SAN DIEGO ASSOCIATION OF GEOLOGISTS

1994 EXECUTIVE COMMITTEE

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MEETING NOTICE

WEDNESDAY, APRIL 20, 1994

SPEAKER: Kenji Hirabayashi and Jeanne Chick

TOPIC: Please see abstracts.

PLACE: Quiigs Bar and Grill 222-1101
5083 Santa Monica Ave.
San Diego, CA 92107

TIME: 6:00-Social Hour
7:00-Dinner
8:00-Program

DINNER: Fresh fish, salad, rolls, baked potato, vegetable, chocolate mousse, coffee, hot tea.

COST: $20.00 Please make checks payable to SDAG.

RESERVATIONS REQUIRED by noon Monday, April 18th. Please phone in your reservation to Anne Sturz, 461-2644. Leave name, number in party and affiliation. Please call Anne if you need to cancel your reservation. If you have special diet requirements (i.e. vegetarian), contact Joe Corones, 492-5034.

SMOKING WILL NOT BE PERMITTED IN THE MEETING ROOM TO CONSERVE THE HEALTH OF OUR MEMBERS. THANK YOU!

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ABSTRACTS

Quaternary Activity of the San Miguel Fault, Baja California, Mexico

C. Kenji Hirabayashi and Thomas Rockwell (Department of Geological Sciences, San Diego State University, San Diego, CA 92182 and Steve Wesnousky, Center for Neotectonic Studies, University of Nevada, Reno, NV 89557

The San Miguel fault zone has been the most seismically active fault in peninsular Baja California this century, with six earthquakes over M6 in a sequence in 1954 and 1956. The 1956 main shock (M6.8) resulted in a 20 km surface rupture with up to a meter of dextral slip. Total slip across the fault zone, however, is less than 1 kilometer.

Paleoseismic studies along the San Miguel fault, in the southern portion of the San Miguel fault zone, have determined:

1) An erosional remnant of ridgeline is offset 22±3 m. Soils developed in the ridge deposits indicate an age of 50-120 ka, thereby suggesting a long term slip rate of 0.2-0.5 mm/yr.

2) 3-dimensional trenching resolved that slip in the 1956 earthquake at this site was about 1.15 m, similar to observations taken shortly after the 1956 earthquake. Dividing the observed slip by the long-term slip rate, a long term average recurrence interval of 2-5 ka is suggested.

3) The penultimate event, represented by fissure filling along a strand of the fault that did not break in 1956, occurred about 700 years ago, much more recently that would be predicted by dividing the 1956 slip into the long-term slip rate.

4) A trench across the fault in the Pleistocene deposits yielded evidence for only the 1956 and penultimate events, and no other Holocene activity.

5) A Pleistocene channel is dextrally offset about 7.5 m, with less than 1 m of vertical slip, indicating that the fault is principally strike-slip.

These data lead to the conclusion that either the penultimate earthquake was smaller than the 1956 event or that there has been two closely spaced events (temporal clustering of seismic activity) with no prior Holocene rupture.

History of metal concentrations as revealed from sediments of Buena Vista Lagoon, San Diego County

Jeanne Chick San Diego State University, Senior Thesis

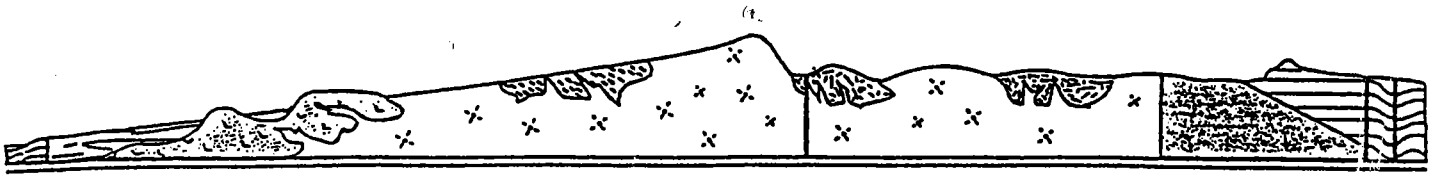
Sediment profiles from Buena Vista Lagoon (north coastal San Diego County) were collected from two locations with different depositional histories. One core (46 cm. depth) came from an enclosed salt pond, whereas the other (60 cm. depth) was from the center of the lagoon. Sediment layers were analyzed for metal concentrations (Pb, Cu, Zn, and Ni) and dated using ^{210}Pb geochronology. The purpose was to observe the effects of human activity, as a function of time, on the metal concentrations in the sediment, in particular the effects of lead tetraethyl released to the atmosphere in gasoline.

