



SAN DIEGO ASSOCIATION OF GEOLOGISTS

<http://www.znet.com/~sdag>

2000 EXECUTIVE COMMITTEE

PRESIDENT

Greg Cranham
Hargis + Associates, Inc.
Mission City Corporate Center
2365 Northside Drive, Suite C-100
San Diego, California 92108
Ph: (619) 521-0165 x 108
fax: (619) 521-8580
gcranham@hargis.com

VICE PRESIDENT

Barbara B. Birnbaum
2724 Tokalon Street
San Diego, CA 92110
Ph: (619) 276-9711
fax: (619) 276-9713
barbbb@gateway.net

SECRETARY

Bob Stroh
Ninyo & Moore
5710 Ruffin Road
San Diego, CA 92123
Ph: (858) 576-1000
fax: (858) 576-9600
rstroh@ninyoandmoore.com

TREASURER

Patrick Brooks
Kleinfelder, Inc.
1230 Columbia Street
Suite 400
San Diego, CA 92101
Ph: (619) 744-3083
fax: (619) 687-8787
gpbrooks@bechtel.com

ANNOUNCEMENT

JOINT MEETING WITH INLAND GEOLOGICAL SOCIETY

Wednesday, July 19, 2000

Where: **THE HUNGRY HUNTER**
27600 Jefferson Avenue
Temecula
Phone: 909/ 694-1475

When: 6:00 pm – Social Hour
7:00 pm – Dinner
8:30 pm – Program

Directions: From San Diego, Take 15 Fwy North to Temecula, Exit Winchester Road - go west, Go south on Jefferson, Hungry Hunter is on east side of Jefferson.

Dinner: **Meal choices are: prime rib, filet mignon, chicken or shrimp.**

Cost: \$25.00 per person, Students with ID \$15.00.

Reservations: Make your reservation at 909-822-8939, before 5pm on Tuesday, July 19. Contact Lisa Battiato with any questions.

Program: Stratigraphy of the western Salton Trough, with special emphasis on synextensional depositional sequences and paleontologic resources of Neogene/Quaternary sedimentary basins of Anza-Borrego Desert State Park, California

Speaker: Paul Remeika, Department of Parks and Recreation, Colorado Desert District, Anza-Borrego Desert State Park

Biography

Paul Remeika is a patrol ranger at Anza-Borrego. He is recognized nationally as a responsible steward and one of the foremost experts on the current state of knowledge in regards to the Neogene/Quaternary paleontology and stratigraphy of Anza-Borrego and the western Salton Trough. He authored one book on Anza-Borrego's geology, "Edge of Creation", and has published over 45 articles and abstracts specific to the state park's paleontologic and stratigraphic resources. In 1992, Remeika challenged conventional doctrine by introducing the Department's first State-sanctioned college undergraduate-level certification training program in Paleontology for volunteer staff, and co-established a professional national-level paleontologic resource management program active today that is unique to the Department. With

colleague George Jefferson, he mandated Anza-Borrego as an accredited repository for the inventory, identification, field salvage recovery, preparation, curation, cataloging, storage, and conservation of a taxonomically-diverse paleobiota of over 15 k specimens that may be the largest fossil assemblage identified from a continuous Neogene/Quaternary section in North America. Recent endeavors include organizing interdisciplinary age control of the western Borrego Badlands integrating magnetostratigraphy [Jaramillo magnetosubchron and presence of the Matuyama-Brunhes magnetic boundary], tephrochronology [chemical analysis of the Bishop and the Thermal Canyon volcanic ashes], identifying age-diagnostic ostracodes, vertebrates, and locally-derived silicified woods in fluviolacustrine sediments, and recognition of open- and closed-basin tufa shoreline deposits. He is also finishing up on vertebrate footprint identifications for inclusion into the new Fish Creek Canyon Ichnofauna from the Fish Creek-Vallecito Badlands. After hours, Remeika is working on a formal stratigraphic revision of the Salton Trough for publication with a special interest on the tectono-depositional sequences exposed throughout the Borrego Badlands of Anza-Borrego Desert State Park.

