The Geochemical News

Newsletter of the Geochemical Society

Number 83 Fall 1992

Inquiries and announcements regarding *Geochemical News* should be sent to S.B. Shirey, Carnegie Institution of Washington, 5241 Broad Branch Rd., NW, Washington, DC 20015 USA. Rapid submission of material by facsimile (202-364-8726) or electronic mail (SHIREY@CIW.CIW.EDU) is encouraged. In the past, registration information for the Geochemical Society's Annual Meeting with the GSA has appeared in the fall issue of the *Geochemical News*. In an effort to disseminate this information more quickly to Geochemical Society members, this fall the Society had the GSA mail their August 1992 issue of *GSA Today*, which contains all the registration information, directly to our members. For those of you who are not GSA members, this explains why you received this mailing from GSA. Please consult the August *GSA Today* for meeting registration information.

In this issue:

UPCOMING MEETINGS OF INTEREST TO GECHEMICAL SOCIETY MEMBERS

Sept. 25-30, 1992. *Low-K silicic magmas* in subduction settings, GSA Penrose Conference, Chelan, Wash. (James S. Beard, Virginia Museum of Natural History, Martinsville, 24112. Ph: 703-666-8611)

Oct. 3-6, 1992 *Sudbury-Noril'sk deposits*, mtg., Sudbury, Ontario, by Mineralogical Association of Canada, and others. (Dilu Irani, Dept. of Geology, University of Toronto, Toronto, M5S 3B1. Fax: 416-978-3938)

Oct. 4-9, 1992 *Fluid/volcano interactions*, GSA Penrose Conference, Warm Springs, Ore. (Steve Ingebritsen, USGS, MS 439, 345 Middlefield Road, Menlo Park, Calif. 94025. Ph: 415 329-4422. Fax: 415 329-4463)

Oct. 16-22, 1992 *American Institute of Hydrology*, ann. mtg., Portland, Ore. (Helen Klose, AIH, 3416 University Ave. S.E., Minneapolis, 55414-3328. Ph: 612 379 1030. Fax: 612-379-0169)

Oct. 18-23, 1992 *Precambrian Tectonics and the Dawn of the Phanerozoic*, GSA Penrose Conference, Death Valley, Calif. (Ian W.D. Dalziel, Institute for Geophysics, University of Texas, Austin, 78759-8345. Ph: 512-471-6156. Fax: 512-471-8844)

Oct. 26-29, 1992. *Geological Society of America*, and affiliated societies, ann. mtg., Cincinnati. (Vanessa George, GSA, Box 9140, Boulder, Colo. 80301. Ph: 303 447-2020)

Dec. 7-11, 1992 *AGU Fall Meeting*, San Francisco, CA USA. (Meetings, AGU, 2000 Florida Ave., N.W., Washington, DC 20009; Ph: 202 462-6900; Fax 202 328-0566).

Feb. 11-16, 1993 *American Association for the Advancement of Science*, ann. mtg., Boston. (AAAS, 1333 H St. N.W., Washington, D.C. 20005. Ph: 202-326-6400)
March 15-19, 1993 *Lunar and planetary science*, ann. mtg., Houston. (Pamela Jones, Lunar and Planetary Institute, Program Services Department, 3600 Bay Area Blvd., Houston, 77058-1113. Ph: 713-486-2150)
March 28-April 2, 1993 *204th National Meeting of the American Chemical Society*, Denver, CO USA. (ACS Meetings Department, 1155 16th Street, NW, Washington, DC 20036. Ph: 800-227-5558 or 202-872-6059)
May 17-19, 1993. *Geological Association of Canada/Mineralogical Association of Canada*, ann. mtg., Edmonton, Alberta. (J.W. Kramers, Alberta Geological Survey, Box 8330, Station F, Edmonton, T6H 5X2. Ph: 403-438-7644. Fax: 403-438-3364)
May 24-28, 1993 *AGU, MSA, and GS Spring Meeting*, Baltimore, MD USA. (Meetings, AGU, 2000 Florida Ave., N.W., Washington, DC 20009; Ph: 202 462-6900; Fax 202 328-0566).
Aug. 1993 *International Workshop on Intraplate Volcanism: The Polynesian Plume Province*, Tahiti, French Polynesia. (Workshop Tahiti 1993 Organization Committee, H.G. Barsczus, Centre Géologique et Géophysique, Case 060, Université de Montpellier II, 34095 Montpellier Cedex 5, France, Ph: 33-67-634-983, Fax: 33-67-523-908).
Sept. 25-Oct 1, 1993 *International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) General Assembly: Ancient Volcanism and Modern Analogues*, Canberra, Australia. (IAVCEI General Assembly, ACTS, GPO Box 2200, Canberra, ACT 2601 Australia; Ph: 61 6 2573299; Fax: 61 6 2573256).

