Survey Responses Help GSA Plan Future Meetings
by Sue Beggs
GSA Meetings Manager

As we look forward to celebrating the Society's 100th year, it is appropriate to ask questions about the future direction of GSA's annual meetings. The answers we received to our recent survey will be the foundation on which to make our decisions for the years ahead.

Each of the 4452 registrants at the 1986 GSA Annual Meeting in San Antonio received a survey form. Of these, 737 completed and returned the questionnaire to GSA by December 1, 1986. After the meeting, the survey was sent to a sample group of 750 GSA members who did not attend the meeting. Of this group, 259 responded by February 5, 1987. The total number of respondents was 996.

Highlights
- Substantial numbers in both groups reported that GSA is the meeting at which they are most likely to find new information.
- The groups agreed that the most popular meeting destinations are San Francisco, Denver, San Diego, Boston, and Phoenix.
- The primary reasons listed for not attending a meeting were high cost, no funding, and location. Few respondents listed time of year, early abstracts deadline, lack of information, or conflict with other meetings as reasons for not attending.
- Between 88.7% and 91.89% of both groups approved submitting volunteered papers to theme sessions.
- Although we had heard that many people oppose the timing of GSA's abstracts deadline, the majority of respondents indicated continued support for the review process and resistance to delaying receipt of the abstracts volume or increasing the cost of the volume by mailing it first class.
- In both groups, approximately 50% opposed frequently repeating the meeting site. Nonattendees favored moving more field trips to the section meetings; this group also indicated substantially lower attendance at GSA annual meetings.
- Between 77% and 84% of both groups favored field conferences held separately from the annual meeting. The most popular sites listed were the Grand Canyon, China, New Zealand, and Mount St. Helens.

The survey questions and results are given below.

<table>
<thead>
<tr>
<th>Registerant Profile</th>
<th>Attendees</th>
<th>Nonattendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you (or would you) register as a professional or student?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>587</td>
<td>208</td>
</tr>
<tr>
<td>Student</td>
<td>150</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>737</td>
<td>259</td>
</tr>
<tr>
<td>2. To what professional societies do you currently belong?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>GSA</td>
<td>584</td>
<td>247</td>
</tr>
<tr>
<td>AAPG</td>
<td>208</td>
<td>96</td>
</tr>
<tr>
<td>AIPG</td>
<td>48</td>
<td>20</td>
</tr>
<tr>
<td>AGU</td>
<td>272</td>
<td>66</td>
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<tr>
<td>AEG</td>
<td>17</td>
<td>24</td>
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<tr>
<td>SEPM</td>
<td>79</td>
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<tr>
<td>Other</td>
<td>437</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>1846</td>
<td>672</td>
</tr>
<tr>
<td>3. Are you male or female?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>588</td>
<td>219</td>
</tr>
<tr>
<td>Female</td>
<td>149</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>737</td>
<td>259</td>
</tr>
<tr>
<td>4. Please circle your age bracket.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25 years</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>25 to 35 years</td>
<td>247</td>
<td>82</td>
</tr>
<tr>
<td>36 to 45 years</td>
<td>189</td>
<td>62</td>
</tr>
<tr>
<td>46 to 60 years</td>
<td>209</td>
<td>65</td>
</tr>
<tr>
<td>Over 60 years</td>
<td>62</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>737</td>
<td>259</td>
</tr>
</tbody>
</table>

(continued on p. 98)
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We feature G64 cars like this Buick Century.
PHOENIX

1987 Annual Meeting Short Courses

GSA Short Courses
All courses sponsored by GSA will be held immediately before and after the GSA Annual Meeting in Phoenix, Arizona. Increase the benefits of attending the GSA meeting by participating in one of GSA’s professional instruction programs. The courses are designed for several different professional levels. We hope you will find one that meets your needs.

Enrollment. Course participation is open to GSA members and nonmembers. Registration for the 1987 Annual Meeting is not required. Registration forms for the short courses and the annual meeting will appear in the August issue of GSA News & Information. However, if you would like to register now, contact the Course Registrar and receive a registration form along with the GSA Short Course brochure. Save significantly by registering in advance. On-site registration will be $25 additional and based on availability. PREREGRISTRATION DEADLINE IS SEPTEMBER 25, 1987.

Cancellation. Fees will be refunded if we are notified by October 2. Registration substitutions may be made at any time.
For more information, contact
Course Registrar
GSA Headquarters
P.O. Box 9140
Boulder, CO 80301
(303) 447-3020

Planetary Geology and Remote Sensing: Short Courses and Field Trips
Friday, October 23; Saturday, October 24; and Sunday, October 25.
Co-sponsor: Planetary Geology Division

You may register for one, two, or all three days of this combination of short courses and field trips.

Day One: Remote Sensing—Friday, October 23, 7:30 a.m. to 7:30 p.m. Designed as an up-date for those with a remote-sensing background, the course will emphasize imaging spectrometry as applied to mineral exploration. Course will include an afternoon field trip to the Silver Bell Mining District.
Faculty: Raymond Arvidson, Earth Science/Geology Dept., Washington University; Ph.D., Brown University. Arvidson has participated on various NASA science advisory and mission planning panels and currently heads the Committee on Data Management of the National Academy of Sciences. Alex Goetz, Dept. of Geological Sciences, University of Colorado; Ph.D., Caltech. A Fellow of CIERES, Goetz is also the Director of the Center for the Study of Earth From Space. Eduard Guiness, Dept. of Earth & Planetary Sciences, Washington University; Ph.D., Washington University. Guiness has more than 12 years experience in the field of remote sensing. He specializes in the construction of geologic maps from Earth and Mars and the study of eolian transport of sediments on Mars. Michael Abrams, Research Scientist, Jet Propulsion Laboratory, Pasadena.

Fee includes field trip transportation and a course manual that contains numerous black and white and color high-quality graphic prints acquired from aircraft and satellite sensors. Limit: 30. Fee: $85.

Day Two: Introduction to Planetary Geology—Saturday, October 24, 8:00 a.m. to 4:00 p.m.
Aimed at those with a basic background in geoscience or for those with an interest in planetary geoscience, this is an introductory course to the fundamentals of planetary geology and the results of solar system exploration.
Faculty: Ronald Greeley, Dept. of Geology, Arizona State University; Ph.D., University of Missouri. Greeley is active in planetary geologic mapping programs, Mars data analysis and the Galileo mission to Jupiter. Greeley leads a consortium of engineers and scientists simulating planetary processes in the laboratory using high-, ambient-, and low-pressure wind tunnels and NASA’s hypervelocity ballistic impact range. Donald Gault, NASA-Ames Research Center, retired. Former Branch Chief, Planetology, NASA, Gault is well known in the field of planetology, and received the NASA Medal for Exceptional Scientific Achievement in 1967. This year Gault is the recipient of the G. K. Gilbert Award presented by the GSA Planetary Geology Division. James W. Head, Dept. of Geological Sciences, Brown University; Ph.D., Brown University. Head won NASA’s Medal for Exceptional Scientific Achievement in 1971 and the GSA Special Commendation in 1973, both for the geologic training of the Apollo astronauts. Paul Spudis, Geologist, Astrogeology Branch, U.S. Geological Survey, Flagstaff, Arizona.

Fee includes course manual. Limit: 30. Fee: $45.

Day Three: Crater Field Trip (The “Holey” Tour)—Flagstaff, Arizona, Saturday, October 24, 4:00 p.m. to Sunday, October 25, 7:00 p.m.