Abstract

Established in 1933, Anza-Borrego Desert State Park is ranked as the largest state park in the contiguous United States. This celebrated parkland preserves and protects in public trust a unique out-of-doors storehouse of geological and paleontological natural resources that is strategically located straddling a dynamic crustal transition between the elevated outward-tilted rift shoulder (east-facing hanging-wall) of the Peninsular Ranges (Laguna Mountains) and the western breakaway-margin of the topographically-subsiding Colorado Desert (part of the Gulf Extensional Province). In-between, extensional features include stepped-down gravitational upper-plate crustal blocks, such as the Tierra Blanca Mountains, that reveal a cross-section diminution in altitude from cordillera crestline to desert floor via detachment faulting in the south end of the state park, and stepped-up footwall tilt-blocks, such as the Santa Rosa Mountains, with intervening asymmetric subsidence (Borrego Badlands and Clark Valley) controlled by high-angle normal faulting of the extension-parallel San Jacinto Fault Zone in the north end. Hence, the youthful appearance of the parkland and the magnitude of its faulting mark Anza-Borrego as an exceptional "real time" window not only for the field study of Tertiary and Neogene/Quaternary extensional terranes and the kinematics of lithospheric thinning, but its associated tectono-stratigraphic depositional sequences and related fossil resources.

To establish stratigraphic control, this joint SDAG and IGS talk implies that recognition of common depositional sequences that developed as a result of extensional tectonism within isolated sedimentary basins share correlative unconformities and may be included as part of the same tectono-depositional sequence. Thus correlation between synchronously-tilted basin-fill strata is now possible in spite of any lithostratigraphic differences or adequate age control. Hence, a formal tectonic depositional sequence stratigraphy approach to stratigraphic nomenclature, rock unit assignments, and correlation for Miocene through Pleistocene strata exposed in Anza-Borrego (reference section) is being proposed with Salton Trough applicability. These deposits are assigned to time-transgressive tectono-sequences (1-6) of early, syn-, and late extensional ages relative to breakaway-margin events and tectonically-linked unconformities. The proposed depositional stratigraphy includes: (1) a pre-rift early-middle Miocene nonmarine sequence of arkosic sandstones, volcanic rocks, and early extension fanglomerates, sandstones, and sturzstroms; (2) a late Miocene-early Pliocene sequence of early extension marine nearshore sandstones and offshore clays into the northern proto-Gulf of California, with a forced regression to tidally-dominated delta-front clays and silts; (3) a late Pliocene synextension sequence of progradation delta-plain arenites and Salton Trough-fill clays from the ancestral Colorado River; (4) a late Pliocene-early Pleistocene synextension sequence of locally-derived depositional-thickness distributions of fault-bounded conglomerates in proximal basin-margin positions and vertebrate-bearing medial sandstones that fine basinward into central floodbasin-playa-lacustrine deposits in the Vallecito Badlands, or transition into sequence 3 in the Borrego Badlands; (5) an early-middle Pleistocene synextension sequence of restricted conglomerates and fossiliferous medial sandstones that also grade basinward into central floodbasin playa-lacustrine deposits that represent a migrating depocenter from the Borrego Badlands into the evolving Clark Valley half-graben (in the Vallecito Badlands this sequence remains undivided); and (6) a middle-late Pleistocene late extension sequence of conglomerates and equivalent rock units restricted to topographic lows. Along basin-margins, the contacts between the locally-derived sequences are marked by angular unconformities.

The field recognition of stratigraphic units, their age, areal extent, provenance, diagnostic paleontology, and lithologic composition provides a powerful tool for establishing a coherent tectono-stratigraphic framework for the western Salton Trough. This framework is imperative because it correctly adheres to the original typological definitions, places stratigraphic units into discrete and successive sequences, establishes unambiguous unit boundaries, reduces the number of formations and members, provides isochronous or nearly isochronous boundaries for the sequences, and creates parallel allostratigraphic and synchronous time-stratigraphic concepts between rock units deposited among physically separate but geographically adjacent paleobasins in response to the same event.

