New York State Geologic Highway Map Available

The New York State Geologic Highway Map, published by the New York State Museum’s Geological Survey, is a colorful and informative map sheet that provides information about the landscape and geology of New York State and surrounding areas. The map sheet will be of interest to teachers and students of earth science, as well as members of the general public. The relationships among landscapes, land use, and underlying bedrock are graphically portrayed. The diverse landscape features of the State are shown on a large scale (1:1,000,000) winter scene obtained by NASA’s Landsat satellite. Landscape diversity is also shown on a labeled physiographic diagram that covers much of the northeast, both onshore and offshore. The bedrock geology is shown in bright colors on a highway base map that is at the same scale as the satellite image. This pair of maps displays dramatically the control of geology on landform development. Accompanying the geologic map is a legend in the form of a correlation diagram for the sedimentary rocks of the State. It identifies rock units by both formation name and rock type. Another diagram shows the environments in which these rocks were deposited. A traditional legend of color-coded boxes is used for the metamorphic rocks of the Adirondack Mountains and Hudson Highlands. The complicated plate tectonic history of the northeastern United States during the past 1.5 billion years is summarized on a simplified tectonic map with explanatory text. Other features of the map sheet include discussions of physiographic provinces, common rock forming minerals, and the naming of igneous and metamorphic rocks.

Of additional interest to travelers and teachers are two additional maps. One shows locations of a combined total of 117 unique geological features, museums with geological exhibits, and State Parks with interesting geological features. The second map shows the routes of 79 geological field trips throughout the State and lists the sources of the guidebooks involved. The map measures 4 1/2 by 2 feet and is printed on plastic stock that allows for repeated folding without tearing. The New York State Geologic Highway Map (Educational Leaflet 33) is available for $6.75 per copy. To educational institutions and wholesale dealers the map is priced at $4 per copy on orders of five or more copies. Shipping fees are $1.50 per order for folded copies and $2.50 per order for unfolded copies in a tube. Discounts to educational institutions and wholesale dealers are available. To obtain a copy, send a check or money order payable to New York State Museum to Publications Sales, New York State Museum, 3140 Cultural Education Center, Albany, New York 12230, or call (518) 474-3505.

An accompanying book, Geology of New York—A Simplified Account (New York State Museum Educational Leaflet 28), is a profusely-illustrated 296-page volume that will be published in August 1991. It is intended for the same broad audience as the Geological Highway Map.

Talking to Congress

Contributed by Kathleen K. Gobn,
U.S. Geological Survey, Reston, VA 22092

The American Institute of Physics has just published a short brochure called "Communicating with Congress," containing a number of useful suggestions. The information that follows comes from the section "Writing to a Member of Congress"; there is also a section on meeting with Congress members.

Members of Congress pay close attention to the correspondence they receive. Responding to mail is crucial to re-election, and a great deal of congressional staff time is devoted to responding to letters from constituents. One of the most effective ways to inform Members of Congress of your opinion or to inform them about an issue is to write a letter.

The letter must be brief and legible. It should be limited to one page.

A typewritten letter is best but not essential. Some staffers feel that the less professional looking the letter, the more sincere the request.

The organizational format most likely to be read is a three paragraph letter. The first paragraph states your purpose for writing the letter and establishes your "credentials." Stick with one subject or issue.

The second paragraph goes into more detail regarding the issue of concern. Be factual and support your position with information about how the legislation will affect you and others. When possible, cite the specific bill number.

The final paragraph asks for some type of action. If you support or oppose an issue or piece of legislation, say so. If you would like to suggest a better approach, do so.

Suggested address style:

The Honorable ________________ The Honorable ________________
United States Senate U.S. House of Representatives
Washington, DC 20510 Washington, DC 20515

Dear Senator ___________: Dear Mr./Ms. ___________: (or Representative ___________)

For further information, or to obtain a copy of the brochure, write to:

Richard Jones or Marguerite Mulhall
Public Information Division
American Institute of Physics
2000 Florida Avenue, NW
Washington, DC 20009
(202) 234-7058; FAX (202) 328-3729
FROM THE President

The MSA Council met on May 30, 1991 during the AGU meeting in Baltimore, MD. A particularly important topic on the Council agenda was the financial state of the Society. In 1990 the Society's net worth decreased by $75,701. Most of the shortfall was due to increased costs of editing and publishing the American Mineralogist. In late 1989, on the retirement of Jim Munoz as Editor, the Editorial Office was transferred from Boulder, Colorado to Ann Arbor, Michigan where it came under the direction of the newly appointed Editors Don Peacor and Steve Bohlen and Managing Editor Vicki Lawrence. This transfer of the editorial office required a significant increase in funding which included: the cost of moving files and equipment, the cost of new word processing hardware and software and other new office equipment, and the increased cost of travel incurred during the move. The very heavy work load experienced in the previous two years at the Boulder Editorial Office had amply demonstrated the need to increase the size of the editorial staff. To lighten the work load, a new position was added to the editorial staff in 1990—that of Assistant Managing Editor. Also, salaries had to be increased so that we could continue to employ a well qualified staff. Most of the deficit for 1990 can be accounted for by these necessary administrative adjustments.

In late 1990 and in 1991, additional factors led to a further increase in the cost of publishing the American Mineralogist. Over the last year the cost of mailing increased, income from page charges and reprint sales decreased, and the number of pages printed increased greatly; 1474 pages were published in 1990 and approximately 2000 pages are projected to be published in 1991. These factors, of course, greatly increased this year's cost of publication so that we now project a loss of over $100,000 for 1991. The nearly 50 percent increase in the number of pages to be printed in 1991 was due in part to the large number of manuscripts submitted for publication in the Thompson issue. These manuscripts in turn caused a large increase in the backlog of papers accepted for the regular 1991 issues (a similar backlog occurred in 1986 when the Jahns special issue was published). Also, during the 1990–1991 period, there was a significant increase in the number and quality of papers submitted and accepted for publication and this further contributed to the backlog. To reduce this manuscript backlog and concomitantly decrease the publication time, the MSA Council, with the concurrence of the Editors and the Chairman of the Management Committee, voted to go ahead and publish a much larger volume in 1991, understanding that we would have to use some of our endowment fund to cover the increased costs.

At the May 1991 Council meeting we had to face the fact that, although the endowment fund is presently valued at over $900,000, we could not continue to incur deficits such as appeared in 1990 and 1991. To balance the MSA books in 1992, the Council took the following actions: (1) a dues increase from $40 to $50 for members, and from $20 to $30 for student members, (2) an increase of commercial subscription rates from $175 to $200, (3) a surcharge of $10 for mailing to foreign commercial subscribers ($5 for subscribers residing in Canada or Mexico), (4) a 3 percent surcharge on member credit card orders to the Business Office, and (5) and, most importantly, a limit of 1440 pages for the 1992 volume of the American Mineralogist. In addition to the above actions, the Editors and the Publications Committee are looking into other ways of reducing publication costs. With these newly instituted changes, I am confident that the MSA will be in a very good financial position in 1992. Other actions taken at the last council meeting included: (1) voting to eliminate the publication of special issues of the American Mineralogist because of the great disruption of the publishing schedules and high costs, and (2) approving the nomination by the MSA Lecture Committee of Barb Dutrow (University of Iowa) and Dave Veblen (Johns Hopkins University) to be the 1991–1992 MSA Lecturers. Congratulations, Barb and Dave. Here, it would be appropriate to express for the MSA membership our thanks to Darby Dyar and Hap McSween, the 1990–1991 Lecturers, for presenting an outstanding series of talks to 15 different Universities and Colleges.

Darby spoke on the subjects geothermometry, biotite chemistry, and mantle metasomatism; Hap discussed the origin of the planets, chondritic meteorites, and hornblende barometry.

I received a letter from Dr. Marcello Mellini, Secretary of the Program Committee for the 1994 IMA meeting, asking for suggestions for meeting symposia. This meeting will be held in Pisa, Italy in September. MSA members who have suggestions for topics for the 1994 IMA meeting symposia can contact either Marcello Mellini or Charles Prewitt (their addresses are in the 1991 MSA Directory).

The next MSA Council meeting will be held on October 20, 1991 at the annual GSA/MSA meeting in San Diego, California. I hope many of you can come to San Diego to attend the many MSA sponsored sessions and the MSA symposium on Contact Metamorphism. Prior to this meeting, the MSA will sponsor a Short Course, convened by Derrill Kerrick, on Contact Metamorphism that is to be held at the Pala Mesa Resort, San Diego, October 17–20, 1991 (see the notice in this issue of The Lattice). The MSA will join with the AGU and the Canadian Geophysical Union to sponsor the 1992 Spring Meeting to be held in Montreal, Canada, May 11–15. In 1993 and 1994 the spring AGU-MSA meeting will again be held in Baltimore, Maryland.

Malcolm Ross
President

MSA DIRECTORY
OF MEMBERS

Several members have notified the Business Office of corrections that need to be made to the 1991–1994 Directory of Members and Fellows that was mailed in May. If your name or address is incorrect, if you were not listed or if you did not receive a copy of the Directory, please contact the Business Office as soon as possible. Corrections and additions will be printed in the November issue of The Lattice.