EAG MEETING AND 4th GOLDSCHMIDT CONFERENCE TO BE IN EDINBURGH, 1994

The second major EAG Meeting and the 4th V.M. Goldschmidt Conference will be held at Edinburgh on Sunday 28 August - Saturday 3 September 1994, under the auspices of the EAG and the Geochemical Society. The convener is Dr. B. Harte, Department of Geology and Geophysics, Grant Institute, University of Edinburgh, West Mains Road, Edinburgh, EH9 3JW.

SPECIAL PUBLICATIONS SERIES NOS 3 AND 4 -- AVAILABLE AT REDUCED RATES FOR GEOCHEMICAL SOCIETY MEMBERS

Stable Isotope Geochemistry: A Tribute to Samuel Epstein This volume is a must for your professional library. Regular non-member and institutional price is $65 US, member price is $45 US. It consists of 39 papers (516 pages) covering seven different aspects of stable isotope geochemistry (e.g., experimental isotope fractionation studies, the hydrosphere and ancient oceans, climatology and glaciology). The editors are H.P. Taylor, Jr., J.R. O'Neil, and I.R. Kaplan.

Victor Moritz Goldschmidt: Father of Modern Geochemistry This 210 page volume is the biography of the world's greatest geochemist written by Brian Mason, the last person to start graduate work under his direction. It covers Goldschmidt's life and work in fascinating detail, augmented by a 24-page insert containing 43 photographs, which capture his greatness and complexities. The price is $30 US (to members) and $40 US (to non-members and institutions).

See May 1992 *Geochimica et Cosmochimica Acta* for information on ordering.

CALL FOR NOMINATIONS FOR GEOCHEMICAL SOCIETY AWARDS

This is a reminder that nominations are being accepted for the three awards that the Geochemical Society confers: the ***V.M. Goldschmidt Award***, the ***F.W. Clarke Award*** and the ***Alfred Treibs Award***. Nominations are open for the 1993 Goldschmidt and Clarke awards. The Goldschmidt Award, consisting of a gold medal and a certificate, is to be made yearly for major achievements in geochemistry or cosmochemistry (nomination deadline: 12/15/92). The Clarke Award, consisting of a medal and a certificate, is to be made yearly to a young scientist for a single outstanding contribution to geochemistry or cosmochemistry, published as either a paper or a series of papers on a single topic. Nominees are eligible for the award as long as they would receive it at the GS Awards Luncheon (Fall GSA Annual Meeting) no later than six calendar years after their receipt of a doctoral degree (nomination:

deadline 11/30/92). **Please note that the eligibility requirements for this award have changed in the last year and that the requirements published in April, 1992 GCA are now obsolete.** The Treibs Award consisting of a gold-filled medal and a certificate, shall be awarded every odd-numbered year for major achievements, over a period of years, in organic geochemistry. The nomination deadline for the 1993 award is 10/15/92. Those interested in making a nomination for any of these awards should consult April, 1992 *Geochimica et Cosmochimica Acta* and contact directly the appropriate award committee chairperson:

V.M. Goldschmidt Award:
Dr. Nobu Shimizu
Woods Hole Oceanographic Institute
Department of Geology and Geophysics
Woods Hole, MA 02543 USA
Ph: 508 457-2000 (x2963) Fax: 508 457-2187

F.W. Clarke Award:
Dr. P.R. Buseck
Department of Geology
Arizona State University
Tempe, AZ 85287 USA
Ph: 602 965-3945 Fax: 602 965-8102