Designed for those with a background in geoscience, but appropriate for anyone with an interest in planetary geology, this field trip will examine craters of six different origins. The field trip begins on Saturday, October 24; buses depart at 4:00 p.m. from Arizona State University, Tempe. A picnic supper will be served en route during a stopover at Sunset Point, Black Mesa. The trip arrives at the Americana Motel in Flagstaff at 10 p.m. Sunday, October 25, beginning at 7:30 a.m., the trip continues to Meteor Crater (impact crater), Rattlesnake Butte (maar crater), Sunset Crater (volcanic cinder cone), Mormon Lake (volcano-tectonic depression), Stoneman Lake (basalt pit crater), and Montezuma’s Well (karst sink hole). Arrival back at the Phoenix Civic Plaza is scheduled for 7:00 p.m., in time for the GSA Welcoming Party.

Fee includes transportation, a picnic supper, and motel accommodations on October 24, and a box lunch on October 25. Limit: 30. Fee: $70.

Contaminant Hydrogeology
Saturday, October 24, and Sunday, October 25, 8:30 a.m. to 4:30 p.m. Co-sponsor: Hydrogeology Division

This course will provide an introduction to the theory and practice of contaminant hydrogeology. It will be of interest to (continued on p. 104)
working professionals and graduate students who want to develop a
basic understanding of this field. The course will include an
examination of

- fundamental concepts of physical mass transport, advection,
dispersion, and diffusion;
- the most important geochemical processes that influence the
spread of contaminants, including surface reactions, complex-
ation, and mineral precipitation; and
- the mathematical formulation and solution of mass transport
equations with an emphasis on approaches and concepts rather
than detailed mathematics.

Examination of these topics will be linked to practice through the
use of case histories and problems, group discussions, and
demonstrations.

Faculty: Frank W. Schwartz, Dept. of Geology, University of
Alberta; Ph.D., University of Illinois. Internationally known for his
work in groundwater modeling, field and theoretical aspects of
contaminant hydrogeology, watershed hydrology, and groundwater
geochemistry, Schwartz is the author of more than 40 scientific
publications. J. Leslie Smith, Dept. of Geology, University of British
Columbia; Ph.D., University of British Columbia. As a consultant
and researcher, Smith has worked on problems of the emplacement
of high-level radioactive wastes in the subsurface, modeling of flow
and transport in fractured media, and groundwater resource
evaluation. Smith is internationally known for his work on stochastic
modeling of groundwater flow. Schwartz and Smith were co-
recipients of the O. E. Meinzer Award for 1984.

Fee includes course manual. Limit: 100. Fee: $135.

Quantitative Sedimentary Basin Modeling
Saturday, October 24, 8:00 a.m. to 5:00 p.m. Co-sponsor: Sediment-
ary Geology Division

Aimed at those with a general sedimentary geology background
but no previous knowledge of basin modeling, this course is
designed to teach participants the theory and application of
analyzing basin subsidence histories and mechanisms. Covered in
the course will be

- the causes of basin subsidence in various tectonic settings,
- generating tectonic subsidence histories—geohistory analysis
and backstripping,
- lithospheric flexure and basin formation, and
- thermal histories of sedimentary basins.

The course will emphasize the application of these quantitative
methods to specific basin examples with the goal that participants
learn the tools necessary to analyze subsidence histories of basins
on their own. Participants may also wish to enroll in the GSA short
course “Current Aspects of Basin Analysis and Sedimentary
Geology” on Sunday, October 25, as a follow-up.

Faculty: Charles L. Angenberg, Dept. of Geology & Geophy-
ics, University of Wyoming; Ph.D., Cornell University. Angenberg has
published more than 15 articles on various aspects of basin
mechanics and quantitative modeling of geologic processes. Paul L.
Heller, Dept. of Geology & Geophysics, University of Wyoming; Ph.D.,
University of Arizona. Heller has published more than 20
articles on various aspects of sedimentation and basin analysis,
including subsidence studies of North American basins.

Fee includes course manual and lunch. Limit: 50. Fee: $90.

Site Characterization for High-Level Nuclear Waste Disposal
Saturday, October 24, and Sunday, October 25, 8:00 a.m. to
5:00 p.m.

This course will be of interest to newcomers who are entering
the serious scientific study of the geologic aspects of the disposal of
high-level nuclear waste, as well as those who already have a contact
with the field and wish to broaden their perspective on the subject.
Faculty, in the field of environmental aspects of geology, will find this
course of use in expanding their understanding of the geologic
issues involved in characterizing a potential site. Nontechnical
persons will gain a better grasp of the general geologic issues of
long-term disposal of high-level radioactive waste. The course will
consist of lectures, slides, videos, and overheads of the repository
areas and research programs. In addition, each guest lecturer will
discuss his or her own area of expertise.

Faculty: Richard G. Craig, Dept. of Geology, Kent State
University; Ph.D., Pennsylvania State University. Craig has worked
with nuclear waste disposal problems since 1980. His research
emphasizes the effect of climatic change upon long-term waste
stability. He prepared the Site Characterization Plan for the
Hanford Repository on this topic. His other work includes effects
of catastrophic floods upon defense-waste storage sites and prepara-
tion of a geological simulation model for the Nevada Test Site. Carol
arrangements for Hanlon provided by DOE.

Fee includes course manual, lunch both days, and dinner

Current Aspects of Basin Analysis and Sedimentary Geology
Sunday, October 25, 8:00 a.m. to 5:00 p.m. Co-sponsor: Sedimen-
try Geology Division

This course will provide an introductory overview of the
interacting fields of basin analysis and sedimentary geology. The
content is intended for earth scientists in advanced academic and
governmental programs as well as those in oil, mining, or hydrologic/
ingeering companies. The goal is to stress interdisciplinary
aspects of basin analysis, focusing particularly on how geodynamic
processes of basin formation influence both the nature of sediment
fills and the maturation of the sediment through diagenesis, fluid
circulation, and thermal history. Tectonic subsidence analysis
(including backstripping principles) of sedimentary basins is stressed.
Additional topics included are basin classification, stratigraphic
sequences, sea-level history and seismic stratigraphy, paleogeog-
raphy, sedimentary facies, black shales, pelagic cycles, fluid migra-
tion through sedimentary basins, and clastic diagenesis. These
topics are used to illustrate the role of interpreting sediments as
a barometer of basin tectonic processes, and extrinsic basin
processes during basin evolution. The course incorporates basin
analyses from the Illinois Basin and the North Sea to illustrate the interdisciplinary approaches discussed in lecture.

Faculty: George de V. Klein, Dept. of Geology, University of Illinois at Champaign-Urbana; Ph.D., Yale University. Well known in the fields of basin analysis and clastic sedimentary geology, Klein has more than 25 years experience and is the author of more than 100 publications.

Fee includes course manual and lunch. Limit: 100. Fee: $90.

**Spreadsheets on Microcomputers: Versatile Geological Tools**

Sunday, October 25, 8:00 a.m. to 5:00 p.m.

Directed toward those with little or no experience with microcomputer spreadsheet programs, including computer novices, this course will enable geologists to manipulate many different types of geological data. Course participants will receive a complete commercial spreadsheet program on disk with printed manual, on-disc geological examples, and a course notebook containing discussion of geological uses of spreadsheets. Registrants will receive hands-on instruction in

- entering text and numerical data into a spreadsheet program,
- defining and using formulas, both simple and complex, and using built-in arithmetic, statistical, and trigonometric functions,
- evaluating the advantages and disadvantages of using the spreadsheet as a database manager,
- using the built-in graphics of the spreadsheet to make x-y plots and histograms, and
- using the built-in programming language of the spreadsheet (also known as macros).