Malcolm Ross
President

August, 1991
Members in the News

Professor A. E. (Ted) Ringwood, head of the Petrochemistry Group, Research School of Earth Sciences, Australian National University, has been awarded the 1991 Antonio Feltrinelli International Prize (150 million Italian Lire; approximately $125,000) by the Italian National Academy (the "Lincei"). Bruno Sander (1956) and Harry H. Hess (1966) were the only previous recipients for Earth Science. After the award to Hess, the prize was suspended or diverted to other branches of science. This year, the Academy acknowledged Professor Ringwood's contribution to the theory of plate tectonics by establishing a firm experimental basis to the accepted theories about the Moho, the structure of the Earth's mantle and core, and of the Moon as well. The Academy also pointed out the ability of Professor Ringwood to extract environmental and industrial application from his fundamental research, particularly the importance of SYNROC to nuclear waste disposal and making diamond composites. The prize will be awarded by the President of the Italian Republic in November during a formal ceremony in the Royal Hall of the Academy in Rome.

Frank C. Hawthorne, Geological Sciences, University of Manitoba, received the Past Presidents' Medal of the Geological Association of Canada. The award recognized work on the topological characteristics of mineral structures and their application to mineral paragenesis, and the application of structural and spectroscopic techniques to the solution of complex problems in rock-forming minerals.

Owen P. Bricker received the Meritorious Service Award, the second highest honor given by the Interior Department. Bricker, a hydrologist with the U.S. Geological Survey in Reston, Va., was cited for his exceptional contribution to water-resources research programs of the USGS, including studies of rock weathering, acid precipitation, and the geochemistry of water. He was among the first geochemists to produce research results on nutrient recycling in estuaries, a key environmental problem in the Chesapeake Bay. He is responsible for the development of a network of small watershed sites sensitive to acid deposition that serves as a natural laboratory for scientists from around the world to study the effects of acid precipitation.

Software Handbook Available

Public Domain Software for Earth Scientists, a Handbook of Public Domain and Inexpensive Software is a comprehensive summary of PC software programs that are available from government agencies (U.S. and Canada), universities, and individuals, as well as the most popular inexpensive commercial programs. The handbook is divided into over 30 categories, including: economic evaluation, environmental sciences, geology, mapping, geochemistry, coal, geophysics, statistics, mining, surveying, hydrology, earth science bulletin boards, and GIS.

The handbook may be ordered from Gibbs Associates, Energy and Minerals Information Specialists, P.O. Box 706, Boulder, Colorado 80306-0706; (303) 444-6032. The cost is $25 or $35 outside North America.

Maps Available

The Geological Survey of Wyoming recently released two new 1:24,000 geologic maps for the southern Bighorn Mountains, the Beartrap Meadows and Monument Hill quadrangles. Preliminary geologic map of the Beartrap Mountains Quadrangle, Johnson County, Wyoming (Open File Report 91-4) and Preliminary geologic map of the Monument Hill Quadrangle, Washakie and Johnson Counties, Wyoming (Open File Report 91-5) are by Alan J. Ver Ploeg and Phillip L. Greer. A new 1:24,000 map of the Seminoe gold and iron district, Precambrian geology of the Seminoe Mountains (iron-gold) mining district, Bradley Peak Quadrangle, Carbon County, Wyoming (Open File Report 91-3) by W. Dan Hausel, is also available. The cost of each map is $3.50 prepaid (Wyoming addresses only add 5% sales tax). The maps may be ordered from: Geological Survey of Wyoming, Box 3008, University Station, Laramie, Wyoming 82071; (307) 766-2286.
Registration Form

Contact Metamorphism Short Course
October 17-20, 1991

Return this registration form, completed, to the MSA Business Office, 1130 17th Street N.W., Suite 330, Washington, D.C. 20036. FAX: (202)775-0018. Payment must accompany this form. Registration is limited to 125 individuals on a first-come, first-served basis.

Please type or print.

Name ____________________________
(first) (middle initial) (last)

Address ________________________________________________________________

________________________________________________________________________
(city) (state) (zip/postal code) (province) (country)

Telephone numbers ___________________ (office) ___________________ (home)

Please check appropriate registration category.

<table>
<thead>
<tr>
<th>Category</th>
<th>Member</th>
<th>Non-Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional:</td>
<td>$530</td>
<td>$570*</td>
</tr>
<tr>
<td>in double room</td>
<td>$680</td>
<td>$720*</td>
</tr>
<tr>
<td>in single room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student:</td>
<td>$340</td>
<td>$360*</td>
</tr>
<tr>
<td>in double room</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*includes MSA dues for 1992.

Please check method of payment:

- Enclosed is a check or money order in the amount of $ ____________
- Please charge my ___ Visa ___ Mastercard ___ Diner’s Club ___ American Express card in the amount of $ ____________

(Your credit card will be charged when the registration form is received. Should a refund be required, a credit will be applied to your charge card.)

(card number) ____________________________ (name on card—please print)

(exp. date) ____________________________ (signature)

Please check items as appropriate:

- I wish to share accommodations with (your name must appear on the registration form of the individual listed below):

(please print full name and affiliation or city/state)

- Please assign me to a room. I am a ___ smoker ___ non-smoker.

Please list any special requirements regarding lodging or meals.
This course, convened by Derrill M. Kerrick of the Pennsylvania State University, will utilize theoretical, experimental and field information to elucidate the processes and controls of contact metamorphism. Speakers will review current knowledge, and will explore avenues for future research. Particular emphasis is given to a multidisciplinary analysis of contact metamorphism (igneous & metamorphic petrology, geochemistry, thermal modeling, structural geology).

Speakers and specific topics include:
- Derrill Kerrick & Mark Barton: Overview
- George Bergantz & Mark Barton: Intrusives
- David Pattison & Robert Tracy: Contact Metamorphism of Pelites: Phase Equilibria, Thermobroemetry and Fluids
- Robert Tracy, Ronald Frost & David Pattison: Contact Metamorphism of Calcareous Rocks, Metasabites and Other Non-Pelitic Rocks: Phase Equilibria, Thermobroemetry and Fluids
- Theodore Labotka: Physical and Chemical Properties of Fluids and Mass Transport in Contact Metamorphic Aureoles
- John Ferry & Mark Barton: Mineralogical and Geochemical Effects of Fluid-Rock Interaction during Contact Metamorphism
- Peter Nabelek: Stable Isotope Monitors of Contact Metamorphism
- Kevin Furlong, James Bowers & Brooks Hanson: Thermal Modeling
- Ray Joesten, Tony Lasaga & Derrill Kerrick: Kinetics of Contact Metamorphic Processes
- Scott Paterson & Ron Vornon: Aureole Tectonics
- Mark Barton, Derrill Kerrick & Brooks Hanson: Aureole Systematics

The course will take place on Thursday, October 17 through noon on Sunday, October 20. This is just prior to the MSA/GSA Annual Meeting. The short course will be held at the Pala Mesa Resort in Fallbrook, California, approximately 50 miles from the San Diego airport. The course will begin with a welcoming reception on Thursday evening and continue until noon on Sunday. Transportation will be provided from the San Diego airport to two separate times to be determined at a later date. Buses will return participants to the main GSA hotels in San Diego at approximately 2:00 on Sunday. In addition, registration fees include Volume 26 of the *Reviews in Mineralogy* series, lodging Thursday, Friday and Saturday nights and all meals beginning with the reception and light buffet dinner on Thursday through lunch on Sunday.

The resort is located on Interstate 15 between Los Angeles and San Diego. In nearby Fallbrook visitors are welcomed by an unpretentious old West charm and quaint antique shops amid modern shopping centers and theme restaurants. Among the recreational facilities that the Pala Mesa has to offer are: lighted tennis courts, whirlpool spa, swimming pools, and an 18-hole championship golf course. Seawalk, the San Diego Zoo and Wild Animal Park, Mount Palomar Observatory, and many local wineries are but a leisurely drive from the resort. So that participants can take advantage of these facilities and the surrounding area, and to promote an informal atmosphere, the convener has decided on a schedule of talks during the morning on Friday, Saturday and Sunday and talks during the evening on Friday and Saturday. This allows participants to have their afternoons free to enjoy the resort and visit with friends and colleagues.

Write to the MSA Business Office for details and an application for student scholarship. Preference will be given to support students actively involved in thesis research on or related to contact metamorphism.

### MEETING CALENDAR 1991–1992

#### September

- **16–21** 15th International Meeting on Organic Geochemistry in Manchester, United Kingdom. Details: Dr. D.A.C. Manning, Dept. of Geol., The University, Manchester, United Kingdom, M13 9PL. FAX: (44) 61 275 3947.
- **18–21** Geotechnica — Trade Fair and Congress in Cologne, Germany. Details: C.C.M. Cologne Congress Management GmbH Postfach 180180 D-5000 Kohn 1, Germany. Telephone: (0221)23 64 13. Telefax: (0221)24 94 47.
- **5–10** 28th Annual Meeting of the Clay Minerals Society, Houston, TX. Details: David Pevear (General chairman) P.O. Box 2189, Houston, TX 77001. Telephone: (713)965-4452; Joe Dixon (Program chairman) Telephone: (409)845-8523.
- **6–18** Preventative Conservation for Geological Collections in Kingston, Ontario. The course is designed for those who have the responsibility for the maintenance of mineralogical, paleontological or petrological collections. Details: Director, Art Conservation Dept., Queen’s University, Kingston, Ontario K7L 3N5 Canada.
- **17–20** MSA Short Course on Contact Metamorphism in San Diego, CA. Details: See elsewhere in this newsletter.
- **21–24** GSA/MSA Annual Meeting in San Diego, CA. Details: GSA, Meetings Dept., P.O. Box 9140, Boulder, CO 80301. Telephone: (303)447-2020; FAX: (303)447-1135.
- **21–24** Denver GeoTech/Geochautauqua ’91, A Geocomputing Conference, Denver, CO. Details: Mark Cramer, GeoTech, 11100 E. Dartmouth Ave., #190, Aurora, CO 80014. Telephone: (303)752-4951; FAX: (303)752-4979.