Alfred Treibs Award:
Dr. Michael J. Whiticar
School of Earth and Ocean Sciences
P.O. Box 1700, University of Victoria
Victoria, B.C. CANADA
Ph: 604 721-7334 Fax: 604-721-7715

MSA SHORT COURSE ON HIGH-RESOLUTION TEM

The Mineralogical Society of America is sponsoring a Short Course entitled *"Minerals and Reactions at the Atomic Scale -High-Resolution TEM"* at Hueston Woods State Park Lodge, College Corner, Ohio, October 23-25, 1992 (just before the GSA Meeting). The Organizer is Peter R. Buseck, Arizona State University. The goals of the course are to (a) provide a background into the TEM as a mineralogical tool, (b) give an introduction to the principles underlying its operation, and (c) explore mineralogical applications and ways in which electron microscopy can augment our knowledge of mineral structures, chemistry, and origin. Special attention will be devoted to mineralogical applications. We expect to have a modern TEM for hands-on demonstrations and exercises. Topics to be covered include the following: general principles of transmission electron microscopy; principles I: electron diffraction- SAED & CBED; principles II: high resolution image formation, simulation, and analysis; inelastic interactions - EDS chemical analysis; EELS & electron channeling (ALCHEMI); non-stoichiometry, polysomatism, and reactions in minerals; polytypism & stacking disorder; phase definition by HRTEM; diagenetic reactions & processes: clays & shales; carbonates; analysis of deformation in geological materials; imaging transformation-induced microstructures. For a registration form, write or call: MSA Business Office, 1130 Seventeenth Street, NW, Suite 330, Washington, DC 20036. Phone: (202) 775-4344 FAX: (202) 775-0018

IDEAS FOR GEOCHEMICAL SOCIETY SESSIONS AT GSA AND AGU MEETINGS NEEDED

Theme Session and Symposia ideas and organizers are needed for the 1993 Geochemical Society meetings, Spring AGU in Baltimore, 24-28 May 1993, and GSA Annual Meeting in Boston, 25-28 October 1993. Your Society encourages you to take advantage of these opportunities to directly influence the scientific and technical content of these meetings.

Geological Society of America Meeting: The Geochemical Society is an affiliated society of the Geological Society of America and as such holds its annual meeting as part of the GSA meeting. The GSA meeting provides two special formats in addition to the volunteered technical sessions. One is the symposium, which consists entirely of invited papers. The presentations can be either oral or poster, but not mixed and are organized by the conveners. Symposia are sponsored by GSA sections and associated societies. The second format is the theme session. The theme session consists entirely of volunteered papers and is designed to arrange abstracts into interdisciplinary sessions. Theme sessions have an advocate, someone who will encourage the submittal of abstracts to the session and will act as liaison to the Joint Technical Program Committee. The theme session will fall under one or more (but no more

than three) categories listed on the right-hand side of the abstract form. Any abstract not included in the theme session is then considered in the selected category. The Geochemical Society is soliciting topics for its symposium and for theme sessions. If you have an idea for a topic or would like to be an advocate for a theme session under the geochemistry category, please contact Ted Labotka at the Department of Geological Sciences, University of Tennessee, Knoxville 37996-1410, 615-974-2366, Fax 615-974-2368, E-Mail LABOTKA@TLXRAY.DNET.UTK.EDU. If you are interested in advocating a theme session, he can send you the necessary information and forms. The deadline for submitting symposium and theme session proposals to JTPC is by the end of December, 1992.

American Geophysical Union Meeting: Starting in 1993, the GS will be a sponsoring society of the Spring American Geophysical Union (AGU) meeting with the opportunity to hold our own sessions and to sponsor sessions jointly with the Mineralogical Society of America and AGU sections. Please consider symposium topics for this meeting. Each symposium, according to AGU policy, must have two chairpersons. L. Peter Gromet is the GS's delegate to the AGU program committee. His address is Department of Geological Sciences, Brown University, Providence, RI 02912 401-863-1920, E-Mail LPG@AVALON. GEO.BROWN.EDU. Please contact him with your ideas for session topics for the joint AGU-MSA-GS meeting. The first call for session topics will appear in EOS, AGU's weekly newspaper, in December, 1992. Ideas for sessions can be submitted through January, 1993.