One difficulty in determining the sedimentation rate was due to the small area of the lagoon over which the atmospherically derived ^{210}Pb was deposited. A second problem encountered was the possibility of disturbed sediment layers caused by human activity. A third variable is the effect of the closure on the slat pond by cattails, limiting access to the open lagoon.

In the open lagoon core, the concentration of the metals with respect to depth in the leachable fraction increased slightly toward the top for Pb and Zn, but not for Cu and Ni. This core also showed an increase in organic matter toward the top. The core from the salt pond was most remarkable for exhibiting differences in metal concentration due to closure from the rest of the lagoon by cattails. This resulted in a sharp decrease in organic matter in the upper 10 cm and a decrease in the acid leachable fraction of the sediment. When the metals are analyzed in this leached fraction, Pb concentration shows a marked increase, whereas Ni and Cu decreased, and Zn remained constant. Such patterns are indications that the Pb source is from the atmosphere while the Ni and Cu came from runoff.

ANNOUNCEMENTS:

1. **Corporate Sponsors:** As we continue through another year of activities, we would like to remind everyone that Corporate Sponsorships contribute greatly to the quality and efficiency of the yearly operation of SDAG. Corporate Sponsor contributions are used to sponsor students at our monthly meetings, support our annual picnic and field trip, offset guidebook publication costs and upgrade SDAG equipment. If you or your company would like to become a Corporate Sponsor and be recognized in our SDAG newsletter, directory and at the monthly meetings, send a minimum of $100.00 contribution to SDAG, c/o Anne Sturz, 6466 Bonnie View Dr. San Diego, CA 92119.
2. **Thank you** to all Corporate Sponsors received this year: Transglobal Environmental Chemistry, Pacific Soils and Engineering, Woodward-Clyde Consultants, William J. Elliot, Carole Ziegler, Gallagher Drilling Service, Perry and Nona Crampton, IT Corporation, Anne Sturz, Robertson Geotechnical Inc., Tony V. Sawyer Consulting Hydrologist, Daryl Streiff Consultant, Catlin Engineering Inc., Allied Geotechnical Engineers Inc., American Geotechnical, John Minch and Associates, Group Delta Consultants, Zeiser Kling Consultants, Inc., Hargis + Associates, Tetra Tech, Inc.
3. **Deadline** for announcements to be included in the April Newsletter is **Friday April 29th.** Please submit your items in writing to Anne Sturz by mail (6466 Bonnie View Dr. San Diego, CA 92119) or fax (260-6804).
4. The **1994 Annual SDAG Field Trip** will revisit the Geology and Natural History of Camp Pendleton Marine Base. The field trip is tentatively scheduled for **Saturday, October 29, 1994.** We are currently seeking papers for the field trip guide. Papers may be on any topic related to the geology or natural history of the base, and can be any size up to approximately 50 pages. In addition, we would like a short paper on the history of the base. If anyone is interested in submitting a paper, please contact Phil Rosenberg (622-2278). Thank you.
5. The **Desert Research Symposium** will be held May 20-23, 1994 at the San Bernardino County Museum, Redlands, CA. For further information contact Jennifer Reynolds, San Bernardino County Museum, 2024 Orange Tree Lane, Redlands, CA 92374, or call 909-798-8570.
6. There has been interest in forming a group of local geologists to be available for Earth Science and Geology presentations to schools in the San Diego area. Many SDAG members may already be involved or know of such a program that is in existence at this time. If you have any information on existing programs or would like to participate in establishing one please contact Daryl Strieff at 619-758-2432 or Joe Corones at 619-484-3582.
7. **Employment Opportunity: Geocon Incorporated** is seeking a senior staff level engineer with 1-3 years geotechnical experience; BS in civil engineering required, MS preferable, registration desired but not required. Contact Jim Likins, 619-558-6900. or mail resume to 6960 Flanders Drive, San Diego, CA 92121.
8. The May 18th SDAG meeting will be joint with the American Socient of Civil Engineers, Geotechnical Division. Speakers will be Walter F. Crampton and Peter H. F. Graber. The title of the talk is *Coastal Erosion in northern San Diego County.*



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