#### October

- **2–6** Annual Fall Meeting of the Materials Research Society, Boston, MA. Details: Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. Telephone: (412)367-3003; FAX: (412)367-4573.
- **16–18** Mineralogical Society of Great Britain Winter Conference on “Industrial and Environmental Mineralogy”, to be held in the National Museum of Wales and University of Wales College of Cardiff. Details: Professor D.T. Rickard, Dept. of Geology, University of Wales College of Cardiff CF1 3YE, Great Britain. Telephone: 0222-874824; FAX: 0222-874326.

#### December

- **2–6** Annual Fall Meeting of the Materials Research Society, Boston, MA. Details: Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. Telephone: (412)367-3003; FAX: (412)367-4573.
- **22–24** Pan-American Current Research on Fluid Inclusions (PACROFI IV), Lake Arrowhead, CA. Details: Michael A. McKibben, Dept. of Earth Sciences, University of California, Riverside, CA 92521-0423. Telephone: (714) 787-3444; FAX: (714) 787-4324.

#### September

- **9–15** Symposium “The Transition from Basalt to Metabasalt: Environments, Processes, and Petrogenesis,” September 9-15, 1992, Davis, California. Details: Peter Schiffman, Dept. of Geology, University of California, Davis, CA 95616. Telephone: (916) 752-3669; E-mail: Pschiffman@UCDavis.edu.
TODAY’S GEOScientist
NEEDS IT ALL
And, it’s all now priced for you!

As a member of an American Geological Institute member society, you are eligible to receive an annual subscription (12 monthly issues) to Geotimes for just $14.95

Geotimes has it all:
- Timely feature articles, news notes and commentary by experts from the geoscience community
- Regular monthly columns reviewing the latest books, maps, and software
- A comprehensive calendar of professional meetings and other events
- Extensive employment listings
- And much. much more

Subscribe, or renew, today at this special price and find out what you’ve been missing!

Geotimes
News and trends in the geosciences

☐ Yes! I want to subscribe to Geotimes at the member-society price of $14.95 per year.
☐ I already subscribe, but I will renew at $14.95
☐ Check enclosed made payable to American Geological Institute
☐ Charge ☐ VISA ☐ Mastercard ☐ American Express
Card No. ___________________________ Expires _____________
Signature ___________________________ (must be signed to process)

Name _______________________________
Geologic Specialty ____________________
Address ______________________________

Special rates for Geotimes

Geotimes, the American Geological Institute’s monthly magazine of geoscience and trends, is now available at the special annual subscription rate of $14.95 for all members of AGI’s member societies, which includes MSA. Any geoscience student will qualify for the reduced rate but other individuals, libraries, and institutions will pay the full subscription price, which is currently $24.95 per year. The new price represents one of the many efforts on the part of AGI headquarters staff and officers to provide increasing benefits to member societies.

Chip Groat, AGI’s executive director, noted that the magazine’s staff has refined and expanded the editorial approach to give readers the best possible coverage on the issues and topics important now in all geosciences. He added that AGI is eager to share the improvements in Geotimes with members.

Upcoming issues will focus on the rapidly expanding field of environmental geology; science, stewardship and water resources; what geoscience editors are doing about the crisis in science education; international efforts in the earth sciences; applications of computer technology in the earth sciences; and what is happening in the oil, gas, and mining industries.

In addition to feature articles and news notes on the above-mentioned topics and other topics, Geotimes will continue to offer departments such as book, map, and software reviews, a letter-to-the editor section, a comprehensive calendar that lists meetings, field trips, workshops, and other events in geoscience, and an extensive classified-advertising section.

To order or renew at the new price, members should contact Johanna Wertz, Geotimes Circulation, AGI, 4220 King Street, Alexandria, VA 22302. (See form, this page)

IN MEMORIAM

We are saddened to report the deaths of the following members. Our condolences are extended to the families and friends of these scientists.

George W. Bain, Life Fellow, 1936
Douglas G. Brookins, Fellow, 1975
Charles F. Park, Life Fellow, 1946
Each year MSA and the other associated societies of the Geological Society of America (GSA) work together prior to the annual meeting to review and select abstracts and schedule symposia and poster sessions. It is the combined efforts of these individuals that consistently produce a quality meeting. Special thanks are due this year to MSA representative Mark S. Ghiorsos, University of Washington, conferee David L. Bish, Los Alamos National Laboratory, and abstractor John E. Grover, University of Cincinnati.

In addition to handling the review of abstracts and scheduling technical sessions, the MSA representative coordinates with the Business Office to schedule the Society's social activities. This cooperation, in conjunction with GSA staff, keeps Society activities from overlapping technical sessions and attempts to put these activities in conveniently located meeting rooms.

While this scheduling involves many individuals, its purpose is to benefit the members of MSA. To this end, you are encouraged to participate in the MSA sponsored activities and to express your suggestions and needs to the Business Office and GSA.

First Meeting, 1992 Council

Tuesday, October 22
San Diego Marriott, Del Mar
7:45 – 11:00 p.m.

Members of the 1992 Council will hold a dinner meeting to set goals and priorities for the coming year. This is the first opportunity for new Council members to participate in the ongoing activities of Council.

MSA Booth, #632-634

Monday, October 21
9:00 a.m. – 6:00 p.m.
Tuesday, October 22
9:00 a.m. – 5:30 p.m.
Wednesday, October 23
8:00 a.m. – 5:30 p.m.

Be sure you visit the MSA booth at the San Diego Convention Center. The newest volume in the Reviews in Mineralogy series, Contact Metamorphism, will be available, as will the other books in the series. Stop by and talk to other members, meet Society officers, the MSA Business Office staff and the managing editor of American Mineralogist. Bring a friend who should be a member of the Society and we'll help you sign up him or her!

MSA Symposium

Contact Metamorphism

Monday, October 21
San Diego Convention Center
1:30 – 5:00 p.m.

Convenors: Maria Luisa Crawford, Bryn Mawr College, Derrill Kerrick, Penn State University and Robert J. Tracy, VPI

MSA Reception

Tuesday, October 22
San Diego Marriott, Marina Ballroom D
5:30 – 7:30 p.m.

All members and scientists interested in mineralogy, petrology and crystallography are invited to attend and enjoy a drink with colleagues. Again this year the reception is being held jointly with the Geochemical Society.

The subscription rate for institutions (volume 3, 1991) is 80 DM (approximately $44) per year (6 issues) for the European Journal of Mineralogy is available to individuals who are members of any society of the European Mineralogical Union (i.e., Austria, Belgium, Bulgaria, Denmark, France, Germany, Great Britain and Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland). Persons may order through the individual societies or directly from the publisher (address given below).

Information regarding membership in the publishing societies may be obtained directly from the societies:

Deutsche Mineralogische Gesellschaft — H. Kroll, Institut für Mineralogie, Westfälische Wilhelms-Universität, Corrensstr. 24, D-4400 Münster, Germany.

Società Italiana di Mineralogia e Petrologia — Via Botticelli 23, I-20133 Milano, Italy.

Société Française de Minéralogie et de Cristallographie — Tour 16, Case 115, 4 place Jussieu, 75252 Paris Cedex 05, France.

The subscription rate for institutions (volume 3, 1991) is 140 DM plus postage. Orders should be sent through your book-seller, subscription agency or directly to the publisher:

E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), Johannesstr. 3A, D-7000 Stuttgart 1, Germany.
1991 ANNUAL MEETING
San Diego, California • October 21-24, 1991
Marriott Hotel & Marina • San Diego Convention Center

TECHNICAL PROGRAM

Technical sessions consist of both invited and volunteered papers organized in one of three presentation formats: symposia, theme sessions, and discipline sessions. Abstracts were due on July 3 and selected and organized into sessions on August 2 and 3 by the Joint Technical Program Committee (JTPC). The JTPC consists of 30 geoscientists representing those associated societies and GSA divisions participating in the technical program. The JTPC chairmen, nominated by the Annual Meeting Committee and approved by the GSA Council, also serve a four-year term on GSA's ongoing Program Committee, which oversees all technical program activities. Abstracts notice mailed August 14
Speaker information mailed August 24
Technical Program Schedule (GSA Today) September 5

GLOBAL PERSPECTIVE THEME

Geologists have long approached their science with a global perspective, a recognition recently reaffirmed by plate tectonics. Our meeting theme not only reminds us of the global character of earth processes and natural phenomena, but calls attention to the global extent of environmental deterioration, the global dependence of our natural resource inventory, and the need for scientists, especially earth scientists, to address these concerns from a global perspective.

Within this theme several programs have been initiated by the San Diego Annual Meeting Committee. These are called Global Challenge sessions, identified by the symbol . There will be four Global Challenge theme sessions, a Monday evening open forum, and a Thursday afternoon wrap-up session. The meeting schedule lists a number of other sessions initiated by other organizations which address closely related topics. Leading off the Global Perspective theme on Monday morning will be a special Keynote Symposium, organized by Patrick L. Abbott and R. Gordon Gastil, San Diego State University.