GEOCHEMICAL SOCIETY AWARDS FOR 1992

The V.M. Goldschmidt Award for 1992 will be given to S.R. Hart (Woods Hole Oceanographic Institute, Department of Geology and Geophysics, Woods Hole, MA 02543 USA) at the Geochemical Society Awards Luncheon at the Fall GSA Annual Meeting. The Award Committee cited Hart for his major contributions in radiogenic isotope geochemistry, specifically to the fundamental understanding of the behavior of the K-Ar and Rb-Sr isotopic systems, to the application of radiogenic isotopic systems as tracers of geological processes and for linking the geochemical characteristics of mantle reservoirs with global geophysics and geodynamics. The award will be presented by Alan Zindler. The 1992 Clarke Medal will be awarded to Emily Klein (Department of Geology, Duke University, Durham, NC 28223 USA) at the same ceremony. The Award Committee cited Klein for elucidating the global relationship between oceanic ridge basalt chemistry, depth and crustal thickness. Presenting the award will Charles Langmuir. The Awards Luncheon is scheduled for 12:30-2:30 pm, Monday, October 26, 1992 in Hyatt Regency F-G, shortly following the Geochemical Society's Ingerson Lecture and Open Business Meeting.

FALL MEETING OF BOARD OF DIRECTORS OF THE GEOCHEMICAL SOCIETY

The 1992 fall meeting of the Board of Directors of the Geochemical Society will be held Sunday, October 25, 1992 from 6:00-10:00 pm in the Hyatt Buckeye A room.

OPEN BUSINESS MEETING FOR GEOCHEMICAL SOCIETY MEMBERS

At last spring's Directors Meeting, it was decided to try to improve service of the Geochemical Society to its members by holding an Open Business Meeting. The idea of the meeting is to be a vehicle by which members can directly discuss issues of importance to the Society with a majority of the Board of Directors and Directors in turn can present ideas about future directions for the Society. This will be the first time this has been tried and if successful could become an annual affair. The meeting is scheduled for 11:30 am, Monday October 26, 1992 in the Cincinnati Convention Center, 202-212, immediately following the Ingerson Lecture.

1992 INGERSON LECTURE TO BE DELIVERED BY HAROLD C. HELGESON

Harold C. Helgeson, Department of Geology and Geophysics, University of California, Berkeley will deliver the 1992 Ingerson Lecture entitled *"Organobiohydrothermal geochemistry: what is it, who needs it, and why?"* The Ingerson lecture was originally scheduled to be given by Julian Goldsmith, Department of Geophysical Sciences, University of Chicago, who had to cancel at the last minute due to health problems. The Society wishes him a quick trip back to good health. The Ingerson Lecture will be given at 10:30 am, Monday October 26, 1992 in the Cincinnati Convention Center, 202-212.

SPECIAL SECTION ON THE GEOCHEMICAL SOCIETY ANNUAL MEETING AT FALL GSA MEETING, CINCINNATI, OH

TECHNICAL PROGRAM ORGANIZATION AND SPECIAL EVENTS

M. Darby Dyer, Peter Salpas, and Ted Labotka met in Boulder on August 7 and 8, 1992, with other members of GSA's Joint Technical Program Committee to organize the annual meeting to be held in Cincinnati, October 25 to 29, 1992. 121 abstracts were submitted to the disciplines Geochemistry, Aqueous and Geochemistry, Other. Many of these were submitted to the theme sessions T4 Hydrogeochemistry and Isotope Hydrology of Regional Aquifer Systems, T18 Quantitative Chemical Hydrogeology: Calculation of Solute Transport and Water Rock Interaction in Geochemical Processes, T19 Ordovician K-bentonites, and T26 New Cretaceous-Tertiary Boundary Discoveries Caribbean and High Latitudes. From the submitted abstracts, six oral and 2 poster discipline sessions were crafted. In this process, many abstracts submitted to geochemistry were swapped with abstracts submitted to igneous and metamorphic petrology because of the overlapping and interdisciplinary natures of these fields.

