D Act of 1999. Witnesses from federal agencies with a role in hydrate research -- including the USGS, DOE, and NSF -- all emphasized that there is a huge volume of natural gas tied up in hydrates, that the production of these hydrates is not yet possible but the subject of research, and that hydrates pose a potential natural hazard threat associated with sea floor instability and the release of large volumes of methane to the oceans and the atmosphere. Scientists from the University of Alaska, University of Mississippi, and University of Hawaii explained their current and proposed research interests in the three main geographic provinces of suspected methane hydrate deposits in the US: Alaska, the Gulf of Mexico, and the Pacific Basin and Rim. All witnesses were supportive of the legislation. For more information on these bills and this topic, see <http://www.agiweb.org/gap/legis106/ch4106.html>.

**\*\*\* New Material on Web Site \*\*\***

The following updates and reports were added to the Government Affairs portion of AGI's web site:  
<http://www.agiweb.org/gap/gaphome.html> since the last monthly update:

Superfund Update (5-22-99)	Waste Isolation Pilot Plant Update (5-22-99)
Science Education Policy Update (5-21-99)	Update on Provision to Apply FOIA to Federal Grants (5-21-99)
Outer Continental Shelf Royalties Update (5-12-99)	National Petroleum Reserve Alaska Update (5-7-99)
High-Level Nuclear Waste Update (5-9-99)	Summary of Hearings on High-Level Nuclear Waste Disposal (5-9-99)
Oil and Gas Royalty Update (5-6-99)	Update on Congressional Efforts to Double Science Funding (5-6-99)
Update on Science Education Hearings (5-6-99)	Methane Hydrate Research and Development Act Update (5-5-99)
Climate Change Policy Update (5-3-99)	
Geotimes News Note: Common ground on climate change? (5/99)	
Geotimes Political Scene: Making Environmental Science Policy at NSF (5/99)	
Government Affairs Report: Diminishing Financial Resources for the Nation's Streamgaging Network (reprinted with permission from The Professional Geologist 4/99)	

***Monthly update prepared by David Applegate, Scott Broadwell, Sarah Robinson, and Kasey Shewey White (in absentia)***

This monthly update goes out to members of the AGI Government Affairs Program (GAP) Advisory Committee, the leadership of AGI's member societies, and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geoscience community that it serves. Prior updates can be found on the AGI web site under "Government Affairs" <http://www.agiweb.org>. For additional information on specific policy issues, please visit the web site or contact us at:

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Arguello Canyons lie adjacent to the Santa Maria Basin. It is assumed that hydrocarbon leakage from these basins may contribute fluids or gases that produce the unusual morphologies.

ROV studies by MBARI in both the Monterey Bay and Santa Barbara Channel regions revealed chemosynthetic communities and carbonate deposition at or near the apparent fluid seepage sites. Analyses of carbonates indicate that fluids may originate from a combination of hydrocarbon, salt water and meteoric water sources. ***This presentation will discuss the results of research work conducted to characterize these unusual fluid-induced submarine features.***

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**H.Gary Greene** is Director and Professor at the Moss Landing Marine Laboratories (MLML) operated by the California State University system; Marine Geologist / Pacific Marine Geology Branch of the U.S. Geological Survey, Menlo Park, CA.; Adjunct Professor, San Jose State University; and Adjunct Senior Scientist, Monterey Bay Aquarium Research Institute (MBARI). He received his B.S. in Paleontology from Cal State University, Long Beach (1966); an M.S. in Geophysics from San Jose State University (1969); and his Ph.D. in Marine Geology from Stanford University (1977). From 1966 to 1994 he was Program Manager, Projects Chief, International Education Coordinator, and Instructor at the Branch of Marine Geology, Office of Energy and Marine Geology, and Office of International Geology, USGS, Menlo Park. He has been Adjunct Professor of geological Oceanography at SJSU/MLML since 1979 and Contributing Scientist/Adjunct Scientist/Co-Principal Investigator at MBARI since 1987. His maritime experience includes three years in the U.S. Coast Guard (1957-60) and commercial sport-fishing ventures (1960-64), followed by stints as an exploration geophysicist for Alpine Marine Geophysical Services (Houston, TX.), Rayflex Exploration Company (Richardson, TX.), and Texaco Inc. and Richfield Oil Co. (Long Beach, CA.) from 1961 to 1966. He entered academics the following year as Adjunct Professor of Marine Geology at Monterey Peninsula and Cabrillo Colleges in the Monterey Bay area (1976-78). He has been Chief Scientist or Co-Chief Scientist on over 50 oceanographic cruises, and authored or co-authored over 200 papers, reports, abstracts, and maps and co-edited four books. Dr. Greene is a member of the American Geophysical Union (AGU), AAPG, Sigma Xi, the American Association for the Advancement of Science (AAAS), the East-West Center Alumni Association, the Society of Archimedes (SJSU), and is Founder, Monterey Bay Geological Society and a Fellow of the California Academy of Sciences.

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