The Global Challenge: Our Environment, Our Resources, Our Responsibilities

Monday, October 21, 8:45 a.m. to 12:00 noon
San Diego Convention Center, Room 6A

1991 Annual Meeting Honorary Chairman, Roger R. Revelle, University of San Diego
"The Global Challenge"

Digital, M. L., Royal Society of Canada
"Events and Their Causes—Uncertainty in the Ecosystem?"

Frank Press, National Academy of Sciences
"Natural Hazards: Science Instead of Faisalism"

Lynn Margulis, University of Massachusetts
"Gaia for Geologists: Darwinian Time and Vermesidian Space"

Michael B. McElroy, Harvard University
"Change in Global Environment: Perspectives on Human Influence"

Brian J. Skinner, Yale University
"A Kilometer and Deeper: Will Geologists Be Ready for the Tough Prospecting Challenges Ahead?"

M. Gordon Wolman, Johns Hopkins University
"Water Quantity and Quality: Changes in the Hydrologic Cycle"

Global Challenge Roundup

Monday, October 21, 5:00 to 6:30 p.m.
San Diego Convention Center

Focusing on the Global Challenge, U.S. Congressman George E. Brown, Jr., Chairman of the House Sub-Committee on Science, Space and Technology, will address the audience from 5:00 to 5:30 p.m. This will be followed by a panel discussion with morning's keynote speakers and several international guests.

Global Perspective Rapporteur Session

Thursday, October 24, 1:30 to 5:30 p.m.
San Diego Convention Center

Rapporteurs for the Global Challenge theme sessions will summarize and discuss the evidence and ideas presented earlier in the respective sessions. (See Theme List: T1-T4.) This will be followed by a prominent speaker who will bring together the various threads of the global theme and provide a focus for the conclusion of our meeting.

INVITED PAPERS (SYMPOSIUM)

This format includes only abstracts that have been invited by the convener of a symposium. The dates indicated are tentative and may be changed by the JTPC. Full descriptions appeared in the June issue of GSA Today.

51. Archaeological Geology of the Archaic Period (8-3 ka) in Nevada, Arizona, Archaeological Geology Division. E. Arthur Betts III, Iowa Dept. of Natural Resources, Iowa City, Thursday, October 22, 12:00 a.m.

52. Coalbed Methane Geology, Recovery Technology, and Resources. Coal Geology Division. Walter B. Ayers, Jr., Exploration USA, Inc., Birmingham, Alabama; Jeffrey R. Levine, University of Alabama, Monday, October 21, 12:00 noon.


55. Geology of the Pacific Rim. International Division. Tadashi Sato, Hyogo University, Hyogo, Japan; Bruce Hanshaw, Consulting Geologist, McLean, Virginia, Tuesday, October 22, afternoon.


57. Global Response to Base-Level Changes: Eustatic vs. Tectonic—Part I. Sedimentary Geology Division. Paul L. Hopper, University of Wyoming; Christopher Paola, University of Minnesota, Minneapolis; Henry Posamentier, ESSO Resources Canada, Calgary, Alberta, Tuesday, October 22, morning.

58. Strike-Slip Faulting: Geologic and Geophysical Perspectives. Geophysics and Structural Geology and Tectonics Division. Art Sylvester, University of California, Santa Barbara; Kim L. Moering, ARCO Oil and Gas Co., Plano, Texas; Eugene Humphries, University of Oregon; Matt Grunhok, Jet Propulsion Laboratory, Pasadena, California, Wednesday, October 23, all day.

59. The Global Climate Transition from the Late Paleocene to Early Eocene. Cushman Foundation. Kenneth G. Miller, Rutgers University; Lowell Stott, University of Southern California, Tuesday, October 22, morning.


62. Contact Metamorphism. Mineralogical Society of America. Maria Laura Croswell, Bryn Mawr College; Robert J. Tracy, Virginia Polytechnic Institute and State University; Drille M. Kerrick, Pennsylvania State University, University Park, Monday, October 21, morning.


64. Biotic Turnover Examined in a Phylogenetic Context. Paleontological Society and Society of Vertebrate Paleontologists. J. David Archibald, San Diego State University; Sandy L. Carlson, University of California, Davis, Wednesday, October 23, morning.

65. Applications of Microanalytical Technologies in Economic Geology. Society of Economic Geologists. C. Stewart Eldridge, University of Western Australia, Monday, October 21, afternoon.

66. Crustal-scale Controls on Ore Deposits. Society of Economic Geologists. Robert J. Bodnar, Virginia Polytechnic Institute and State University, Sunday, October 20, all day.


70. Geophysics of the Southwestern Cordillera: USA and Mexico. Geophysical J. R. Jimenez, San Diego State University; Mario Martinez, Centro de Investigacion Cientifico y de Educacion Superior de Ensenada, Baja California, Mexico. Sunday, October 20, afternoon.

71. PANGEA: Ice-house Processes, Climates, and Events on a Supercontinent. Sedimentary Geology Division and Global Sedimentary Geology Program. George deV. Klein, University of Illinois, Urbana Champaign. October 20, afternoon.

8/9 The Lattice

August, 1991
VOLUNTEERED PAPERS
This format includes all abstracts that are not specifically invited for a symposium. Two types of sessions are available:

1. Discipline sessions
The JTCP selects and organizes papers in sessions that focus on one scientific discipline, e.g., hydrogeology or structural geology. Each paper receives three reviews. The papers are organized with topical coherence whenever possible, and sessions may be given an appropriate title by the JTCP representative.

2. Theme sessions
Papers are submitted to a specific, preannounced discipline or to one scientific category. Theme sessions are interdisciplinary; each theme may have as many as three disciplines (categories) associated with it. Each theme has one or more advocates who proposed the idea as well as encouraged submission of papers. The advocates, however, are not able to guarantee acceptance of papers, since this is the responsibility of the reviewers and the JTCP representatives. Full theme descriptions appeared in the April issue of GSA Today.

T1/2. The Global Challenge:
Using Planetary Resources and Modeling the Future
William S. Pyne, University of Western Ontario; Digby J. McLaren, Royal Society of Canada; Brian J. Skinner, Yale University; Carleen J. Hodges, U.S. Geological Survey, Menlo Park, California; Jeffrey Brown, U.S. Geological Survey, Menlo Park, California; and Jose Luis Perman and Jorge Leides, Universidad Autónoma de Baja California, Ensenada, Baja California, Mexico.

1. Disiplinary sessions

T1. Processes Controlling the Composition of Siliciclastic Sediments

T2. Global Sedimentary Geology of the Phanerozoic:
A Symposium in Honor of A. B. Ronov
William W. Hay, University of Colorado; Bruce Wilkinson, University of Michigan; Geochemistry, Global Geoscience, Sedimentology.

T3. Approaches to Sequence Stratigraphic Analysis—Examples from the Tertiary

T4. The K-T Boundary—Late Cretaceous Extinctions:
Catastrophes or Not?

T5. The K-T Boundary—Nonmarine Fossil Record at the Cretaceous-Tertiary Boundary
Palaeontological Society, R. Farley Fleming, University of Colorado at Denver; William A. Clemens, University of California, Berkeley. Paleontology/Paleobotany, Stratigraphy.

T6. Actinide-series Disequilibrium in Igneous and Geothermal Processes
Nell Sturrock, Argonne National Laboratory, Illinois; Michael Murrell, Los Alamos National Laboratory, New Mexico. Aqueous Geochemistry, Igneous Petrology, Volcanology.

T7. Solution Mass Transfer and Volume Strain in Crushed Rocks
Mark Brandon and Jay J. Ague, Yale University. Hydrogeology, Metamorphic Petrology, Structural Geology.

T8. Site Characterization Studies Related to Groundwater and Surface-Water Contamination at Sites Operated by the U.S. Department of Energy

T9. Geology, Hydrogeology, and Tectonics of Southern Nevada in Relation to the Potential Storage of High-Level Nuclear Waste

T10. Geology, Hydrogeology, and Tectonics of Southern Nevada in Relation to the Potential Storage of High-Level Nuclear Waste


T12. Urban Geologic Hazards: Recognition and Remediation

T13. Geophysical Exploration for Ground Water in Arid and Semi-Arid Regions

T14. Multivariate Statistical Methods in the Geosciences


T16. Active Margin of Antarctica—Proterozoic to Holocene
David Kimber, San Diego State University; Bruce Layton, University of California, Santa Barbara. Igneous Petrology, Structural Geology, Tectonics.

T17. Mesozoic Stratigraphic and Structural Evolution of Northwestern Mexico
Claudio Barrollini, Gold Fields Mining Corp., Yuma, Arizona; Mariano Molina, Universidad de Sonora, Mexico. Stratigraphy, Structural Geology, Tectonics.

T18. Jurassic Magmatism and Tectonics of the North American Cordillera
Dedicated to Richard L. Armstrong
David Miller, U.S. Geological Survey, Menlo Park, California; Cathy Busby-Spera, University of California, Santa Barbara; Steven Reynolds, Arizona Geological Survey; James White, Rice University, Igneous Petrology, Stratigraphy, Tectonics.

T19. Tectonics of Modern and Ancient Accretionary Prisms
J. Casey Moore, University of California, Santa Cruz; Darel Cowan, University of Washington; Daniel Karg, Cornell University; Michael B. Underwood, University of Missouri, Columbia. Marine Geology, Metamorphic Petrology, Tectonics.