UPCOMING 2000 MEETINGS:

August 16	Mission Trails Regional Park Visitor Center. Speaker will be John Minch. Topic will be "Baja California -- 34 Years of Tectonic Observations".
September 16	SDAG / ASCE / SDSU Alumni picnic. Ski Beach, Mission Bay
October 18	Joint meeting with the Society of Mining Engineers, location TBA, Speakers: David Peterson and George Jefferson on The Hydrothermal Origin of the Fish Creek Gypsum Deposit
November 15	Tim Smith (UCLA), Crustal-Mantle Evolution on Mars: Paleo Plate Tectonics? Meeting Location: TBA
December 20	Tom Deméré, San Diego Natural History Museum Paleontology Update, Scholarship announcements and SDAG elections.

SDAG COMPLETES ANOTHER SUCCESSFUL FIELDTRIP

SDAG's "Field Trip 2000" was a big success! On June 3-4, 2000, 30 SDAG members and guests participated in the annual SDAG field trip, entitled Geology and Enology of the Temecula Valley Area. We started our trip on Saturday morning with continental breakfast at the Lake Skinner campground, then everyone boarded the chartered bus for the day ... We viewed the ancient I-15 wedge-slide, had an overview of Wolf Valley and various zones of ground subsidence and fissures, had a private wine tasting and presentation at Stuart Cellars Winery by Marshall Stuart himself (proprietor and winemaker), we drove across the basalt-capped Santa Rosa Plateau, previewed new Riverside County hazard maps, discussed recent trenching within the Elsinore Fault Zone, and concluded the technical part of the day with a presentation of the local SCS soil survey maps at Mount Palomar Winery. Saturday was not a typical rustic field trip: we had plenty of snacks, beverages, bag lunches, and air conditioning on our personal bus. Sunday was quite a contrast to Saturday in ruggedness... led by Mike Hart and Monte Murbach, we followed a long dirt back road to the top of Oak Mountain for a spectacular overview of the Oak Mountain Landslide Complex and Vail Lake. This was followed by a lunch stop and a hike within the landslide area to examine various exposures of landslide debris and steeply dipping shear zones. It definitely made up for the plush air-conditioned bus ride we had on Saturday!

Many thanks to the many folks who helped out with all aspects of the 2000 field trip, especially the following presenters: Kerry Cato, Roy Shlemon, Richard Laton, Miles Kenney, Dennis Burke, Mike Hart, Monte Murbach, and Marshall Stuart of Stuart Cellars. The field volume and guidebook are delayed partly due to the field trip occurring in June this year (4 months earlier than the traditional SDAG schedule), but we anticipate it being available by late September. Thanks again to all those who contributed so generously to the preparation of the successful field trip and to those who submitted papers for the guidebook.

2000 CORPORATE SPONSORSHIP

To all of our corporate sponsors, thank you very much! Their generosity allows us to plan the annual field trip and produce field guides, to host the SDAG/SDSU picnic on Mission Bay, support student participation at a greatly reduced price, produce this monthly newsletter, and to provide scholarship funds to local geology students.

2000 Corporate Sponsors

Joe Corones	Katy Freese
Barbara Johnston	Joe Egan
Daryl Streiff	Anne Sturz
David and Jan Steller	Donald R. Sorben
G.E. Hammond / San Diego Equipment Rentals	Carole L. Ziegler
Rob Hawk, City of San Diego	David Rightmer
Bill Elliot	Pacific Soils Engineering, Inc.
SAIC	Vinje & Middleton Engineering, Inc.
Geocon Inc.	Geotechnics Incorporated
Geo-Tech Imagery Intl.	Mission Geoscience, Inc.
Geotechnical Exploration Inc.	Southland Geotechnical Consultants
Hargis + Associates, Inc.	Kleinfelder
Earth Consultants International	Christian Wheeler Engineering
Zeiser Kling Consultants, Inc.	Ninyo & Moore
HP Labs (TEG/Mobile One)	

Please consider becoming a Corporate Sponsor of SDAG. In addition to monthly recognition for your contribution, you will be entitled to a free internet "link" from the SDAG Website, and we plan to list our sponsors at the front of the SDAG Field Trip Volume.