Faculty: Carol A. Petersen, Executive Director and co-founder of the Computer Oriented Geological Society (COGS); M.S. in geology, University of Utah. Petersen has worked for a state geological survey, a geological consulting firm, and a major oil company. R. Mark Maslyn, co-founder of Computer Oriented Geological Society (COGS); M.S. in geology, Colorado School of Mines. Maslyn has 10 years of geological experience in the fields of uranium and petroleum exploration and 15 years of programming experience.

Fee includes spreadsheet program, course manual, and diskette of exercises. Limit: 30. Fee: $175.

**Writing History of Geology: A Workshop**

Sunday, October 25, 8:00 a.m. to 5:00 p.m.

This course is designed for two groups: beginners in the history of geology, and geologists with some experience in the topic. The course will concentrate on how to research and write two common types of history of geology: (1) biographies (including memorials), and (2) review essays (summaries of a major tradition or line of advance leading to present thinking). The objective of the course is to improve the skills of those who already have some experience in the history of geology and to share those experiences with those who are just starting in the field. This course will be significantly helpful to researchers working on historical projects in connection with the GSA Centennial Celebration in 1988.

Faculty: Mott Greene, John B. Magee Distinguished Professor in the Honors Program, University of Puget Sound; Ph.D., University of Washington. Greene received the MacArthur Fellowship after publishing a major book on 19th century theories on mountain building. He is currently at work on a book on Alfred Wegener. Michele L. Aldrich, American Association for the Advancement of Science, Washington, D.C.; Ph.D., University of Texas, Austin. Aldrich has written numerous articles and books on 19th century American geology. Clifford M. Nelson, Jr., U.S. Geological Survey, Reston; Ph.D., University of California at Berkeley. Nelson has presented numerous papers on the history of paleontology and stratigraphy. He is currently at work on a biography of F. B. Meek.


**Paleoseismology and Active Tectonics**

Thursday, October 29, 7:00 p.m. to 9:00 p.m.; Friday, October 30, 8:00 a.m. to 5:00 p.m.; and Saturday, October 31, 8:00 a.m. to 3:00 p.m. Co-sponsor: Structural Geology and Tectonics Division

Directed toward earth-science professionals—college-level instructors and practicing geologists—this course will review the types of near-surface displacements by normal, reverse, and strike-slip faults and by folds, the geology of the earthquake source region, and how a geologist should view seismological data. Also covered will be slip-rate and recurrence-interval determination, the identification of paleo-earthquakes, and Quaternary dating techniques, including scarp degradation. The course will conclude with a discussion of how earthquake-related data should be treated and how geologists should interact with both engineers and the general public.

Faculty: Robert S. Yeats, Dept. of Geology, Oregon State University; Ph.D., University of Washington. Yeats has studied active reverse faults and folds in southern California, New Zealand, and the Himalayas. Clarence R. Allen, Div. of Geological & Planetary Science, California Institute of Technology; Ph.D., California Institute of Technology. Internationally well known, Allen has been carrying out field studies of major active fault systems of the world and their relation to local seismic patterns and to problems of seismic hazard. Kerry E. Sieh, Div. of Geological & Planetary Science, California Institute of Technology; Ph.D., Stanford. Sieh is currently studying the geologically recent behavior of the San Andreas fault system in California and the neotectonics of southern China. Richard H. Sibson, Dept. of Geological Sciences, University of California, Santa Barbara; Ph.D., University of London. Sibson’s research concerns the deep structure of fault zones, particularly as it pertains to the origin of shallow crustal earthquakes. He is the author of *Earthquakes and Rock Deformation in Crustal Fault Zones* (Annual Reviews of Earth and Planetary Sciences, 1986, vol. 14). David B. Nash, Dept. of Geology, University of Cincinnati; Ph.D., University of Michigan. Nash has more than 10 years experience in the field of scarp dating and hillslope modeling.

Fee includes course manual and dinner Friday evening. Limit: 75. Fee: $150.
DIVISIONS

GSA's ten specialty divisions provide a focus for members interested in a particular discipline. The divisions hold annual business meetings in conjunction with the Society's annual meeting, and each division publishes a newsletter periodically. Division membership totals are as of December 31, 1986.

Archaeological Geology
Members: 496
Officers: John A. Gifford, chairman; Fekri A. Hassan, first vice-chairman; Tjeerd H. Van Andel, second vice-chairman; Vance T. Holliday, secretary-treasurer; Charles J. Vitaliano, past chairman

Coal Geology
Members: 468
Officers: Daniel J. Casagrande, chairman; Frederick J. Kuellmer, first vice-chairman; Peter J. McCabe, second vice-chairman; James C. Cobb, secretary; C. Blaine Cecil, past chairman

Engineering Geology
Members: 1,210
Officers: Christopher C. Mathewson, chairman; Ellis L. Krinitzsky, chairman-elect; Thomas L. Holzer, secretary; David M. Cruden, past chairman

Geophysics
Members: 741
Officers: Bryan L. Isacks, chairman; Mary Lou Zoback, first vice-chairman; Kim D. Kiltgord, second vice-chairman; William D. MacDonald, secretary-treasurer; William E. Bonini, past chairman

History of Geology
Members: 434
Officers: William M. Jordan, chairman; Leo F. LaPorte, first vice-chairman; Clifford M. Nelson, second vice-chairman; Michele L. Aldrich, secretary-treasurer; J. Thomas Dutro, Jr., past chairman

Hydrogeology
Members: 1,596
Officers: Wayne A. Pettyjohn, chairman; John M. Sharp, Jr., first vice-chairman; Robert N. Farvolden, second vice-chairman; Darryl T. Pederson, secretary-treasurer; William Back, past chairman

Planetary Geology
Members: 466
Officers: Arden L. Albee, chairman; James W. Head III, first vice-chairman; Raymond E. Arvidson, second vice-chairman; Ted A. Maxwell, secretary-treasurer; Victor R. Baker, past chairman

Quaternary Geology and Geomorphology
Members: 1,392
Officers: Victor R. Baker, chairman; James C. Knox, first vice-chairman; Dale F. Ritter, second vice-chairman; Richard F. Madole, secretary; Gail M. Ashley, past chairman

Sedimentary Geology
Members: 975
Officers: Robert Raymond, Jr., chairman; Juergen Reinhardt, first vice-chairman; Joanne Bourgeois, second vice-chairman; Robert H. Osborne, secretary-treasurer; George deVries Klein, past chairman

Structural Geology and Tectonics
Members: 2,240
Officers: John H. Spang, chairman; Gregory A. Davis, first vice-chairman; Arthur W. Smoke, second vice-chairman; George H. Davis, secretary-treasurer; Winthrop D. Means, past chairman

SECTIONS

GSA has six regional North American sections, generally including GSA members who live within the geographical limits of each section. (Members who live in one section but have a professional interest in another section can become members of the section of interest.) Each section holds annual technical and business meetings. The number of voting members shown for each section is as of December 31, 1986.