T20. Tectonics of Modern and Ancient Accretionary Prisms
J. Casey Moore, University of California, Santa Cruz; Darel Cowan, University of Washington; Daniel Karg, Cornell University; Michael B. Underwood, University of Missouri, Columbia. Marine Geology, Metamorphic Petrology, Tectonics.

T21. Geophysics: Exploration Techniques

T22. New Views of the Moon: Horizon
Sigma Gamma Epilottn
Daniel F. Merritt, Wichita State University; Charles J. Mannkin, University of Oklahoma. Environmental Geology, Stratigraphy, Other.

T23. Earth Sciences and Science Educators: Commen Ground

T24. The Employment of Women in Geology
Judy Terry Smith, Consulting Geologist, Colorado; Jose Luis Perman and Jorge Leides, Universidad Autónoma de Baja California, Ensenada, Baja California, Mexico.

T25. Global Warming and Geologic Evidence of Artificialities During Late Quaternary Time
Quaternary Geology and Geomorphology Division, Dale F. Ritter and Nicholas Lancaster, Desert Research Institute, Reno, Nevada. Geomorphology, Hydrogeology, Quaternary Geology.


T27. Fluvial Response to Base-Level Changes: Existential vs. Tectonic—Part II

T28. Tectonics of Modern and Ancient Accretionary Prisms
J. Casey Moore, University of California, Santa Cruz; Darel Cowan, University of Washington; Daniel Karg, Cornell University; Michael B. Underwood, University of Missouri, Columbia. Marine Geology, Metamorphic Petrology, Tectonics.

T29. Landscapes of Tectonically Active Strike-Slip, Normal, and Reverse Faults
William Bull, University of Arizona; Thomas Rockwell, San Diego State University. Geomorphology, Quaternary Geology, Tectonics.

PROFESSIONAL HORIZONS
GSA-SPONSORED SHORT COURSES
Would you like to learn something new, brush-up on the latest, or refresh the basics? GSA short courses will be held immediately before and after the Annual Meeting in San Diego and are open to members and nonmembers. Registration for the meeting is not required; preregistration is recommended; on-site is $25 additional. You may register for GSA courses on the Annual Meeting Pre-registration Form. Registration substitutions may be made at any time.
I LODGING

Tight budget? We're on your side. We've gotten the best possible rates for October including discounts of 30% or more. GSA has blocked rooms at 12 downtown hotels that are offering special convention rates to GSA meeting attendees. These properties include a good cross section of lodging that should appeal to almost everyone's budget and taste. All meet GSA's standards for rate reliability, cleanliness, service, and location. The GSA shuttle will not be servicing all 12 downtown hotels. Please refer to the shuttle information on page 179 or the individual hotel descriptions.

The most outstanding property in the resort class is GSA's headquarters, the Marriott Hotel & Marina, which is truly an impressive property, immediately adjacent to the Convention Center and Seaport Village, it offers first-class services, dining, and a resort atmosphere right on San Diego Bay. A good value.

Over and above the 1000 rooms at the Marriott, there are 700 single rooms priced between $70 and $85, and 425 single rooms between $50 and $69. There is an excellent set of options within this group, including four-star properties and basic motels.

Student Housing. GSA has also negotiated convention rates with eight downtown and nearby Traveodge properties. These properties offer the least expensive rate in the GSA block. They will not be serviced by the GSA shuttle service, although some of these properties are near the GSA shuttle pick-ups or the San Diego trolley. You may need to provide your own transportation, but none of the properties are more than six miles from the convention center.

**GSA OFFICIAL HOUSING REQUEST FORM**

Your Housing Request Form must be received by Friday, September 27. Please complete and either:

1. Mail to: GSA Convention Housing
   San Diego Convention & Visitors Bureau
   1200 Third Avenue, Suite 824
   San Diego, CA 92101
   or
2. Fax to: San Diego Convention & Visitors Bureau/GSA Housing
   1-619-595-0216

For changes and information call the San Diego Housing Bureau at (619) 239-0271.

**HOTEL PREFERENCES:** (Please print or type all information below)

<table>
<thead>
<tr>
<th>Hotel Code #</th>
<th>Hotel Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

**TYPE OF ACCOMMODATION NEEDED:**

- Single (1 person, 1 bed) 1 additional person (For suites, call the hotel)
- Double (2 persons, 1 bed) 2 additional persons
- Double/Double (2 persons, 2 beds) Add rollaway

Rate requested: $ _______ (NOTE: All rooms are subject to 9% tax)

**ARRIVAL DAY/DATE**

Time: a.m./p.m.

**DEPARTURE DAY/DATE**

Time: a.m./p.m.

**NAMES OF OCCUPANTS:**

1. 
2. 
3. 
4. 

**MAIL CONFIRMATION TO:**

Name __________________________ Telephone (_____) __________
Address __________________________ City __________________________
State __________________________ ZIP __________________________
Country __________________________

**GUARANTEED ROOM RESERVATION AUTHORIZATION:**

All GSA hotels require a first night's deposit to ensure a reservation. I understand that the hotel may bill me for one night's stay plus 9% tax at your assigned hotel. Note that the Housing Bureau will accept only credit cards (American Express, Visa, MasterCard, Carte Blanche, or Diners Club), not checks or cash. When making payment directly to the hotel, be sure to give your confirmed reservation number. Please note that the Marriott requires a credit card guarantee at the time you make your reservation.

Once the hotel receives your deposit, it automatically guarantees your reservation. The guarantee assures you that no matter what time you arrive on your scheduled arrival day, your room will be held until at least midnight.

**CHANGES AND CANCELLATIONS**

Changes and cancellations before the September 27 deadline should be communicated to the Housing Bureau, either by phone (619) 239-0271, fax 619-595-0216, or mail. Please supply your confirmed hotel reservation number for any change or cancellation. After the September 27 deadline, please contact the hotel directly with any changes.

**TO MAKE YOUR HOTEL RESERVATION**

Fill out the Official Housing Request Form and either (1) mail it, or (2) Send it to the San Diego Housing Bureau. Please refer to the address and fax number shown on the Housing Request Form. All reservations must be received by Friday, September 27. Do not send your Housing Form in after you have faxed it. This will result in a duplicate reservation. After Friday, September 27, you should contact the GSA hotel of your choice directly. The San Diego Housing Bureau will not be handling suite arrangements.

**ASSIGNMENT**

Hotel rooms will be assigned on a first-come, first-served basis as they are received by the Housing Bureau. Please list your top four choices in priority order. Remember to include the hotel code on the Housing Form with the hotel name. Once your request is received, the Bureau will send an acknowledgment to both you and to your assigned hotel.

You will then receive a confirmation from the hotel. This is a notice that the hotel received the information from the Bureau and that the reservation has been entered into their system. Please check it carefully.

**ROOM DEPOSITS/GUARANTEES**

All GSA hotels require a first night's room deposit. Deposits can be made by (1) providing credit card information on the housing form, or (2) sending payment directly to the hotel once you have received your confirmation. The deposit amount should be the cost of one night's stay plus 9% tax at your assigned hotel. Note that the Housing Bureau will accept only credit cards (American Express, Visa, MasterCard, Carte Blanche, or Diners Club), not checks or cash. When making payment directly to the hotel, be sure to give your confirmed reservation number. Please note that the Marriott requires a credit card guarantee at the time you make your reservation.

Once the hotel receives your deposit, it automatically guarantees your reservation. The guarantee assures you that no matter what time you arrive on your scheduled arrival day, your room will be held until at least midnight.

August, 1991
Please note that a cancellation notice must be received AT LEAST 48 HOURS in advance to receive a full refund on your first night's room deposit. Please show courtesy as a professional by notifying the hotel if your plans change.

ALTERNATIVE HOUSING

Beating the high cost of housing is a priority of GSA staff and the 1991 Local Committee. Here are some alternatives:

- Check your library copy of the Hotel and Motel Redbook, which lists metro properties. Because of the hundreds of properties in the area (some good, some bad), GSA does not provide a general list.
- Call 1-800-555-1212 or check the Yellow Pages to learn the 800 number for your favorite hotel chains, such as Motel 8 or Comfort Inns, which have properties outside the downtown area.
- Consider camping or taking the trolley to/from nearby El Cajon. The Annual Meeting Committee has researched low-cost alternatives, including camping or other motels south of San Diego. Tent and RV campgrounds are available near the San Diego County foothills or on Mission Bay. Additional fees range from $16 to $30.

For additional information, contact Vanessa George, GSA Meetings Coordinator.