SDAG NEWSLETTER:

If you have any information, announcements, ads or suggestions for an upcoming newsletter, please submit it to Bob Stroh (2000 SDAG Secretary). Any news regarding upcoming events that may be of interest to the Association or news of your business can be submitted. The submittal deadline for the August SDAG newsletter is Friday, July 28, 2000.

ANNOUNCEMENTS:

Discovery of the World's Largest Meat-eating Dinosaur

Presentation by Rodolfo Coria, Ph.D.

Dr. Coria, director of Museo Municipal Carmen Funes in Argentina, amazed the world when he discovered the 110-ton, plant-eating Argentinosaurus, the largest dinosaur on record. However, his discoveries didn't end with herbivores. Recently named as one of Time magazine's Latin American Leaders of the New Millennium, Dr. Coria will discuss his latest Patagonian discovery of what could be the largest meat-eating dinosaur on record. This carnivore appears to outsize the 45-foot long, 8-ton Giganotosaurus, which he excavated in the same region in 1993.

Thursday, July 20; 7-9 p.m. at UCSD's Robinson Hall

Prices: \$7 for museum members, seniors 60 and over, full-time students, military, and children 6-17 or \$9 for nonmembers

To register, please call (619) 232-3821 ext. 203, fax (619) 235-9446, or visit the Museum's website at www.sdnhm.org.

Deformation, Dinosaurs, and Darwin. For those interested in examining the Deformation of the Andes Mountains, Dinosaur Digs, and sites that Darwin visited while in Argentina during his voyage on the Beagle, examine the Geological Society of America web site for the particulars of the July 24 to August 13, GeoVenture to Argentina led by Jim Reynolds and Dottie Stout.

<http://www.geosociety.org/meetings/gv/gt002.htm>

Or for more information contact: Dorothy L. Stout, Ph.D. at Ph. 703 306 1665 x5851

FAX 703 306 0445 or e-mail: dstout@nsf.gov. <http://www.nsf.gov>

SDAG would like to thank those volunteers who assisted Greg Cranham and the South Coast Geological Society officers in running the SDAG/SCGS exhibit table at the AAPG/SPE western sections meeting in Long Beach in June. Andrew Hannan and Allison Jacobs put in a full day in the exhibit hall, helping to make our publications available to attending geologists from all over the West. Special thanks to Lowell Lindsay and Sunbelt Publications! Lowell spent a full day manning the exhibit, and also very generously donated the proceeds from Sunbelt's most recent geology-related books that were sold at the convention.

Thanks to Lowell Lindsay and Sunbelt Publications for housing the SDAG Library and Archives. Any SDAG member may peruse our collection of past SDAG field guide volumes as well as a complete collection of California Geology magazines back to 1971. You are welcome to stop by during business hours at 1250 Fayette Street in El Cajon, or call (619) 258-4911 to set up an appointment (especially for after-hours or weekend research).

CHEERS! The SDAG beer pint glasses are in and are available for \$10.00 each. They're great-looking, sturdy, and a "must" for every SDAG member! Buy one (or a few!) at the next meeting.

SDAG website: Carolyn Glockhoff continues to update and manage our ever-evolving website. If you haven't yet seen this excellent and useful resource, check it out at: www.znet.com/~sdag. Also, send the URLs of your favorite geology sites to Carolyn (carolion@aznet.net) for listing on the Geologic Links page.

South Coast Geological Society (SCGS): The SCGS usually meets on the first Monday of every month, in Orange County. For more SCGS information, visit their new website at: www.southcoastgeo.org, or contact this year's SCGS President, Bill Goodman at (949) 442-2442.

