



SAN DIEGO ASSOCIATION OF GEOLOGISTS

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SDAG MEETING ANNOUNCEMENT - SDAG Scholarship Winners!

Wednesday, April 16, 2003

MTBE IN GROUNDWATER - THE TEMECULA STORY

presented by SEAN MCCLAIN, MS CANDIDATE SDSU
AND

JUDGING THE HEALTH OF MISSION BAY

presented by BRANDON SWOPE, MS CANDIDATE USD



Where: **Eva's Cocina & Cantina**
6690 Mission Gorge Road
San Diego, CA
(619) 284-5874

When: 6:00 pm – Social Hour
7:00 pm – Dinner
8:00 pm – Program

Directions: Go west on Friars Road, east of I-15 to Mission Gorge Road. Located 1/2 block East of Zion Ave. on the North side of Mission Gorge Road. Overlooking Admiral Baker Golf Course.

Dinner: A Mexican Buffet to include Cheese Enchiladas, Beef Fajitas, Cesar salad, Sautéed Vegetables, Corn and Flour Tortillas, Mexican Style Rice, Refried Beans, Salsa Fresca, Guacamole and Sour Cream. Includes Soft Beverages, Coffee or Tea.

Cost: \$20 per person, students \$10 with ID

Reservations: Make your reservation **online** through the SDAG website at www.sandiegoeologists.org or call the SDAG Reservation Line at: (619) 521-0165, ext. 190, **no later than 5PM! Monday, April 14th**. Contact Margaret Eggers at (619) 521-0165, ext. 132 with any questions.

RESERVATIONS CAN NOT BE ACCEPTED AFTER MONDAY AT 5PM.

Sean McLain, MS Candidate, SDSU:

My name Sean McClain and I am a staff geologist at GeoSyntec Consultants in San Diego, California. I earned my Bachelor's degree in geology with emphasis on groundwater hydrology in May of 2002. Aside from my career with GeoSyntec Consultants, I am currently pursuing my Master's degree in groundwater hydrology and my focus is on aquifer testing and modeling. Capture zone analysis was my senior thesis project in which I investigated contaminant, MTBE in particular, impact on groundwater in Temecula, California. One of the major findings from this study was that can such analysis delineate the limits or extent to which plumes would not migrate towards a production well. The project was presented to the faculty at the department of Geological Science in the spring of 2002

ABSTRACT

On February 29, 2000, detection of methyl tertiary-butyl ether (MTBE) at a concentration of 3.7 micrograms per liter ($\mu\text{g/L}$) was detected in the groundwater at production Well 118, operated by Rancho California Water District (RCWD). A data base search on the State Board data base Geotracker located several leaking underground storage tanks (LUST) within a 3000 ft radius of Well 118, and are suspected to be the main cause of the MTBE contamination found in the production well. Capture zone models were generated using the USEPA computer model WhAEM2000, based on a range of high and low hydraulic conductivity and a calculated flow rate. The models were created on a base map to show the extent of each capture zone in relation to the gas stations. Three leaking underground tanks are within the capture zone area, Former Delta Discount, Chevron, and 76 Station. Site characterizations indicated high concentrations of MTBE at the Former Delta Discount Gas and the 76 Station. Chevron had an unauthorized release in 1984 that contaminated the soil and groundwater. The contamination was cleaned up, and the monitoring wells have remained non-detect since then. Therefore, Chevron was eliminated from this investigation. From capture zone model 4, particle tracking indicated it would take approximately 10 years for the MTBE plume to travel from the 76 Station, and the Former Delta Discount using the parameters in that model.

Brandon Swope, MS Candidate, USD:

Brandon received his BS in Biology from Salisbury University, on the DelMarVa peninsula on the Chesapeake Bay of Maryland. He also received a BS in Environmental Science from the University of Maryland Eastern Shore. He is currently an MS candidate in Marine Science at the University of San Diego. Brandon serves as the project manager for the San Diego Bay Keeper, Mission Bay Watershed Evaluation Project and has worked as an Instructor at USD for the Physical Aspects of the Ocean Laboratory.

ABSTRACT

Mission Bay is a relatively shallow estuary with depths ranging from 2-8 m and is flushed primarily by tidal circulation rather than freshwater input. Due to the design, dredging, and development of Mission Bay Park, the eastern region of the bay receives little or no tidal flushing. The primary freshwater inputs into Mission Bay are Tecolote, Cudahy, and Rose Creeks. In addition to these major inputs, over 100 storm drains deliver freshwater runoff into the system. The watersheds for Tecolote Creek and Rose Creek stretch over a large region consisting of commercial, industrial, and residential areas. Mission Bay is the ultimate destination for much of the runoff from these diverse watersheds.