### 1991 GSA HOTEL CONVENTION RATES

<table>
<thead>
<tr>
<th>HOTEL NAME (HOTEL CODE)</th>
<th>1 person</th>
<th>2 people</th>
<th>3 people</th>
<th>4 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAN DIEGO MARRIOTT (117)*</td>
<td>$125</td>
<td>$139</td>
<td>$159</td>
<td>$179</td>
</tr>
<tr>
<td>RAMADA HOTEL DOWNTOWN (116)</td>
<td>$80</td>
<td>$80</td>
<td>$80</td>
<td>$80</td>
</tr>
<tr>
<td>HORTON GRAND HOTEL (108)</td>
<td>$79</td>
<td>$89</td>
<td>$99</td>
<td>$109</td>
</tr>
<tr>
<td>OMNI SAN DIEGO HOTEL (114)</td>
<td>$95</td>
<td>$115</td>
<td>$125</td>
<td>$135</td>
</tr>
<tr>
<td>KINGSTON HOTEL (105)</td>
<td>$76</td>
<td>$83</td>
<td>$98</td>
<td>$113</td>
</tr>
<tr>
<td>THE PAN PACIFIC HOTEL (104)</td>
<td>$73</td>
<td>$73</td>
<td>$88</td>
<td>$103</td>
</tr>
<tr>
<td>HOLIDAY INN ON THE BAY (106)*</td>
<td>$85</td>
<td>$95</td>
<td>$105</td>
<td>$115</td>
</tr>
<tr>
<td>BEST WESTERN BAYSIDE INN (101)</td>
<td>$50</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
</tr>
<tr>
<td>RADISSON HOTEL HARBOR VIEW (119)</td>
<td>$69</td>
<td>$69</td>
<td>$69</td>
<td>$69</td>
</tr>
<tr>
<td>HOLIDAY INN HARBOR VIEW (107)</td>
<td>$65</td>
<td>$75</td>
<td>$75</td>
<td>$75</td>
</tr>
<tr>
<td>HOWARD JOHNSON HOTEL (111)</td>
<td>$61</td>
<td>$61</td>
<td>$66</td>
<td>$71</td>
</tr>
<tr>
<td>COMFORT INN-DOWNTOWN (123)</td>
<td>$45</td>
<td>$45</td>
<td>$45</td>
<td>$45</td>
</tr>
</tbody>
</table>

(*Additional $10 for a guaranteed bay view)

---

### DOWNTOWN SAN DIEGO

**HOTELS** (Hotel Code)

- GSA Shuttle Stop
  1. Marriott Hotel & Marina (117)
  2. Ramada Hotel Downtown (116)
  3. Horton Grand Hotel (108)
  4. Omni San Diego Hotel (114)
  5. Kingston Hotel (105)
  6. The Pan Pacific Hotel (104)
  7. Holiday Inn on the Bay (106)
  8. Best Western Bayside Inn (101)
  9. Radisson Hotel Harbor View (119)
  10. Holiday Inn Harbor View (107)
  11. Howard Johnson Hotel—Balboa Park (111)
  12. Comfort Inn—Downtown (123)

**Travelodge—Student Properties**

- San Diego Airport Travelodge (124)
- San Diego Bayview Travelodge (125)
- Civic Center Travelodge (126)
- San Diego Balboa Park (127)
- San Diego Cabrillo Central (128)
- At the Zoo Travelodge (129)
- Mission Valley Center (416)
- Old Town Travelodge (428)

**PARKING**

Convention Center public parking is available on the Fifth Street side under the Convention Center. A special $4 rate, with no in and out privileges, will be available during the meeting, Monday through Thursday. Other days the rate will be $1 per hour. A special exhibitor rate of $6 per day will allow in and out access during move in, move out, and show days. Please identify yourself as an exhibitor at the gate to qualify for this rate.

---

*August, 1991*
## HOTEL LISTING

Please make your reservation with the San Diego Housing Bureau. All hotel names are followed by a hotel code number. Please note that all rooms are subject to 9% occupancy tax, and all hotels require a first night's deposit.

### HOTEL LISTING

<table>
<thead>
<tr>
<th>Hotel Name</th>
<th>Block Information</th>
<th>Code Numbers</th>
</tr>
</thead>
</table>
| **1 SAN DIEGO MARRIOTT HOTEL & MARINA (117)**
333 W. Harbor Drive, San Diego, CA 92101
(619) 234-1500 (1000-room block)
0 blocks from the Convention Center |
| Besides being the most convenient hotel to the Convention Center, it is also the finest major hotel in downtown San Diego. Located on the bay, the hotel features four restaurants for casual to elegant dining, two lounges offering cocktails and a beautiful view, and 24-hour room service. Recreational facilities include a serpentine outdoor pool and spa with fountains, rooftop tennis courts, complete fitness center, and more. Concierge, laundry, valet service, and gift shops. Underground, valet and self-parking start at $4 per day. A guaranteed spectacular bay view is $10 more; otherwise, your chances are 50/50. For this hotel only, a credit card guarantee is required at the time you send in your housing form. **Check-in: 4 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **2 RAMADA HOTEL DOWNTOWN (116)**
660 "K" Street, San Diego, CA 92101
(619) 696-0234 (150-room block)
3 blocks from the Convention Center |
| Complimentary shuttle service to and from the airport. Parking for hotel guests is $4 per day. Enjoy the rooftop fitness center, including a spa overlooking San Diego Bay and the scenic skyline. Dine in the full-service restaurant for breakfast, complimentary shuttle service to and from the airport. Parking for hotel guests is $4 per day. Enjoy the rooftop fitness center, including a spa overlooking San Diego Bay and the scenic skyline. Dine in the full-service restaurant for breakfast, lunch, and dinner at reasonable prices. You will enjoy the newly remodeled rooms, each having its own private balcony. A guaranteed bay view is $10 more; otherwise, you have a 50/50 chance. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **3 HORTON GRAND HOTEL (108)**
311 Island Avenue, San Diego, CA 92101
(619) 544-1886 (100-room block)
3 blocks from the Convention Center |
| A 114-room Victorian hotel, built in 1866 and restored in 1986, set in the heart of San Diego's Gaslamp Quarter. All rooms are individually decorated with antiques including draped, queen-sized beds; hand-carved armchairs; lace curtains; and gas fireplaces. English afternoon tea is served daily at 2:30 p.m. in the Palace Bar, award-winning Ida Bailey's serves breakfast and dinner with a sunny New Orleans-style courtyard view, and you can enjoy live jazz on weekends. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **4 OMNI SAN DIEGO HOTEL (114)**
910 Broadway Circle, San Diego, CA 92101
(619) 239-2200 (275-room block)
5 blocks from the Convention Center |
| Southwestern stucco, pastel hues, brass, and crystal combine to create a special hotel in the heart of downtown. Enjoy one of two restaurants, a quiet lounge, or nightclub, after using the outdoor pool, tennis, and exercise equipment. Immediately out the hotel door is Horton Plaza, a unique shopping, restaurant, and entertainment complex. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **5 KINGSTON HOTEL (105)**
1055 First Avenue, San Diego, CA 92101
(619) 232-6141 (50-room block)
11 blocks from the Convention Center |
| With European corporate style, this hotel offers complimentary continental breakfast and use of a complete health club facility. The hotel is very proud of its intimate Kingston Playhouse Theater, one of San Diego's finest. Meals are served in Malcom's, the hotel's restaurant and lounge. Enjoy the character in this gracefully renovated property. **Check-in: 2 p.m. Check-out: 12 noon CC: AX,MC,V** |

| **6 THE PAN PACIFIC HOTEL (104)**
400 West Broadway, San Diego, CA 92101
(619) 239-4500 (100-room block)
9 blocks from the Convention Center |
| The newest property in downtown San Diego is a beautiful architectural landmark for the city skyline. All rooms feature marble bathroom, refreshment center, separate sitting area, and three phones for your convenience. Enjoy either of the two restaurants or the atrium lounge for cocktails and live music. Health center, complete with pool, spa, sundek, sauna, massage, exercise equipment, and organized aerobics programs. Concierge service, same-day valet service, and complimentary airport shuttle. **Check-in: 3 p.m. Check-out: 12 noon CC:AX,DC,D,MC,V** |

| **7 HOLIDAY INN ON THE BAY (106)**
1355 North Harbor Drive, San Diego, CA 92101
(619) 232-3861 (250-room block)
14 blocks from the Convention Center |
| This is the only property besides the Marriott that is on San Diego Bay. Enjoy a stroll along the harbor and watch the cruise ships come and go. The hotel offers an outdoor pool and jacuzzi, lounge, and lounge. The Holiday Inn has one restaurant that serves breakfast, lunch, and dinner at reasonable prices. You will enjoy the newly remodeled rooms, each having its own private balcony. A guaranteed bay view is $10 more; otherwise, you have a 50/50 chance. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **8 BEST WESTERN BAYSIDE INN (111)**
555 West Ash Street, San Diego, CA 92101
(619) 233-7500 (75-room block)
14 blocks from the Convention Center |
| This 14-story property has pleasant, comfortable rooms with private balconies to enjoy either a bay or city view. Complimentary features include parking, airport shuttle, local calls, HBO, and continental breakfast. Enjoy the pool and spa, full-service restaurant, cocktail lounge, and room service. **Check-in: 2 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **9 RADISSON HOTEL HARBOR VIEW (119)**
1646 Front Street, San Diego, CA 92101
(619) 239-6800 (150-room block)
14 blocks from the Convention Center |
| A new property to grace the San Diego skyline, it offers both harbor and city views to take your breath away. Rooms offer rich wood decor, clock radios, and remote control TV. Enjoy the hotel restaurant, which serves breakfast, lunch and dinner at reasonable prices, or the cocktail lounge. The hotel offers an outdoor pool, jacuzzi, sauna, health club, and complimentary airport shuttle. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **10 HOLIDAY INN HARBOR VIEW (107)**
1617 First Avenue, San Diego, CA 92101
(619) 239-6171 (75-room block)
14 blocks from the Convention Center |
| Pick up GSA shuttle at the Radisson. Directly off Interstate 5, this 16-floor circular hotel affords stunning views of the San Diego harbor and skyline. Enjoy all meals in the casual rooftop restaurant. For relaxation, visit the quiet lounge or enjoy the outdoor pool. Each room has its own coffee maker. The hotel provides free parking to hotel guests. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **11 HOWARD JOHNSON HOTEL—BALBOA PARK (111)**
1430 Seventh Avenue, San Diego, CA 92101
(619) 239-0911 (75-room block)
12 blocks from the Convention Center |
| Located downtown, this hotel offers complimentary continental breakfast daily and free parking. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **12 COMFORT INN—DOWNTOWN (123)**
719 Ash Street, San Diego, CA 92101
(619) 232-2525 (50-room block)
12 blocks from the Convention Center |
| Pick up GSA shuttle at Howard Johnson. Located downtown, this hotel offers complimentary continental breakfast daily and free parking. **Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

| **13-20 TRAVELODGE (8 locations)**

| (300-room block) |
| 0-6 miles from the Convention Center |
| These properties are basic and vary in distance from the Convention Center. If transportation is not a concern, you might choose to enjoy one of the nicer properties indicated by * above. **All locations offer complimentary parking, morning coffee, and newspaper in the lobby. Check-in: 3 p.m. Check-out: 12 noon CC: AX,CB,D,DC,MC,V** |