Sincere thanks to Daryl Streiff, who generously donated a copy of every volume of SDAG publications from the SDAG founding in 1972 through 1995, with the exception of the years 1983 and 1984. These volumes are available for review and are currently housed in the SDAG archive/library, which is located at Sunbelt Publications (contact Lowell Lindsay).

Sincere thanks to Joe Egan, who generously donated his collection of *California Geology* magazines dating back to 1971. *California Geology* has published extensively on topics of interest to professional geologist, educators, students and interested laymen throughout California. These volumes are available for review and are currently housed in the SDAG archive/library, which is located at Sunbelt Publications (contact Lowell Lindsay)

The Gordon Gastil Endowed Scholarship Fund continues to seek donations of any amount. Gifts of \$ 500.00 or more will be recognized on a plaque to be placed in the remodeled Geology Building. Donations can be sent through SDAG, or contact Pia or Marie, Department of Geological Sciences, SDSU, at (619) 594-5586.

POSITIONS WANTED:

- Geology student seeks entry-level position with a company related to the field of Geology. Extensive background in administration, very creative, and extremely adaptable to new job requirements and a variety of tasks. Will be happy to send a copy of resume to any interested party. Please contact Priscilla Endres-Graves at 619/670-4307 or email priscilla_endresgraves@hotmail.com.

POSITIONS AVAILABLE:

- **Cotton, Shires & Associates** seeks Certified Engineering Geologist with minimum 10 years professional experience. Masters degree in geology preferred. Position requires strong technical, writing and business development skills and experience in the Southern California area. Staff-level geologist and engineer positions also available in our Southern California and Northern California offices. Excellent salary and benefits package. EOE. Mail resume in confidence to Cotton, Shires & Associates, 5245 Avenida Encinas, Suite A, Carlsbad, CA 92008, Attn: Stan Helenschmidt
- **GeoTek Insite, Inc.** North San Diego County office seeking Soils Technicians for lab and field work. Experience and nuclear gauge certification preferred, but not mandatory. Land development/hillside grading experience a plus. Please send resumes or fax in confidence to: Jeff Blake, 1384 Poinsettia Ave., Ste. A, Vista, Ca. FAX 760-599-0593

- County of San Diego Department of Planning and Land Use Job Announcements
Environmental Management Specialist I Annual Salary: \$35,297.60-\$42,910.40
Options Available: Generalist, Archaeology, Biology, Geology, Noise
Environmental Management Specialist II Annual Salary: \$40,393.60-\$49,088.00
Options Available: Generalist, Archaeology, Biology, Geology, Noise
Environmental Management Specialist III Annual Salary: \$46,696.00-\$56,763.20
Environmental Management Coordinator Annual Salary: \$53,705.60-\$65,270.40

Job Summary: Incumbents are responsible for processing a variety of projects in evaluating discretionary project applications for compliance with the California Environmental Quality Act (CEQA), environmental laws, ordinances and policies and general principles relating to environmental resource planning. Distinguishing characteristics between the EMS I, II, and III are the complexity of projects assigned and supervision required while working. EMS III positions are assigned the most complex, difficult, and sensitive projects usually involving completion of an Environmental Impact Report. Environmental Management Coordinators lead and coordinate the processing of discretionary project applications focusing on projects that result in an Environmental Impact Report.

Applications are required. Please visit the county web site <http://www.co.san-diego.ca.us> to download applications. You can also contact John Peterson for individual questions about the positions. His number is (858) 694-3820.