Mission Bay has been listed by the city of San Diego as having a variety of beneficial uses. Some of these include: recreational swimming, commercial and sport fishing, shellfish collection, estuarine, marine, and wildlife habitat as well as migratory bird and rare wildlife species habitat. There are, and have been, water quality issues that limit or negate these uses. It is important to have an understanding of the entire ecosystem to make informed management decisions that are aimed at increasing overall water quality. The goal of this study is to gain a better understanding of the ecological condition of Mission Bay, and was accomplished through a comprehensive year long monitoring program. The project consisted of a series of biweekly sampling cruises, from November 2002 - November 2003, within Mission Bay over a complete annual cycle. Turbidity, temperature, salinity, and dissolved oxygen were measured in the field at each of six sites; one each near the three major sources of fresh water input to Mission Bay (the mouths of Tecolote Creek, Cudahy Creek, and Rose Creek), two representative of large regions of the bay (Fiesta Bay, Sail Bay), and a final site more representative of the coastal zone (Ventura Point). Water samples were collected for laboratory analysis of nitrate, phosphate, and silica concentrations. Phytoplankton were collected, using a horizontal tow, beginning in the same areas at which the abiotic factors were measured.

The results of the monitoring show spatial variation in nutrient levels, with highest concentrations in the back regions of the bay and steadily decreasing with proximity to the ocean. Accompanying this spatial trend of nutrients is one of phytoplankton diversity. Areas that had higher concentrations of phosphate and silica had an overall lower diversity, while the regions with lower concentrations of those nutrients had greater plankton diversity. This negative correlation between nutrient concentrations and phytoplankton diversity was not observed with nitrate. Due to the limiting nature of nitrate in the marine environment it is thought that nitrate entering the system is assimilated rapidly by the phytoplankton, not leading to accumulation over time. Spatial variation in the hydrographic data also was observed. Limited circulation and flushing in the eastern part of the bay resulted in higher temperatures and salinities, especially during the summer months when evaporation was the highest and rainfall was less likely to occur. There were temporal variations in the chemical and biological data at all of the sites, with nutrient levels fluctuating throughout the year and phytoplankton abundances peaking during the spring and summer months. The information collected during this study provides important baseline environmental and biological data that can be used to make informed decisions in the development of an effective watershed management plan for Mission Bay.

2003 EXECUTIVE COMMITTEE

PRESIDENT - Patrick Brooks; *Anteon Corp.*; Ph: (619) 532-0930; fax: (619) 532-0995; brooksgp@efds.w.navy.mil

VICE PRESIDENT - Monte Murbach; *Petra Geotechnical*; Ph: (909) 600-9271; fax (909) 600-9215; mmurbach@petra-inc.com

SECRETARY - Margaret Eggers; *Hargis + Associates, Inc.*; Ph: (619)-521-0165; fax: (619) 521-8580; meggers@hargis.com

TREASURER - Phil Farquharson, Ph. 619) 224-8463; fax (619) 255-8380; geoguy@cq-squared.com

PUBLICATIONS - Lowell Lindsay; *Sunbelt Publications*; Ph: (619) 258-4911 x111; fax: (619) 258-4916; llindsay@sunbeltpub.com.

WEBMASTER - Carolyn Glockhoff; Ph: (858) 549-3396; carolion@znet.com

ANNOUNCEMENTS:

Message from the SDAG President regarding Future SDAG Presentations:

Geotechnical: We are soliciting your assistance in arranging a top-notch geotechnical presentation. If you have an idea for a good geotech presentation that would be of interest to our group, please contact Pat Brooks.

Environmental: I have a couple presentations that may be of interest: 1) Zero-valent iron injection for treatment of TCE in groundwater; 2) Groundwater cleanup at MCAS El Toro - a joint Navy/Irvine Ranch Water District project. I think these are good projects, but would like to canvas the group for other possibilities.

Poster Session: We have not done a poster session in some time. Please contact Pat Brooks if you are willing to prepare and present a poster. We could combine this with a raffle of geo-trinkets donated to SDAG, if there is sufficient interest.

PLEASE SEND PAT YOUR COMMENTS and IDEAS !

Upcoming 2003 Meetings:

May 20, 2003	Dr. Monte Marshall, Geology of the Three Rivers Gorge, China Mission Trails Park (NOTE TUESDAY MEETING DAY!!)
October	Pegmatite Field Trip
December 17 th	Holiday Meeting, San Diego Natural History Museum

SDAG's 2003 Field Trip:

Plans for the San Diego Association of Geologists 2003 Field Trip are taking shape. The annual field trip will be held October 25th and 26th. The theme of the trip is "**The Elsinore fault and gem bearing pegmatites between Palomar Mountain and the Coyote Mountains, San Diego County, California**". Tid bits: We plan on visiting a great exposure of the Elsinore fault Saturday morning followed by Lunch at Menghini Winery. We will Camp at Agua Caliente county park Saturday night. More juicy details forthcoming.

If you can contribute a paper pertaining to the geology, geomorphology, mining, history, or biology of the general area in which the field trip will take place, please consider submitting it for publication in the guidebook. The trip and guidebook will be a joint effort of the San Diego Association of Geologists and the South Coast Geological Society. (There will be two field trips.) For more information, please contact Monte Murbach (mmurbach@petra-inc.com)

DO YOU HAVE AN ANNOUNCEMENT?? Do you have an event, job opening, field trip or other announcement you would like to share with our members?? Just call or email our SDAG Secretary, Margaret Eggers at 619-521-0165 OR meggers@hargis.com.