Cordilleran
Voting members: 3,414
Geographic area: Alaska, Arizona south of lat 35°N, California, Hawaii, Nevada, Oregon, Washington, British Columbia, Yukon, Northwest Territories
Officers: Warren B. Hamilton, chairman; vice-chairman to be elected at the 1987 Section Meeting; Bruce A. Blackerby, secretary; J. Lawford Anderson, past chairman

Rocky Mountain
Voting members: 2,049
Geographic area: Arizona north of lat 35°N, Colorado, Idaho, Montana, New Mexico, North Dakota, South Dakota, Utah, Wyoming, Alberta, Saskatchewan
Officers: Paul K. Link, chairman; William R. Hackett, vice-chairman; Kenneth E. Kolm, secretary; Mary J. Kraus, past chairman; Edwin E. Larson, past vice-chairman

North-Central
Voting members: 1,147
Geographic area: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, Wisconsin, Manitoba, Ontario west of 89th meridian
Officers: Arthur E. Burford, chairman; Lindgren L. Chyi, vice-chairman; Richard A. Hoppin, secretary; Peter J. Hudleston, past chairman; Robert E. Sloan, past vice-chairman

South-Central
Voting members: 1,520
Geographic area: Arkansas, Kansas, Oklahoma, Texas
Officers: Rena M. Bonem, chairman; Ernest E. Angino, vice-chairman; Page C. Twiss, secretary-treasurer; John D. McFarland III, past chairman

Northeastern
Voting members: 2,092
Officers: Peter Robinson, chairman; Donald B. Potter, vice-chairman; Kenneth E. Weaver, secretary; Harold W. Borns, Jr., past chairman

Southeastern
Voting members: 1,528
Geographic area: Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia
Officers: Dennis N. Bearce, chairman; William H. Kanes, vice-chairman; Michael J. Neilson, secretary-treasurer; Walter H. Wheeler, past chairman; Randall S. Spencer, past vice-chairman
Call For Submissions of
YOUR GEOLOGIC PHOTOS

Your geologic photography can be part of a unique, quality photo publication.

GSA invites photographic submissions from individuals and organizations throughout the earth-science community for a unique volume of 100 colorful, geologic photo essays. The volume will be of the highest quality, featuring full-color photography accompanied by brief texts. It will be marketed to the scientific community, and to the general public as well.

Photo submissions for this volume should tell an interesting geologic story with a minimum of accompanying text, and should depict the beauty of the geology in our environment, including space, and/or the beauty inherent in the earth sciences.

Each suite of photos selected for the volume will be presented in a two-page layout: a feature photo in large format and full color, an accompanying brief text, and from one to six smaller photos expanding or explaining the geology of the feature photo. Some auxiliary photos will be black and white, others color.

SUBMISSION REQUIREMENTS

General: Multiple submissions are permitted, but each submission must include all materials described below.

Photos: Photos must be of high technical quality, tell an interesting geologic story, and express the beauty of our environment and/or the earth sciences. For each submission, designate a central photo, which must be in color. Supply two to six auxiliary photos, in color or black and white, which further explain or amplify the geology depicted in the feature photo.

For color photos, submit one positive color transparency (slide), originals preferred; prints cannot be used. For each black and white photo, submit one 8" x 10" black and white print on double-weight, smooth, nonglossy paper.

Descriptive Text: Submit a manuscript of a short explanatory text, type double-spaced. The manuscript should be at least one double-spaced page in length, but no longer than two double-spaced pages. Write the text so that is can be understood by both scientists and nonscientists.

Address & Deadline: Send all submissions to:
J. Clark
Geological Society of America
3300 Penrose Place
P.O. Box 9140
Boulder, CO 80301

Submissions should be sent as early as possible, but no later than September 30, 1987—no extensions! Use the street address for express package services; use the box number for U.S. mail.
MEETINGS

(Asterisk indicates new or changed information)

1987


Analysis of Naturally Fractured Reservoirs, May 4–8, 1987, Snowbird, Utah. Information: Jane Rodier, AAPG Education Dept., P.O. Box 979, Tulsa, OK 74101-0979; (918) 584-2555.

10th Annual Spring Systematics Symposium, Evolutionary Ideas of Progress, May 9, 1987, Chicago, Illinois. Information: Matthew H. Nitecki, Field Museum of Natural History, Roosevelt Rd. at Lakeshore Dr., Chicago, IL 60605-2496; (312) 922-9410.

Institute on Lake Superior Geology Annual Meeting, May 11–14, 1987, Wawa, Ontario. Information: E. D. Frey, P.O. Box 57, Wawa, Ontario P0S 1K0, Canada; (705) 856-4883.


Coastal Sediments '87, May 12–14, 1987, New Orleans, Louisiana. Information: Nicholas C. Kraus, USAE Waterways Experiment Station, Coastal Engineering Research Center, P.O. Box 631, Attn. WESCR-P, Vicksburg, MS 39180-0631.


(continued on p. 109)
Meetings (continued)


First International Congress, Geochemistry and Cosmochemistry, June 30-July 6, 1987, Paris, France. Information: C. J. Allegre, Lab. de Géochimie et Cosmochimie, 4 place Jussieu, Tour 14, 3 étage, 75252 Paris Cedex, France; telephone 43.54.84.63.


4th International Congress of the Regional Committee on Pacific Neogene Stratigraphy (affiliated with IUGS) and joint meeting of IGCP Project 246, July 29-31, 1987, Berkeley, California. Information: Charlotte Brunner, Chairperson of Organizing Committee, Dept. of Paleontology, University of California, Berkeley, CA 94720.

International Union for Quaternary Research (INQUA) 12th Congress, July 31-August 9, 1987, Ottawa, Ontario, Canada. Information: Alan V. Morgan, Dept. Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada.


(continued on p. 110)
Meetings (continued from p. 109)


Society of Economic Paleontologists and Mineralogists Fourth Annual Midyear Meeting, August 20-23, 1987, Austin, Texas. Information: SEPM, P.O. Box 4756, Tulsa, OK 74159; (918) 743-9765.

XVI Pacific Science Congress, August 20-30, 1987, Seoul, Korea. Information: Choon Ho Park, XVI Pacific Science Congress, K.P.O. Box 1008, Seoul 110, Korea; telephone (2) 733-4478; Telex ILSKOR 23881.


International Congress on Geology, Structure, Mineralization, and Economics of the Pacific Rim, August 26-29, 1987, Queensland, Australia. Information: C/-Aus. IMM Congress Secretariat, P.O. Box 731, Toowong 4066, Queensland, Australia.

Sixth International Congress on Rock Mechanics, August 31-September 3, 1987, Montreal, Quebec, Canada. Information: J. Franklin, Dept. of Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada.


American Association of Petroleum Geologists Rocky Mountain Section meeting, September 13-16, 1987, Boise, Idaho. Information: David H. Hawk, J.R. Simplot Co., 999 Main St., Boise, ID 83707; (208) 336-2110.


Fifth International Flint Symposium, September 27-October 2, 1987, Bordeaux, France. Information: 5th International Flint Symposium, Secrtaire General, c/o Michel Lenoir, Institut du Quaternaire, Batiment de Geologie, Avenue des Facultes, Universite de Bordeaux I, 33405 Talence Cedex, France.

National Association of Geology Teachers Far Western Section Fall Conference, October 2-4, 1987, Hayward, California. Information: Elwood Brooks, Dept. Geological Sciences, California State University, Hayward, CA 94542; (415) 881-3486.


Society of Economic Paleontologists and Mineralogists Great Lakes Section Annual Meeting and fall field trip, October 9-11, 1987, southern Indiana. Information: J. R. Dodd, Dept. of Geology, Indiana University, Bloomington, IN 47405; (812) 335-5322 or 5581.