The resulting sessions include Geochemistry of Carbonate Minerals and Rocks, Fluids, Clays, and Weathering, Aqueous Geochemistry Posters, Organic, Igneous, and Sedimentary Geochemistry Posters, Experimental and Theoretical Studies of Hydrothermal Mineral/Fluid Interaction, Application of Stable Isotope Geochemistry to Metamorphic Petrology, Isotope Geochemistry, and Aqueous Geochemistry. In addition, OGD is sponsoring a symposium Controls on Carbon Preservation, and the Society's symposium is Applications of Stable Isotope Geochemistry to Problems in High-Temperature Petrogenesis. The schedules are listed elsewhere in this newsletter.

The quirks and realities of scheduling the program forced some compromises. In order to get a Monday morning session for the Ingerson lecture and business meeting, we had to trade with several other disciplines. As a result, we could not avoid scheduling a discipline session at the same time as the symposium. We tried to avoid conflict by placing a session concerned mainly with clay minerals and weathering processes against the high-temperature geochemistry symposium. We also had to place an oral session against the poster sessions, but we hope that members will be able to visit the posters during breaks in the oral session.

Another quirk appeared in the titles of the sessions. Many of the sessions titled by GSA as Geochemistry, Aqueous actually became sessions on high-temperature geochemistry. I will try to get the names of the sessions changed to become more generic geochemistry. I have also discussed with the MSA committee members about trying to come up with better categories, which might make sorting the abstracts into sessions a little easier. GSA is going to have a meeting of the JTPC members during the Cincinnati meeting to discuss methods of making the programming easier and the sessions more effective than at present.

As in recent years, *all* those who submitted abstracts with the Mode of Presentation marked as Either, wound up in poster sessions. The best thing to do is to mark Poster or Oral to guarantee the mode of presentation you want. This year we were able to accommodate nearly all submitted abstracts, but in future years the technical program chairmen may impose strict acceptance levels in order to maintain a high level of quality. This will certainly be discussed at the meeting in Cincinnati.

The Society has several special events scheduled.

1) GS Board Meeting - Sunday, Oct 25, 1800-2200, Hyatt Buckeye A
2) Ingerson Lecture - Monday, Oct 26, 1030-1130, Convention Center 202-212
3) Open Business Meeting - Monday, Oct 26, 1130-1200, Convention Center 202-212
4) GS Awards Luncheon - Monday, Oct 26, 1230-1430, Hyatt Regency F-G
5) GS symposium - Tuesday, Oct 27, 1330-1700
6) GS-MSA reception - Tuesday, Oct 27, 1730-1930, Omni Continental Room

Mark your calendars to join other geochemists at these events!

SELECTED SESSIONS OF INTEREST TO GS MEMBERS

GS--Organic Geochemistry Division Symposium (S14): Controls on Carbon Preservation I

Sunday, Oct. 25

Time	Title	Authors
8:20	Introduction	— Cindy Lee
8:30	The Proterozoic Carbon Isotopic Record of Organic Burial Rates, Changing Redox Conditions and Atmospheric C02 Levels	— Des Marais, D.J., Strauss, H. Summons, R., Hayes, J.M.
8:55	Depreservation: The Weathering of Old Sedimentary Organic Matter on the Continents	— Chang,Soo-Bum , Berner, Robert A.
9:20	Microbial Influence on Carbon Preservation and Dolomitization in a Shallow-Water Lagoon (Lagoa Vermelha, Brazil): A Modern Analogue for Ancient Deposits	— McKenzie, J. A., Vasconcelos, C., Bernasconi, S.
9:45	Diagenesis Of Marine and Lacustrine Organic Matter During Sinking and After Sedimentation	— P. A. Meyers
10:10	Coffee Break	—
10:30	Elemental And Major Biochemical Changes Across Oxidation Fronts In N.E. Atlantic Sediments	— Cowie, G. L., Hedges, J. I. , Prahl, F. G., De Lange, G. J. :
10:55	Does Anoxia Affect Organic Matter Preservation? Diagenesis and Burial of the Major Biochemicals Under Oxic and Anoxic Depositional Conditions	— Cowie, Gregory L. Hedges, John I.
11:20	Organic Matter Accumulation, Diagenesis and Burial in a Rapidly Depositing Coastal Sediment	— Martens, C.S. , Canuel, E.A.