**Credit Card (CC) Codes: AX—American Express, CB—Carte Blanche, D—Discover, DC—Diners Club, E—Enroute, MC—MasterCard, V—VISA.**
I TRAVEL

Getting to San Diego

By Air. San Diego International Airport-Lindbergh Field—is one of the few airports to be only 15 convenient minutes from the Convention Center. San Diego is currently served by Aero California, Air Resorts, Alaska Airlines, America West, American, Continental, Delta, Midwest Express, Northwest, Pan American, Sky West, Southwest, States West, Trans World, United, and USAir. Consider staying over Saturday night in San Diego for the special discount fares advertised in your area.

By Train and Bus. Amtrak passenger trains provide service to and from Los Angeles. Greyhound and Trailways provide bus service. Call the offices in your area to get the best rates.

Getting to Your Hotel

The San Diego International Airport-Lindbergh Field—is four miles from the San Diego Convention Center and the downtown area. Some GSA hotels have free shuttle pick-up, but other transportation options are as follows:

SuperShuttle. Operates 24 hours a day, seven days a week. To call SuperShuttle, dial 69 from the Ground TransportationCourtesy Board in the baggage claim area. A reservation agent will then give you instructions on where to board SuperShuttle. Look for the blue and yellow signs and vans. Cost: $4 to the Marriott, $6 to other downtown hotels.

From your hotel to the airport, call 24 hours in advance for reservations. (619) 278-8877. For your convenience, SuperShuttle vans are staged at the Marriott Hotel continuously throughout the day. SuperShuttle picks up at all hotels, but a reservation is necessary. Cost: $4 from the Marriott, $6 from other downtown hotels.

TaxiShuttle. Two hundred taxi/Shuttle companies service the city of San Diego. This adds up to more than 1000 taxis, with the largest fleet belonging to Yellow Cab Company. All vehicles are metered and regulated. Charges are slightly higher from the airport than in the downtown area and range from $1.20 to $1.60 for the first mile. Approximate costs from the airport to downtown is $8.

Metro Transit System (MTS). Board the Route 2 bus at the East Terminal of the San Diego Airport, request a transfer from the driver, and ride to Columbia and Broadway, Disembar and walk across Broadway to the north side of the street and to the bus stop. Here board a Route 7 bus to the Convention Center. In San Diego, call 233-3004 for information. The cost from the airport to downtown is $1.25.

Car Rental. Alamo is the official car rental agency for the meeting. Identify yourself as a GSA delegate by giving Group Identification #5204 and Plan Code G4 to get guaranteed, discounted, daily/weekly rates as follows: economy $24/$89; compact $26/$109; midsize $28/$129; standard $30/$149; luxury $34/$189. Unlimited mileage. Add $3 per day for four-door models. Advance reservations are recommended. Call Alamo at 1-800-732-3323.

Getting Around in San Diego

An excellent freeway system makes travel by car or bus easy throughout the county. San Diego Transit Corporation buses serve the metro area. In San Diego, call the Transit Store, 233-3004, for schedule information.
1991 ABSTRACTS WITH PROGRAMS

Volume 23, Number 5

Complete this form and return it by Friday, September 13 for advance-copy purchases of Annual Meeting Abstracts with Programs. No refunds for duplicate orders. Members and nonmembers in U.S., Canada, and Mexico only. Price of $20 includes shipment by first-class (priority) mail. Please copy this form for your records.

SHIP TO: _____________________________________________________________________________
Name ____________________________ Address ____________________________ City ______ State ZIP ________ Business Phone ______

Quantity ______ at $20 net each (no additional discounts) Amount enclosed $________

Method of Payment (prepayment required): Check ______ Credit Card (provide Information and sign on authorization line) ______

Credit Card ______ Card Number _______ Expiration Date ________

Name of Cardholder (please print) _____________________________________________________________________________ Signature of Cardholder _____________________________________________________________________________

 send to GSA PUBLICATION SALES 
P.O. Box 9140, Boulder, CO 80301 • 1-800-472-1988 • (303) 447-2020 • fax 303-447-1133

ADVANCE-COPY PURCHASE ORDERS MUST BE RECEIVED BY SEPTEMBER 13

Only members and nonmembers residing in the U.S., Canada, and Mexico may take advantage of GSA's advance-copy purchase option of the Annual Meeting Issue of Abstracts with Programs. These advance copies will be mailed about three weeks prior to the meeting. The price of $20 includes shipment by first-class (priority) mail. Members and nonmembers residing outside the U.S., Canada, and Mexico: Due to the prohibitive costs of airmail postage and postal delays in overseas mailing, we regret that we are unable to make this special advance-copy purchase offer available to you. Copies may be purchased at the meeting. Refunds for duplicate orders will not be given. Members, check your records carefully to make sure that you have not previously purchased a copy of this publication on either your dues statement or through GSA Publication Sales.

TO PLACE YOUR ORDER

Prepayment is required. Check, money order (in U.S. funds, payable on U.S. banks), or major credit cards are accepted for payment. Order directly from GSA Publication Sales by mail, phone, or fax. To assure receipt prior to the meeting, all orders must be received by Friday, September 13. By mail...

Use the form provided. By phone or fax...

Call us toll-free at 1-800-472-1988 (outside Colorado), or use our standard business phone (303) 447-2020 during office hours (8:00 to 4:30 MT). You may also fax your order to us at 303-447-1133 (24-hour line).

ON-SITE PURCHASE

Meeting attendees may purchase copies of Abstracts with Programs on-site in the registration area of the Convention Center. Net price: $20, while supply lasts.

GRADUATE SCHOOL INTERVIEWS

Monday, October 21, through Thursday, October 24
San Diego Convention Center

shortcut your search for just the right graduate school program by suit your needs. Come to the San Diego Annual Meeting and meet with your favorite schools without spending the travel time and money to go to each school for Interviews. Schedules will appear in the September issue of GSA Today and also the on-line San Diego Program. If you would like to receive a complete list of schools with the contact persons and telephone numbers, so that you can set up an appointment individually or during the scheduled time in San Diego, please write or call Kathy Lynch, GSA Meetings Department.

CONVENIENCE INFORMATION

INFORMATION/MESSAGES
Friday, October 18, through Thursday, October 24
San Diego Convention Center
(619) 525-6020
San Diego Marriott Hotel & Marina (619) 234-1500

NEWS ROOM
Sunday, October 20, through Thursday, October 24
San Diego Convention Center
The News Room provides information on topics for release to the news media. Please let us know of material that is noteworthy for the science or general press. Also, members of the press may receive complimentary registration with appropriate press credentials. In advance of the meeting, contact Sandra Rush, (303) 443-8489; 2) Communication Department, GSA headquarters.

CHILD CARE

Families should consider bringing their children to San Diego because of the variety of family activities in the area. Call Vanessa George, GSA Meetings Coordinator, If you are interested in the options provided:

- A private organization is interested in providing child care. They require a minimum of 12 children (6 weeks to 12 years old) at all times. Participants need to commit by paying in full in advance, with prices from $8 to $11 per hour, per child. Call GSA by September 15.

- GSA coordinates a cooperative service in which parents can share child care responsibilities. UNIL October 4, GSA will accept names, addresses, and phone numbers of interested parents. The information will be mailed to everyone who has responded. Participants should contact one another to make arrangements.

- San Diego has several excellent private child-care agencies. Although GSA cannot endorse any of these agencies, we are happy to give out the names and phone numbers.

- GSA will be providing a quiet room for children and parents to relax together at the Convention Center. Please provide your own stroller or playpen.

CALIFORNIA/SAN DIEGO INFORMATION
State of California, Visitor Packet
1-800-862-2543
San Diego Visitor Information Center
11 Horton Plaza, San Diego, CA 92101, (619) 236-1213

REGISTRATION

JOIN GSA NOW AND SAVE!

If you're planning to attend this year's Annual Meeting—but are not yet a GSA member—now is the time to join! When you do, the $40 basic dues you pay will equal the $40 you'll save on the member registration fee for the meeting. It's like joining GSA for free. Even professional registrants who pay the nonmember registration fee and apply for membership by March 31, 1992, can take advantage of this opportunity. Simply attach a copy of your meeting registration form to your membership application and submit it to GSA headquarters.