Geothermal Resources Council Annual Meeting, October 12-16, 1987, Sparks, Nevada. Information: Geothermal Resources Council, P.O. Box 1350, Davis, CA 95617-1350; (916) 758-2360.

Mathematical Methods in Geology, 16th Annual Geochauqua, October 12-16, 1987, Pribam, Czechoslovakia. Information: V. Nemec, Geoindustrla, Geologicka 2, 152 00 Praha 5, Barrandov, Czechoslovakia; telephone (42 2) 909228 or (42 2) 7811801.


(continued on p. 111)
Meetings (continued)

Society of Economic Paleontologists and Mineralogists Gulf Coast Section 8th Annual Research Conference. Paleontological Applications in Petroleum Exploration, December 6-9, 1987, Houston, Texas. Information: Charles L. McNulty, Dept. of Geology, University of Texas, UTA Box 19049, Arlington, TX 76019; (817) 273-2979.


GSA 1987
Section Meetings
Rocky Mountain Section, May 2-4, 1987, Boulder, Colorado
Cordilleran Section, May 20-22, 1987, Hilo, Hawaii

Annual Meeting, October 26-29, 1987, Phoenix, Arizona

Penrose Conferences

Glacial Facies Models, May 3-8, 1987, Scarborough, Ontario. Information: Nicholas Eyles, Dept. of Geology, Scarborough Campus, University of Toronto, Scarborough, Ontario M1C 1A4, Canada; (416) 284-3336.


Paleoenvironmental Interpretation of Paleosols, September 11-17, 1987, Warm Springs Indian Reservation, Oregon. Information: Greg Retallack, Dept. of Geology, University of Oregon, Eugene, OR 97403-1272; (503) 686-4573.


Exposed Cross Sections Through the Continental Crust, September 27-October 2, 1987, Killarney, Ontario, Canada. Information: David M. Fountain, Dept. of Geology and Geophysics, University of Wyoming, P.O. Box 3006, University Station, Laramie, WY 82071.

1988

*Sixth Thematic Conference on Remote Sensing for Exploration Geology, May 16-19, 1988, Houston, Texas. Information: Thematic Conference, Environmental Research Institute of Michigan, P.O. Box 8618, Ann Arbor, MI 48107; (313) 994-1200, ext. 3382; Telex 494099 ERIMARB.


Case Histories in Geotechnical Engineering 2nd International Conference, June 1-5, 1988, St. Louis, Missouri. Information: Shamsher Prakash, Room 308, Dept. of Civil Engineering, University of Missouri, Rolla, MO 65401; (314) 341-4461.

Seismic Probing of the Continents and Their Margins International Symposium, July 6-8, 1988, Canberra, Australia. Information: Jim Leven, Bureau of Mineral Resources, P.O. Box 378, Canberra, ACT 2601, Australia; telephone (062) 499111; Telex AA62109.


Call Mr. Smith at 217-351-8591, or 1-800-255-2255, ext. 1223.

DUNN GEOSCIENCE CORPORATION requires experienced hydrogeologists, geotechnical engineers and aggregators geologists in the following divisions: Hydrology, Waste, Groundwater, Industrial Rocks & Minerals.

Headquartered in Albany, NY and established in 1980, this 100-person geotechnical consulting firm is experiencing growth in all of its offices east of the Mississippi.

If you have at least five years experience plus a bachelors or masters degree in the above disciplines, if you are qualified for certification and are computer-literate in geo-hydrologic applications, please send your resume and a letter describing your salary requirements, desired position and strengths to: W.J. Hall, Vice President, Dunn Geoscience Corporation, 8 Northway Lane North, Latham, NY 12110; W.K. Crist, Dunn Geoscience Corporation, 5000 Lenker (Hemlock Bldg.), Mechanicstown, PA 17055.

HYDROGEOLOGIST—Leggette, Brashers, & Graham, Inc., with offices in Connecticut, Florida, Minnesota and Nebraska, has an opening for an entry-level hydrogeologist in the St. Paul, Minnesota office. The candidate should have a B.S. degree in Geology (with hydrogeology courses) or a B.S. degree in Hydrogeology. Experience in contaminant hydrogeology, groundwater resources, and groundwater modeling is desired. Send resumes to: Michael R. Burke, Vice President, Leggette, Brashers, & Graham, Inc., 1210 West County Road B, Suite A1151, St. Paul, MN 55112. An equal opportunity employer.

PROJECT GEOLOGISTS, Leighton & Assoc., a leading Southern California geochemical consulting firm, has opened. For Project Geologists for S. Cal. locations. CEQ, min. 5 yrs. exp., primarily in hillside development, strong communication skills and well-rounded project mgmt. exp. required. Excellent benefits and salary commensurate with exp. in a dynamic environment with growth potential. Call wkysa (714) 250-1421 or send confidential resume to Corporate office: 1151 Duryea Ave., Irvine, CA 92714.

GEOLOGIST/U.S. GEOLOGICAL SURVEY
The Geologic Division, Branch of Alaskan Geology, invites applications from highly qualified persons with demonstrated ability for research and technical training in scientific and administrative leadership. The Branch is interested in individuals with a broad background in regional geology, a strong interest in geologic mapping, and interest and competence in structural and metamorphic geology. Experience in economic geology is also an asset. The ability to work as a member of interdisciplinary teams and to lead interdisciplinary geoscientific teams and the potential for successful administrative leadership are important. A Ph.D. degree or equivalent is required. Headquarters will be Anchorage, Alaska. The permanent position is at GS-12 ($32,566 beginning level); a cost-of-living allowance, currently 25 percent in Alaska, is additional.

Interested individuals should write: Dr. David A. Brew, Chairman, Search Committee, U.S. Geological Survey, Branch of Alaskan Geology, MS 904, 345 Middlefield Road, Menlo Park, California 94020.

The U.S. Geological Survey is an equal opportunity employer. Positions are available only to United States citizens.

GEOLOGIST/U.S. GEOLOGICAL SURVEY
The Geologic Division, Branch of Alaskan Geologi-

ogy, invites applications from highly qualified persons with demonstrated ability for research and potential for administrative leadership. The Branch is interested in individuals with a broad background in regional geology, a strong interest in geologic mapping, and interest and competence in structural and metamorphic geology. Experience in economic geology is also an asset. The ability to work as a member of interdisciplinary teams and to lead interdisciplinary geoscientific teams and the potential for successful administrative leadership are important. A Ph.D. degree or equivalent is required. Headquarters will be Anchorage, Alaska. The permanent position is at GS-12 ($32,566 beginning level); a cost-of-living allowance, currently 25 percent in Alaska, is additional.

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logical Survey, Branch of Alaskan Geology, MS 904, 345 Middlefield Road, Menlo Park, California 94020.

The U.S. Geological Survey is an equal opportunity employer. Positions are available only to United States citizens.
ments for the Ph.D. before the appointment can be finalized. In accordance with the requirements of Immigration Canada, this ad is directed primarily to Canadian citizens and landed immigrants. However, qualified non-Canadians are encouraged to apply. The closing date for the application and the names of three professional referees to Dr. Andrew Hynes, Department of Geological Sciences, 3400 University Street, Montreal, Quebec H3A 2A7; (514) 392-6768. Deadline for applications: September 1, 1987.