- FIELD TECHNICIAN – **Ogden Environmental and Energy Services** is looking for a field technician to conduct soil and water sampling, drilling oversight, groundwater monitoring, well construction and O&M of remediation systems. Must have satisfactorily obtained a HS diploma, some relevant experience/training, be mechanically inclined in the areas of piping, electrical components, and common computer software. Must be 40 hour HAZWOPER trained. If interested, please submit resume to OEES, 5510 Morehouse Drive, San Diego CA 92121 or fax: (858) 458-0943. EEO/AA.
- **ANTHONY-TAYLOR CONSULTANTS**, a full-service engineering and architectural firm, is currently seeking senior staff and project-level geologists and engineers for our northern S.D. county office. The ideal candidates will have experience in engineering and/or environmental areas and have good people skills. We offer an excellent compensation package as well as a pleasant work environment. We also have opportunities for soils technicians and special inspectors. For immediate consideration, please fax resume to (760) 738-8232; Attn: Bruce Taylor.
- **GEOCON Incorporated** is searching for talented people to help handle their ever-increasing workload. Currently openings:
 - ◇ Senior Staff Geotechnical Engineer with 2-4 years experience. BSCE required, MSCE preferred. Registration desirable. Previous experience in land development a plus.
 - ◇ Project Geotechnical Engineer with 3-5 years experience. BSCE required, MSCE preferred. Registration required. Experience in land development a plus.
 - ◇ Engineering Field Technician with 2+ years experience desired but not mandatory. Land development and/or hillside experience a plus.

Please send resumes to: James E. Likins, President. Geocon Incorporated, 6960 Flanders Drive, San Diego, CA 92121-2974. Fax (619) 558-6159. No phone calls please. Geocon is an equal opportunity employer. **(Geocon, Inc. is a SDAG Corporate Sponsor)**

- STAFF ENGINEERS & SOIL TECHNICIANS – **Southern California Soil & Testing, Inc. (SCST)** has positions available for experienced staff engineers and soil technicians. SCST is trying to fill 2-3 positions with geotechnical professionals with several years experience towards registration and certification. SCST offers a comprehensive compensation and benefit package, and the opportunity to work on a wide range of projects. Resumes should be forwarded in confidence to SCST, 6280 Riverdale Street, San Diego, CA 92160-0627, Attention: Steve Jensen, or fax to (619) 280-4717.

As a service to our members, SDAG welcomes job postings - either for jobs wanted or open positions. Please submit any geo-type Want Ads to the SDAG newsletter editor (SDAG Secretary), Bob Stroh.

EARLY FIRST CALL FOR PAPERS:

This is to announce that the 2001 San Diego Association of Geologists (SDAG) volume theme, associated with the annual field trip, will be ***Engineering Geology of San Diego County – A Technical Addendum to Pat Abbott's Rise and Fall of San Diego***. The Field Trip chair will be Bob Stroh, Vice President (elect?) of SDAG.

OVERVIEW: The field trip is tentatively scheduled for September, and will focus on San Diego County. The trip will look at the geology of the region, including faults, landslides and unique features. There will be an emphasis on engineering geology. At this point, I welcome any additional ideas for topics.

PAPERS: All papers (of any length) relating to the geology, tectonics, sedimentology, geomorphology, hydrology, hydrogeology, or engineering aspects of these regions are welcome. If you are interested in writing or submitting a paper for the field guide, please contact Bob Stroh, (see newsletter header for contact info).

FORMAT: Text and tables should be provided by 3.5" diskettes in Microsoft Word or text format, with an identical hard copy included. Final page size will be 6" x 9", with black and white illustrations, photographs and tables. Illustrations should be print quality and camera-ready hard copy, legible when reduced to 6 x 9" format. Oversize maps will be considered, but this and other issues that may modify the volume should be discussed with the General Editor in advance. Photos may be color prints or slides, but black and white originals typically result in a higher quality print in the final volume.

For guidance on matters of style and composition, consult the *U.S. Geological Survey Suggestions to Authors* (now in its 7th edition), and/or the *Chicago Manual of Style* (now in its 4th Edition). For technical matters, it is anticipated that an informal peer reviewer will read a draft of each paper and provide comments and suggestions to the author(s).

San Diego Association of Geologists
c/o Bob Stroh
Ninyo & Moore
5710 Ruffin Road
San Diego, CA 92123