GS--Organic Geochemistry Division Symposium (S14): Controls on Carbon Preservation II

Sunday, Oct. 25

Time	Title	Authors
1:30	Controls on The Preservaton of Buried Organic Matter on an Anoxic Coastal Marine Sediment	— Haddad, R. I. , Martens, C.S.
1:55	Bioturbation and Remineralization of Sedimentary Organic Matter	— Aller, R. C.
2:20	How Bioturbation May Enhance the Degradation Rates of Refractory Sedimentaryorganics	— Canfield, D.E., Van Cappellen, P.
2:45	Adsorption Into Mineral Mesopores as a Stabilization Mechanism for Organic Matter on Aluminosilicates	— Mayer, Lawrence M.
3:10	Coffee Break	—
3:30	The Role of Bacterial Grazers in Controlling Oxic and Anoxic Decomposition of Organic Matter	— Lee, Cindy
3:55	Early Diagenesis and Organic Matter Preservation-a Molecular Stable Isotope Perspective	— Macko, S.A., Engel, M.H. Qian, Y.
4:20	Isotopic Biogeochemistry of the Oxford Clay Formation	— Kenig, F., Hayes, J. M., Popp, B. N., Summons, R.

Geochemistry of Carbonate Minerals and Rocks

Monday, Oct 26

Time	Title	Authors
8:00	Dissolution Enthalpies of Synthetic Magnesian Calcites; Comparison with Biogenic Phases	— Bischoff, William D., Wollast, R.
8:15	Carbonate Mineral - Dissolved Silica Interactions: Experimental Study at 25-50°C	— Klein, Robert T., Walter, Lynn M.
8:30	Experimental Investigation of aCa2+/aCO32- Ratio on the Kinetics of Calcite Precipitation: Implications for the Rate Equation and Trace Element Incorporation	— Winter, David J., Burton, Elizabeth A.
8:45	Calcite Precipitation Mechanisms and Inhibition by Orthophosphate; In Situ Observations by Scanning Force Microscopy	— Dove, Patricia M., Hochella, Jr., M. F.
9:00	A Major Early Devonian $\delta^{18}O$ Positive Shift for Marine Calcites: Brachiopods and MArine Cements from the Upper Gaspe Limestones, Gaspe Peneisula, Quebec, Canada	Lavoie, Denis
9:15	Trace Element Variations in Pennsylvanian Brachiopods From North America—a Microprobe Study	— Grossman, E. L., Mii, H-S, Zhang, C. and Yancey, T. E.
9:30	The Implication of the Oxygen Isotopic Composition of Lower Devonian Micritic Limestone, Oklahoma.	— Gao, Guoqiu
9:45	Seawater and Basalt-Derived 87Sr/86Sr in Multiple Dolomltization Events, Seroe Domi Formalion, Curacao, Netherlands Antilles	— Fouke, B. W., Meyers, W. J., Hanson, G. N., Beets, C. J.
10:00	Hydrologic Controls on Dolomitization of Devonian Carbonates in the Western Canada Basin	— Shields, Michael J., Brady, Patrick V.
10:15	Geochemistry of Middle Ordovician Carbonate Rocks in the Illinois Basin	— Li, Wanbing, Anderson, Thomas F.