DELEUW, CATHER and COMPANY, a member of the joint venture assigned to manage construction of the Los Angeles Metro Rail Rapid Transit System, will have an opening for an Engineering Geologist in the July-August time frame. The position requires a degree in Geology, Engineering Geology or Geological Engineering, and a minimum of five years experience in borehole logging and mapping of geology revealed by construction. Applicants will be given the opportunity to work toward certification as an Engineering Geologist. Salary commensurate with experience. Interested persons with previous experience at a comparable level are urged to apply. The position is subject to client approval. Send resume in confidence to: Charles W. Daugherty, DeLeuw, Cather and Company, c/o PCCD, 600 South Spring Street, Los Angeles, California 90014.

WHITMAN COLLEGE
The Department of Geology at Whitman College in southeastern Washington seeks a sabbatical replacement for 1988-89. Four courses are to be taught, including tectonics/structural geology, mineralogy and petrology, and an introductory geology course. Priority for the fourth course is geologic oceanography (for nonmajors) or geophysics. Applications are due on or before January 15, 1987, to R.J. Carson, Whitman College, Walla Walla, WA 99362. Candidates must provide evidence of excellent teaching and should arrange to have three confidential letters sent. The Department of Geology has excellent teaching and research equipment, and conducts a substantial program in field geology. The position is commensurate with qualifications and experience. Pay is $15,000 with opportunity for additional funding. Interested persons are requested to send their Curriculum Vitae with support information not later than one month of this publication, to: Mr. Habeeb Al-Sabah, Personnel Manager, Kuwait Institute for Scientific Research, P.O. Box 24865 Safat, 13108 Safat, KUWAIT.

PROFESSORSHIP IN ENERGY RELATED GEO SCIENCE
Department of Geology
Lehigh University
University Park, PA
Louisiana State University is seeking an individual with an established reputation in some research specialty critical to the search for fossil fuels to fill the Charles T. McCord, Jr. Endowed Professorship. We invite applications from all qualified scientists, but we are particularly interested in finding a scientist with academic and industry consulting experience who wants to establish a research and teaching program in a diverse and growing earth science community. Applicants should have an enthusiasm for teaching their specialty, and an ability to acquire and sustain support for their research program. Duties are in the Full Professor level with salary competitive with other special professorships at Louisiana State and at other research universities. The department of Geology, the Coastal Studies Institute, and the Basin Research Institute form the School of Geoscience. The Louisiana Geological Survey is located in the same complex and is closely associated with the department and the Institutes. These groups share 110,000 square feet of space in two buildings, one new in 1987. Current research in the Department, the Institutes, and the Survey includes efforts in nearly all aspects of earth science. There are over 30 teaching faculty in the Department. Research applications of work will begin June 1, 1987 and continue until a suitable applicant is found. Applicants should send their vita, the names of three scientists familiar with their work, and a letter describing their research and teaching interests to: Dr. J. Robert Sidle, Chairman, Mr. James L. McCord Professorship Search Committee, Department of Geology, Louisiana State University, Baton Rouge, Louisiana 70803. Applications of qualified material will be held in confidence. LSU is an equal opportunity/affirmative action employer.

SEATTLE AREA FOR YOU?
Project Manager position to lead remeasurement investigations in Western U.S. and Alaska. Job responsibilities include field program design and oversight, data interpretation, project management and cost control. Must be capable of directing two to three projects simultaneously, including oversight of field supervisor(s), 4 to 10 staff, and support subcontractors. Project budgets range from $0.2M to more than $1M. Business development responsibilities in six months. Ph.D. or MS in Geology, Soils Science, or Hydrogeology plus 6 to 12 years experience. Describe training/experience in groundwater movement, hydrochemistry, well drilling, and geophysical with specific applicability to CERCLA and/or RCRA implementation. Contracts expire in 1987. Projects may require 25 to 50% travel during peak of field efforts. One position in Seattle area; possible second in San Francisco area. Send resume and salary history/experience to: Personnel, Science Applications International Corporation, 13400-B Northup Way, Suite 38, Bellevue, Washington 98005.

KWAIU INSTITUTE FOR SCIENTIFIC RESEARCH
The Institute for Scientific Research, Kuwait Institute for Scientific Research (KISR) is a nonprofit organization with a staff or more than one thousand employees engaged in applied research in the fields of environmental and earth sciences; food resources; engineering; petroleum, petrochemicals and materials and technology. KISR seeks qualified scientists with a Ph.D. or equivalent degrees in fields of geology, engineering, geophysics, hydrology, or closely related areas. Opportunities are open for positions at the level of Assistant, Associate, or Full Professor. Applications of qualified material will be held in confidence. KISR is an equal opportunity/affirmative action employer.

SRI. HYDROGEOLOGIST
A growing consulting firm seeks a Sr. Hydrogeologist to manage Geosciences Department in Cherry Hill, N.J. location. Position involves planning and supervising work plans, field investigations, groundwater well installations, and extensive client interaction. The qualifying candidate should have an advanced degree and up to 8 years applicable experience. Experience also requires knowledge of designing and monitoring RI/FS type site investigations, good communication and writing skills, plus ability to travel. Professional registration, preferably in Delaware, a plus. Interested candidates should forward resume to: Elizabeth S. Knight, Director of Personnel, HART Environmental Management Corp., 530 Fifth Avenue, New York, NY 10036. An equal opportunity employer.

FACULTY POSITION
Beloit College seeks a recent Ph.D. for an Assistant Professor; tenure track position. This is a position designed to begin at the end of the academic year. Priority for the fourth course is geologic oceanography (for nonmajors) or geophysics. Application deadline is January 1, 1988. R.J. Carson, Whitman College, Walla Walla, WA 99362. Candidates must provide evidence of excellent teaching and should arrange to have three confidential letters sent. The Department of Geology has excellent teaching and research equipment, and conducts a substantial program in field geology. The position is commensurate with qualifications and experience. Pay is $15,000 with opportunity for additional funding. Interested persons are requested to send their Curriculum Vitae with support information not later than one month of this publication, to: Mr. Habeeb Al-Sabah, Personnel Manager, Kuwait Institute for Scientific Research, P.O. Box 24865 Safat, 13108 Safat, KUWAIT.

HYDROGEOLOGIST AND CIVIL ENGINEERS
Dames & Moore. Experienced, mature, professional hydrogeologists having expertise in project management and communication skills. Strong background in applied hydrogeology integrated with engineering and chemical. M.S. degree in hydrogeology or related field with 5 to 9 years experience. Registration as Professional Geologist or P.E. desirable. Responsibilities range from field sampling program through project management and technical supervisory duties, including RCRA, CERCLA, federal and state grant administration, water quantity and quality monitoring and modeling, remedial action evaluation, water supply well design and testing, aquifer restoration and groundwater management.
Positions in our Sacramento, San Francisco and Santa Barbara offices. Salary commensurate with experience. Facilities include: Dames & Moore, 3050 Beacon Blvd. #205. W. Sacramento, CA 95691. A.A./E.O.E./M/F/IV.

BSE, a full service environmental consulting firm with 13 offices nationwide, currently has the following position available:

GROUNDWATER HYDROLOGIST
Experienced senior level project hydrologists needed to manage projects in site investigations, hazardous waste feasibility studies, industrial waste problems, etc. Skills needed in technical area, project management, marketing, budgeting, and client interaction. Position requires a minimum of 6 years related experience in groundwater
assessments and remediation. Experience with CERCLA and RCRA is highly desirable. Previous computer experience in the modeling of acclimatization characteristics and contaminant migration is also preferred. Interested candidates who meet these requirements should submit their resume and a letter of interest to: Environmental Science and Engineering, Inc., Dept: GS87, P.O. Box ESE, Gainesville, FL 32602.