SDAG NEWSLETTER IS DIGITAL! If we don't have your e-mail address, or your email address changes, or if you have problems with the electronic format please contact Margaret Eggers at meggers@hargis.com, or call at 619-521-0165, ext. 132.

SDAG Wear: - Monte has a variety of shirts, hats, visors and even a nice vest with the SDAG logo. A small selection is available for purchase at the meetings; all SDAG wear can be ordered from Monte.

SDSU Geology Department Seminar Series – Wednesday Afternoons - The seminar announcement page is at: www.geology.sdsu.edu/seminars/

FIELD TRIP - MAY 24, 2003
"A DAY IN THE FIELD WITH TOM DIBBLEE"

The **Dibblee Geological Foundation** and the **Santa Barbara Museum of Natural History** invite you to participate in A Day In The Field with *living-legend Tom Dibblee*, along with Cal Poly Professor **Jon Nourse**, Northridge Professor **Peter Weigand**, and Dibblee Map Editor **John Minch**. **Tom and John's** San Gabriel map collection will be available and will be featured.

Great views and precipitous canyon and waterfall outcrops reveal processes of extension, intrusion, rotation, and displacement associated with subduction magmatism and a later evolving dextral plate boundary. There will be dramatic geology for every interest.

Proceeds from this fund-raiser will be utilized exclusively for efforts towards the continued publication of Tom Dibblee's maps. Fee: \$150 (includes coffee and doughnuts, BBQ lunch catered by Halliburton, ski lift, and guidebook plus map). Registration deadline is May 10, 2003. For information, e-mail John Powell at dibbleemap@adelphia.net, call (805) 987-5846, write to PO Box 2309, Camarillo, CA 93011, or visit dibblee.geol.ucsb.edu.

Send checks payable to the SBMNH / DGC to PO Box 2309, Camarillo, CA 93011:

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A significant portion of the SDAG operating and scholarship budget is provided by corporate sponsorship. Please consider becoming a Corporate Sponsor for 2003! In addition to monthly recognition for your contribution, you will be entitled to a free internet “link” from the SDAG Website, and all Corporate Sponsors are listed in the front of the annual SDAG Field Trip Volume.

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POSITIONS AVAILABLE:

- URS CORPORATION**, the nation’s largest design firm, has a large multidisciplinary practice in San Diego. The San Diego office is seeking qualified individuals for the following positions: **Senior Project Geotechnical Engineer**, responsible for managing geotechnical services for private and public sector clients, including client contact; preparation of proposals; and supervision of field explorations, laboratory testing, and engineering analyses. Minimum of a MSCE and 8 years experience in geotechnical consulting in southern California. Experience should include evaluation of geologic and seismic hazards, foundation investigations and geotechnical services during construction of projects. **Design Civil Engineer**, responsible for development of plans and specifications for earthworks projects; landfills, detention basins, access roads. Knowledgeable in development of grading plans, landfill design, surface hydrology, proficient in AutoCAD, Land Development, and HEC analyses. Minimum of a BSCE and 2 years experience. FAX resumes to Debra Hart at 619-293-7920 or email to debra_hart@urscorp.com.
- Kleinfelder** has an outstanding career opportunity for a qualified project geotechnical engineer in our San Diego Office. This position is ideal for the right motivated individual interested in excelling professionally. Teamplayers and client-focused individuals who are comfortable and capable of practicing advanced geotechnical engineering techniques will be considered. The primary responsibilities will be to coordinate, analyze, and compile reports for geotechnical projects including shallow and deep foundations, slope stabilization, soil mechanics, and construction observation. Ideal candidates for the project engineer position

will possess 4 to 8 years of progressive geotechnical engineering experience, an M.S. degree in civil (geotechnical emphasis) engineering, a P.E. or the ability to register in California within one year, and exceptional verbal and written communication skills. Ideal project level candidates will also be results - oriented, creative in applying technology for highly diverse designs and projects, and have some experience in proposal preparation and client management.

For additional information please contact: Bob Stroh, RG, CEG, Project Engineering Geologist, Kleinfelder, Inc., 5015 Shoreham Place San Diego, California 92122 858.320.2270 direct.

- **Onsite Environmental** is looking for a Registered Geologist in the State of California. We are a large multi-disciplinary Environmental Engineering firm looking for a future leader. Duties include field oversight, report writing and editing, personnel management and sub-contractor/client interaction. Ideal candidate will have 4-8 years of experience in the environmental consulting field. Person must have a Bachelor of Science in Geology. Ideal candidate will be registered in the State of California. The individual must work well on his/her own and must be able to work as part of a team. For immediate consideration contact Kurt Yaeger, you will receive a response. Thank you. 714-347-1220 kyaeger@onsitecompanies.com

POSITIONS WANTED:

Matthew Sisk, a new SDAG member is looking for an entry-level geology/geology related position in San Diego County. Matthew is a recent graduate of New Jersey City University, with a BS in Geology. Contact Matthew at Matthewmb77@aol.com.

Shana Dreyfuss is looking for an entry-level geology position in San Diego. She recently graduated from the University of California, Davis. She can be reached at: shajspain@yahoo.com

**San Diego Association of Geologists
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