Likewise, students who pay the basic membership dues of $15 to become a Student Associate will receive a $20 discount on their Annual Meeting registration. That's better than becoming a GSA Student Associate for free!

The $40 registration discount for members applies to professional members of GSA or an Associated Society. The Associated Societies that qualify for this discount are indicated on the registration form. Please indicate your affiliation(s) and member number and register using the member rates.

4. Pull payment MUST accompany registration. Unpaid purchase orders are NOT accepted as valid registration. Charge cards are accepted as indicated on preregistration form. Please recheck the charge card number given—errors will delay your registration. The confirmation card will be your receipt for charge card payments. No other receipt will be sent.

5. Register one professional or student per form. Copy the form for your records.

6. Guest registration is required for guests attending guest activities, technical sessions, or the exhibit hall. Guest registrants MUST be accompanied by either a registered professional or student.

PREREgISTER TODAY!

PREREgISTRATION DEADLINE: SEPTEMBER 20

1. There is a 14% savings in registration fees if you register before the preregistration deadline! Advance registration is suggested for many of the special activities because of participation limits. Use the preregistration form provided in this announcement.

2. Badges must be worn for access to ALL activities and shuttle 10:00 a.m. Sunday through 5:00 p.m. Thursday.

3. Registration discounts are given to GSA or Associated Society members. Associated Societies that qualify for this discount are indicated on the registration form. Please indicate your affiliation(s) and member number and register using the member rates.

4. Pull payment MUST accompany registration. Unpaid purchase orders are NOT accepted as valid registration. Charge cards are accepted as indicated on preregistration form. Please recheck the charge card number given—errors will delay your registration. The confirmation card will be your receipt for charge card payments. No other receipt will be sent.

5. Register one professional or student per form. Copy the form for your records.

6. Guest registration is required for guests attending guest activities, technical sessions, or the exhibit hall. Guest registrants MUST be accompanied by either a registered professional or student.
ON-SITE REGISTRATION SCHEDULE
SAN DIEGO CONVENTION CENTER, HALL B

- **Friday, October 18**
  - 1:00 p.m. to 5:00 p.m.
- **Saturday, October 19**
  - 7:30 a.m. to 2:00 p.m.
- **Wednesday, October 23**
  - 7:30 a.m. to 2:00 p.m.
- **Thursday, October 24**
  - 7:30 a.m. to 11:30 a.m.

**Special Events**

**San Diego Welcoming Reception**
Saturday, October 20, 6:00 to 9:00 p.m.
San Diego Convention Center, Outdoor Terrace

Ocean sunset, and late, night lights along the shoreline; sail-laden sea breezes shaking against massive piers, jazz to fill the mood.

Welcome to San Diego! This is the time and place to be with friends and colleagues. You're on your own for drinks and your choice of tacos, and fajitas made available for everyone, including those late arrivals from field trips. The Latin-Caribbean-American sound comes with a global perspective.

For your convenience, registration will be open until 7:00 p.m. Shuttle buses will be servicing the GSA hotels from the Convention Center until 9:30 p.m. If you plan to go out for dinner, we suggest you make reservations. A dining guide will be available with registration, or ask your hotel concierge.

**GSA Presidential Tribute and Awards Ceremony**
Tuesday, October 22, 5:45 to 7:00 p.m.
San Diego Convention Center

The San Diego Meeting is dedicated to the memory of our friend and colleague, Dr. M. Curtis, who died on May 26. During the ceremony, we will celebrate the life of this exceptional person. (Although E.L. Zen has assumed the duties of President, there will be no Presidential Address this year.) Following the Tribute, 1991 medalists and awardees will be honored:

- Penrose Medal
  - William R. Dickinson
- Duy Medal
  - Jan N. E. Carmichael
- Young Scientist Award
  - Brian P. Wemlichte
- Scholar Medal
  - Dorothy M. Palmer

Recognition will also be given to newly elected Honorary Fellows: Dr. Valdar Jaanunus, Dr. Hans Laubscher, and Dr. Richard L. Stanton.

**CANCELLATIONS, CHANGES, REFUNDS**
All requests for registration additions, changes, and cancellations must be made in writing and received by September 27. NO REFUNDS WILL BE MADE ON CANCELLATION NOTICES RECEIVED AFTER THIS DATE. Refunds will be mailed by the GSA after the meeting. Refunds for fees paid by credit card will be credited according to the card number on the preregistration form. NO refunds for on-site registration and ticket sales.

**REGISTRATION FEES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Advance (by Sept. 20)</th>
<th>On-Site</th>
<th>One-Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Member</td>
<td>$140</td>
<td>$160</td>
<td>$80</td>
</tr>
<tr>
<td>Professional Nonmember</td>
<td>$160</td>
<td>$200</td>
<td>$100</td>
</tr>
<tr>
<td>Student Member</td>
<td>$55</td>
<td>$65</td>
<td>$33</td>
</tr>
<tr>
<td>Student Nonmember</td>
<td>$75</td>
<td>$85</td>
<td>$43</td>
</tr>
<tr>
<td>Guest</td>
<td>$60</td>
<td>$70</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**PREREGISTRATION FORM**
1991 GSA Annual Meeting
October 21-24

Please print or copy your records. Shaded areas are for your badge.

<table>
<thead>
<tr>
<th>Name and Title (Optional)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Qty</th>
<th>Column A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dinner Cruise</td>
<td>1</td>
<td>$21</td>
</tr>
<tr>
<td>Beach Party/Come The Night Away</td>
<td>1</td>
<td>$30</td>
</tr>
<tr>
<td>SK Run (check T-shirt Size: M, L, XL)</td>
<td>1</td>
<td>$17</td>
</tr>
<tr>
<td>Mexico Baking</td>
<td>1</td>
<td>$27</td>
</tr>
<tr>
<td>African Women in Geoscience Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Engineering Geology Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Geochimistry Society Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Geology Student Life Society Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Geophysics Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Geology of the Canadian Arctic</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Geology of the Canadian Arctic</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Hydrogeology Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Geomorphic Studies Society Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>National Association of Geoscience Teachers Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Paleontology Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Sedimentary Geology Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Sedimentary Geology Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Sedimentary Geology Division Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
<tr>
<td>Society for Economic Geologists Luncheon</td>
<td>1</td>
<td>$19</td>
</tr>
</tbody>
</table>

**TOTAL AMOUNT**

- Columns B & C = Total Registration (full payment must be enclosed)

**Registration Deadline:** September 20, 1991
MAIL TO: GSA ANNUAL MEETING
P.O. BOX 9146, BOULDER, CO 80301

**NEW U.S. FUNDING FOR 1991: $150,000**

**FOR OFFICE USE**

**Signature**

Refund check

**CANCELLATION DEADLINE:**
September 20, 1991

**CANCELLATION DEADLINE:**
September 20, 1991

**CANCELLATION DEADLINE:**
September 20, 1991

**CANCELLATION DEADLINE:**
September 20, 1991

**CANCELLATION DEADLINE:**
September 20, 1991

August, 1991

**The Lattice/15**
Meeting Announcements

Call for Papers - 13th Mineralogical Symposium

The thirteenth Mineralogical Symposium sponsored jointly by the Friends of Mineralogy, The Tucson Gem and Mineral Society, and the Mineralogical Society of America will be held in conjunction with the 38th Tucson Gem and Mineral Show Saturday, February 15, 1992. Pyromorphite is the show’s theme mineral. Papers on the descriptive mineralogy, paragenesis, classic and new occurrences of pyromorphite or secondary lead minerals are invited. Papers on other subjects—new species, new occurrences, etc.—are also welcome. An audience of knowledgeable amateurs as well as professional mineralogists and geologists is expected.

If you wish to present a paper, please write or call Dr. Carl A. Francis, Chairman (Harvard Mineralogical Museum, 24 Oxford Street, Cambridge, MA 02138; 617-495-4758) with your topic, a few sentences describing the paper, and your address and telephone number. Presentations will be 15 minutes followed by a brief question period. Following acceptance of topics, authors are required to submit a 200-300 word abstract by September 15, 1991. Abstracts will be published in the January–February 1992 issue of The Mineralogical Record.

The Transition from Basalt to Metabasalt...

An international symposium, “The Transition from Basalt to Metabasalt: Environments, Processes, and Petrogenesis,” will be held September 9–15, 1992 in Davis, California. The sponsor of the symposium is IGCP Project 294. This meeting aims to bring together a wide variety of petrologists and geochemists studying the transition of fresh basalt into low-grade metabasalt (up to and including greenschist facies). Contributions reporting diverse approaches to understanding this transition are encouraged. Four broad themes for this meeting include: (1) the phase equilibria and crystal chemistry of low grade metabasites, (2) the geochemistry of the basalt to metabasalt transition, (3) hydrothermal metamorphism of basites, and (4) metabasites from contrasting geodynamic settings.

Technical sessions will be held September 10–12. On September 9th, a pre-symposium field excursion to the Franciscan Complex in the San Francisco Bay area is planned. A post-symposium field excursion (September 13–15) to examine a geologic and metamorphic transect across the island arc/ophiolite terrains of the northern Sierra Nevada is also scheduled. The abstract deadline is March 1, 1992 and the registration deadline is June 1, 1992. Information may be obtained from: Peter Schiffman, Dept. of Geology, University of California, Davis, CA 95616. Telephone: (916) 752-3669; FAX: (916) 752-0951.