Fluids, Clays, and Weathering

Tuesday, Oct 27

Time	Title	Authors
13:30	Fluid Inclusion and Isotopic Evidence for the Hydrothermal Origin of the Banded Iron Formations in the Hammersley Basin, Western Australia	— Haruna, M., Kakegawa, T., Ohmoto, Hiroshi
13:45	Cation Geothermometry in Oil Field Waters	— Smith, L. K., Dunn, T. L., and Surdam, Ronald C.
14:00	Water-Column Pyrite Formation in the Modern Black Sea: Sulfur Isotopic Constraints	— Lyons, Timothy W., Muramoto, J.
14:15	The Shoal Arm Formation, North-Central Newfoundland Fe and Mn-Enriched Sediments Underlying Black Shales and Flysch	— Brüchert, V., Delano, J. W., and Kidd, William S.F.
14:30	Clarification of C-S Relationships of Marine Black Shales Using Stable Isotopic Composition of Reduced Sulfur	— Zaback, Doreen A., Pratt, Lisa M.
14:45	Aqueous Alteration of Municipal Solid Waste Ash	— Kirby, Carl S., Rimstidt, J. Donald
15:00	The Geochemistry of Arsenic in Reservoir Sediments, Milltown, Montana	— Drever, J. I., Moncure, G. K., and Jankowski, P. A.
15:15	Temperature Dependence of Silicate Weathering in Nature Estimated from Geochemical Mass Balance in Two Forested Blue Ridge Watersheds	— Velbel, Michael A.
15:30	Initial Effects of Vegetation on Hawaiian Basalt Weathering Rates	— Cochran, M. Ford, Berner, Robert A.
15:45	Low Temperature Chemical Reactions in Granitic and Mafic Aquifers: A Laboratory Study	— Moulton, Katherine L., Veeger, Anne I.
16:00	End-Member Illite: Stability under Hydrothermal Conditions	— Yates, Douglas M., Rosenberg, Philip E.
16:15	Illitization by tetrahedral exchange: Evidence from the Laboratory Flow-Through Experiments	— Kacandes, G. H., Barnes, H. L., Kump, L. R.
16:30	Precipitation and Dissolution Kinetics of Kaolinite Under Hydrothermal Conditions	— Soong, Chie, Barnes, H. L.

16:45	Variations in 18O/16O Ratios of Kaolinites Within a Lateritic Profile: Their Significance for Laterite Genesis and Isotope Paleoclimatology	— Giral, Sylvie, Nahon, D. B., Girard, J-P., Savin, S. M.
17:00	Kinetics, Mass Transfer, and Coupling of Replacement and Dissolution Textures in Laterites	— Merino, E., Nahon, D, Wang, Yifeng
17:15	Oxygen and Hydrogen Isotopic Studes of Greisens in the Achala Batholith, Central Argentina	— Lira, R., Espanon, A. L, Ripley, Edward , M.

Geochemical Society Symposium (S10): Applications of Stable Isotope Geochemistry to Problems in High-Temperature Petrogenesis

Tuesday, Oct 27

Time	Title	Authors
13:30	The relationship between Mineral Chemistry and Oxygen Isotope Exchange Rates at Elevated Temperatures and Pressures	— Cole, David R.
13:53	Isotopic Quasi-Steady States during Fluid-Rock Interaction: Evidence from Quartz Veins, Southeastern Australia	— Gregory, R.T., Gray, D.R.
14:10	Regional Carbonate Alteration of the Crust by Mantle-Derived Fluids; Isotope Geochemistry of Carbonated Gneisses from the Attur Lineament, Tamilnadu, South India	— Wickham, S. M., Stern, R. J., Janardhan, A.S.
14:30	Oxygen Isotope Imaging of Unicellular and Convective Flow of Hydrothermal Fluid Around an Epizonal Intrusion, Comstock Lode Mining District, Nevada	— Criss, Robert E., Champion, Duane E.
14:50	Discussion	
15:00	Stable Isotopic Evidence for the Petrogenesis and Origin of Fluids in the Harney Peak Pegmatitic Leucogranite, Black Hills, South Dakota	— Nabelek, Peter I., Russ-Nabelek, Carol
15:20	Direct Comparison of Mineralogic and Stable Isotopic Records of Metamorphic Fluid Flow	— Palin, J. M., Rye, D. M.
15:40	Garnets as Hydrochronometers	— Chamberlain, C. P., Conrad, M. E.
16:00	Correlated Variations in *in situ* $^{18}O/^{16}O$ and Elemental Concentrations in Metamorphic Garnet	— Young, Edward D., Rumble III, Douglas
16:20	Stable Isotope Thermometry, Speedometry, and Hygrometry	— Valley, J. W., Baumgartner, L., Crowe, D.E., Eiler, J.E., Elsenheimer, D., Kohn, M.J., Spicuzza, M., Graham, C.M.
16:40	Discussion	