NUS CORPORATION is a leading consultant to government and industry in the environmental, safety, and health fields. The NUS Savannah River Center, Alkman, S.C., has immediate openings for engineers and scientists with experience in the waste management field. Geochronology, Geohydrology, Geology, Hydrology, or civil engineering degree. MS preferred. Demonstrated ability to characterize hydrogeologic environment, to assess groundwater impacts of construction and operation of industrial facilities, to assess groundwater contamination remedial action, and to perform geophysical evaluations and contaminant transport modeling in support of environmental assessments and regulatory requirements, especially those related to RCRA and/or CERCLA. At least 5 years experience preferred.

Hazardous Waste Engineer: Civil, mechanical, chemical, electrical, or civil engineering degree or geosciences degree at least 3 years experience in RCRA compliance required; additional CERCLA preferred. Demonstrated ability to review and evaluate engineering feasibility studies and remedial action plans and to review permit applications for solid, hazardous, and combined waste. U.S. citizenship is required for these positions. If you meet the qualifications and are interested in these dedicated professional positions, send your resume in confidence to: NUS Corporation, Attention: C.G. Mathieson, Savannah River Center, 57 Varden Drive, Alkman, SC 29801.

OAK RIDGE NATIONAL LABORATORY A geologist with a background in stratigraphy and experience in radioactive waste disposal is needed to work on projects associated with disposal of nuclear wastes; there are currently two positions for which a person is sought. ORNL is involved in assessment of sedimentary rocks in support of efforts to study sitting methods for geologic disposal of high-level nuclear waste. Also, ORNL is characterizing the structural and hydrologic nature of fractured, low-permeability strata that have been used for subsurface injection of waste water in the Savannah River. The position requires a person with extensive knowledge of stratigraphic systems preferably on a regional scale to test, characterize, and model a fractured reservoir. The successful candidate must have a graduate degree and must be able to work in a group situation with other scientists (hydrologists, geologists, geochronologists) and engineers. Please contact: Stephen H. Stow, P.O. Box X, Oak Ridge National Labora- tory, Oak Ridge, TN 37831.

ENGINEERING International Technology Corporation, a recognized leader in the management of hazardous waste has immediate openings for the following professional positions at its Irvine, California location:

Hydrogeologist/Geologist. Entry level position with 2 years field experience, BS degree in Geol- ogy or a related geoscience discipline. Senior level with minimum 5 years field hydrogeology/geology or related technical experience. Ability to develop and follow laboratory procedures accurately and reliably. Experience in water sampling and related activities, ensure regulatory compliance and interface well with agencies. Geology registration (or eligibility) preferred. Positions for Civil Engineers. Entry level with minimum 3 years field experience with civil works and subsurface installations. MS degree. Senior level with minimum 5 years field experience. License is required.

If you meet these qualifications, are willing to relocate to Southern California and would like to join a professional organization offering an excellent benefits package and competitive salary, please submit resume and salary requirements to: Human Resources, Interna- tional Technology Corporation, 336 W. Anaheim Street, Williamson, CA 90744. Equal Opportunity Employer.

THE CENTER FOR NEOTECTONIC STUDIES of the Mackay School of Mines, University of Nevada, Reno, is seeking a full-time, permanent, 9-month faculty position for research in Neotectonics and Tectonics in the southern Great Basin, in an area of possible listric detachment, and at the strike-slip fault activity. We seek a person with outstanding research ability in Neotectonics studies and structural geology. Highly qualified applicants should submit an applica- tion, resume, three letters of recommendation to: David B. Simmons, Director, Center for Neotectonic Studies, Mackay School of Mines, University of Nevada-Reno, Reno, Nevada 89557.

THE CENTER FOR NEOTECTONIC STUDIES, Mackay School of Mines, University of Nevada-Reno is offering a 9-month, full-time, permanent position for research in Neotectonics and Tectonics in the southern Great Basin, in an area of possible listric detachment, and at the strike-slip fault activity. We seek a person with outstanding research ability in Neotectonics studies and structural geology. Highly qualified applicants should submit an application, resume, three letters of recommendation to: David B. Simmons, Director, Center for Neotectonic Studies, Mackay School of Mines, University of Nevada-Reno, Reno, Nevada 89557.

FACULTY POSITION WITH THE EARTH SYSTEM SCIENCE CENTER THE PENNSYLVANIA STATE UNIVERSITY The newly created Earth System Science Center in the College of Earth and Mineral Sciences invites applications and nominations for a tenure-track faculty position in Earth System Science. The research efforts of the Center will focus on a multi-disciplinary approach that is necessary to understand the causes, processes and limits of variability of planetary change on scales of millions of years to decades or less. The multidisciplinary research will address issues related to the atmosphere, hydrosphere, cryosphere, biosphere, lithosphere and will include human interactions with the natural environment. The successful candidate will be an outstanding, highly motivated individual on the forefront of research directed towards understanding the earth system, including past and present earth observations and theoretical and numerical modeling of the processes and interactions within the planetary system. The successful candidate will have a tenure-track appointment with one of the academic Departments of Geosciences, Meteorology or Geog- raphy within the College. Rank and salary will be commensurate with qualifications. Review of applications and nominations will be accepted by June 15, 1987, or until a suitable candidate is identified. Nominations and supporting materials for applications should be submitted to: Eric J. Barron, Director, Earth System Science Center, 503F Delke Building, The Pennsylvania State University, University Park, PA 16802. An equal opportunity/ affirmative action employer.

POSTDOCTORAL FELLOWS EARTH SYSTEM SCIENCE CENTER THE PENNSYLVANIA STATE UNIVERSITY The Earth System Science Center at The Penn- sylvania State University announces the begin- ning of its postdoctoral fellowship program. The interdepartmental Earth System Science Center is a leader in developing multidisciplinary research and education programs directed towards understand- ing global change on a variety of time scales, and in viewing the earth as a system of linked global processes. In association with the Departments of Geography, Geosciences and Meteorology, the Center seeks applicants from highly motivated and creative individuals with strong multidisciplinary interests for appointments as post-doctoral researchers. Applications, due June 15, or until suitable candidates are found. Applications and supporting materials with three names for references should be forwarded to: Eric J. Barron, Director, Earth System Science Center, 503F Delke Building, The Pennsylvania State University, University Park, PA 16802. An equal opportunity/affirmative action employer.

GEOREGICAL SCIENCES UNIVERSITY OF NEVADA The Department has a 0.4 FTE State-funded faculty position open for an aggressive geoscientist capable of generating the equivalent of 0.6 FTE by means of grants and/or contracts. We are interested in response from scientists with teach- ing/research and other professional skills. The position is open effective August 1, 1987. Positions in fields theory, including inverse theory application. Research interests in paleomagnetics desirable. 2) Geostatistics. Research in hydrogeology desirable. Facilities available to support research/teaching in these and affiliated areas include: seismic, gravimetric, electrical fields, remote sensing and magnetic/paleomagnetic (spinning and cryogenic) equipment/laboratories; full analytical facilities including automated XRD, XRF, SEM, Electron Probe, AA and other spectrometers and access to stable isotopes. Interested scientists please submit letter of application, resume and names/addresses of three references to L.T. Benfield, Geological Sciences, University of Nevada, Reno, NV 89557. The University is an affirmative action/equal opportunity employer. Closing date for Application is June 15, 1987.

GEOLIGISTS HYDROGEOLIGISTS, ENGINEERS Atlantic Environmental Services, Inc. is a growing firm located in Connecticut providing a spectrum of environmental consulting services to profit and public-sector clients. Atlantic invites appli- cants with experience in or skills applicable to the following areas: Hazardous Waste Assessment, Remedial Investigation, Environmental Baseline Studies, Ground Water Contamination Investigations, Ground Water/ Unnatural Zone Monitoring, Ground Water Devel- opment, Environmental, and Public Relations. Responsibilities include project management, field investigation, data collection and analysis, technical report and proposal preparation, client development, and public presentations. Strong technical, organizational, and written and oral communication skills as well as computer literacy are essential.

Interested applicants should submit: a resume and references to: Dr. Laurence R. Leff, Atlantic Environmental Services, Inc., 8 Norwich Avenue, Colchester, CT 06415. All applications will be held in strict confidence. Atlantic is an equal opportu- nity employer.

HYDROGEOLOGISTS (Hazardous waste) James M. Montgomery, Consulting Eng neers, Inc., one of the nation's leading environmental consulting firms, has an opening for a Hydrogeologist.

We are seeking a qualified individual with 2-4 years experience in groundwater contamination studies, and remedial design for contaminated sites. An M.S. degree is desirable.

As an employee-owned firm with a reputation for engineering excellence, we offer a superior compensation package including liberal employee benefits and a growth-oriented environment.

GSA NEWS & INFORMATION, May 1987 114
For immediate consideration please send re-
sumes. Contact: Dr. James M. Montgomery, Consulting Engineers, Inc., P.O. Box 7009, Pasadena, CA 91109-7009. Equal Op-
portunity Employer M/F.

INDUSTRIAL MINERALS GEOLOGIST
The Nevada Bureau of Mines and Geology, invites applications for a State-funded, Tenure Track position beginning July 1, 1987 to conduct research and perform public service related to Nevada's industrial minerals geology. An M.S. or Ph.D. in the earth sciences and a minimum of two years of mineral-resources geologic experience are required. Preference will be given to candi-
dates with industrial mineral and/or state geolog-
ical survey experience. The salary range is $32,600-
$43,700. To apply contact John Schilling, Director, Nevada Bureau of Mines and Geology, University of Nevada-Reno, Reno, NV 89557-0088. Tele-
phone: (702) 784-8691. Deadline: June 15, 1987. The University of Nevada-Reno is an AA/EOE.

THE SCHOOL OF GEOPHYSICAL SCIENCES,
Georgia Institute of Technology, is seeking highly qualified candidates for research positions in geophysics, seismology, or seismoelec-
tronics. We seek creative scientists who will develop strong research programs compatible with our Ph.D. program. We desire quantitative capabilities and experience. Also, the candidates' ability to work with other graduate students of the Institute and to take advantage of research facilities at Georgia Tech will be considered. Salary and rank will be commensurate with experience and background. Call D. B. Gough for further information or send a resume and brief description of research and teaching interests to: Geophysical Sciences Search Committee for Geophysics, School of Geophysical Sciences, Georgia Institute of Technology. Atlanta, Georgia 30332-0340.

The Georgia Institute of Technology is a unit of the University of Georgia and is an equal opportunity employer. We encourage applications from qualified women and minorities.

STRATIGRAPHY/SEDIMENTOLOGY
WRIGHT STATE UNIVERSITY
The Department of Geological Sciences invites applications for a one-year appointment at the assistant professor level, beginning September 1987.

Teaching duties will include graduate courses in stratigraphy and sedimentology as well as undergraduate courses in physical and historical geology. The ability to teach courses in glacial geology would be beneficial.

The Department currently has 13 full-time faculty and strong M.S. programs in geology with concen-
trations in geophysics and applied geochemistry. Research facilities are excellent and remuneration is competitive.

The Ph.D. (A.B.D. considered) is required. Send resume, including letter of intent, and three letters of reference to: Chair, Search Committee, Department of Geological Sciences, Wright State University, Dayton, OH 45435. Clos-
ing date June 1, 1987. Wright State University is an Affirmative Action/Equal Opportunity Employer.

RESEARCH GEOLOGIST/HYDROLOGIST
University of Nebraska
The Conservation and Survey Division invites applications for the position of Research Geolo-
ist/Hydrologist. The position is located at Scottsbluff, Nebraska, beginning September 1. The minimum qualifications are a M.S. degree with appropriate experience in the utilization of stratig-
raphy and sedimentology, particularly as related to water resources. The successful applicant will be expected to: design and conduct individual re-
search projects and supervise a professional level research program in stratigraphy and hydroge-
ology; participate in cooperative research projects with other University of Nebraska-Lincoln Extension Center staff and the Center Director as appropriate; participate in educational and ser-
vice activities within and outside the University; maintain and further develop a working relation-
ship with personnel in governmental agencies and private industry in addition to other individuals in the application of earth science research, and assume other duties and responsibilities in sup-
port of Division programs as assigned. This is a 12-month position with possible continuation. Salary and rank are commensurate with experience and qualifica-
tions. Resume, transcripts and names, addresses and telephone numbers of three references should be sent to: Search Committee, Conservation & Survey Division, University of Nebraska-Lincoln, 115 Nebraska Hall, Lincoln, Nebraska 68588-0517. Closing date for application is June 12, 1987 or until suitable applicant is found thereafter. Affirmative Action/Equal Opportunity Employer.

COLORADO SCHOOL OF MINES
Applicants are sought for tenure-track positions to begin August 1987. Candidates should be dedicated to teaching undergraduate (geological engineering curriculum) and graduate courses, supervising graduate student research, maintaining strong research programs, and applying science and engineering to solving problems in geomechanics. Contributions to interdisci-

ciplinary education and research, development of research funding and a strong field orientation are essential. A Ph.D. degree or equivalent expe-
rience is required; academic rank and salary are dependent on qualifications.

Hydrogeology. Applicants must have a theoretical and practical understanding of the hydraulic characteristics of rock and field sampling and experience with numerical groundwater models in diverse geologi-

cal environments. Strength is some combination of contaminant transport, weathering, fluid flow, and mineral deposit formation and relation of fluids to rock failure would be desirable. Profes-

sional registration or certification is desirable.

Petroleum Geology. Applicants should possess experience in petroleum exploration, and a strong background in carbonate geology is highly desirable. Research interests are not predetermined, but some combination of carbonate geology, petroleum exploration, and source rock geochemistry and hydrocarbon maturation is desirable. Sedimentary Diagenesis. In addition to a gen-
eral knowledge of carbonate and siliciclastic rocks, applicants must be competent in inorganic and organic chemistry, numerical representation of fluid-rock interactions and diagenesis. Strength in clay mineralogy and fluid dynamics is desirable.

Volcanology/Igneous Petrology. Preference will be given to applicants whose backgrounds complement the mineral deosits and geotechn-

eering engineering programs at CSM. Research interests are not predetermined, but some combi-
nation of mineralogy, volcanic-hydrothermal systems, volcanic hazard assessment and petro-

chemistry is desirable.

Letter of application, resume, brief statement of immediate teaching and research goals, and names of three references should be sent to: Dr. Samuel S. Adams, Head, Department of Geol-

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