Aqueous Geochemistry Posters

Wednesday, Oct 28

Time	Title	Authors
8:00	Trace Metals of an Acid Mine Drainage Stream using a Chemical Model (WATEQ) and Sediment Analysis	— West, Kathryn A., Wilson, T. P.
8:00	The Surface Chemistry of Simple and Complex Silicate Minerals in Acid Solutions	— Westrich, H. R., Cygan, R. T., Casey, William H.
8:00	Hydrothermal Fluid Evolution and LREE Chemistry of Apatites in the Oka Carbonatite, Quebec	— Liu, Weining, Williams-Jones
8:00	Chemical and Paleoenvironmental Analysis of the Ames Member Fossil Allochems, Morgantown, West Virginia	— Mutchler, S. R., Cercone, K. R., Rittle, Keith
8:00	Experimental Simulation of the Behavior of Colloidal Gold in Hydrothermal Systems	— Herrington, R. J., Wilkinson, J. J., Claugher, D.
8:00	Experimental Determination of the Calcite-Dolomite Equilibrium below 200° C; Revised Stabilities for Dolomite and Magnesite Support Near-Equilibrium Dolomitization Models	— Lafon, G. Michel, Otten, Glen A., Bishop, Ann M.
8:00	Characteristics of Groundwater and Lead Geochemistry along the Sandy Creek, Ohio	— Dai, J-P, Chyi, L. Lynn, Khourey, Chris J.
8:00	Stable Isotope Systematics in Ground Water from the Edwards Aquifer, South-Central Texas	— Blake, Ruth E.

8:00	Water-Rock Interactions in Discharge Areas of Xiangshan Fossil Hydrothermal System	— Zhou, Wenbin
8:00	An AFM Study of the Chlorite-Fluid Interface	— Vrdoljak, Gordon A.
8:00	Geochemical Evidence for the Hydrology of a Tamarack-Peat Bog, Brimfield Township, Portage County, Ohio	— Wilson, Timothy P., Miller, Laurie A.
8:00	Microbial Ecology and Carbon Cycling in Texas Aquifers	— Zhang, Chuanlun, Grossman, E., MacRae, M., Ammerman, J. W.
8:00	An Osmotic Technique for Sampling Solutions to Determine the Ratio of Aqueous Diffusion Coefficients for a Solute's Isotopic Components	— Fritz, Steven J.
8:00	The Effect of Varying Ionic Strength on the Transport of Naphthalene in a Soil Column	— Ongley, Lois K., Tomson, Mason B.
8:00	Isotopic Composition of Siderite as an Indicator of Depositionsl Environment	— Mozley, Peter S., Wersin, Paul

Organic, Igneous, and Sedimentary Geochemistry Posters

Wednesday, Oct 28

Time	Title	Authors
8:00	Molecular Stable Isotopes as Probes for the Synthesis of Amino Acids Prior to the Origin of Life	— Engel, M.H., Qian, Y., and Macko, S.A.
8:00	Gas Speciation, and 13C and 180 Content of Gases Produced by Laser Sampling of Carbonate	— Romanek, C. S., Gibson, E. K. Jr., Socki, R. A.
8:00	Kinetics of Oxygen Isotope Exchange between Phlogopite and Calclte at High Temperature and Pressure	— Fortier, S., Luttge,A., Satir, M., and Metz, P.
8:00	Proterozoic Oil in Fluid Inclusions in the Midcontinent Rift: Implications for the Origin of Oil at White Pine, Michigan	— Burruss, R. C., Mauk, J. L.
8:00	Secular Variation and Chemistry of the Ree in Phanerozoic Oolitic Ironstones	— Bhattacharyya, Deba P.
8:00	Enrichment of Trace Elements in Rare-Metal Bearing Pegmatites of the Muscovite Class: Examples From the Jasper, Thomaston-Barnesville, Troup and Cherokee-Pickens Districts in Georgia	— Cocker, Mark D.
8:00	Argon Geochronology of Ferrar Dolerites From the Transantarctic Mountains, Antarctica	— Heimann, A., Fleming, T. H., Foland, K. A., Elliot, D. H.
8:00	Nonradiogenic Pb and Sr Isotopic Compositions of Mio-Pliocene Volcanic Rocks Over the Shallow Subduction Zone in the Central Andes (28° to 33°S)	— Abbruzzi, J.M., Kay, S. Mahlburg
8:00	Effects of Hydrolysis On the Stable Carbon Isotope Composition of Amino Acids in Shell Protein	— Qian, Y., Engel, M.H., and Macko, S.A.
8:00	The Kerogen Types and Pyrolysis Kinetics of Several Chinese Carbonate Source Rocks	— Zhang, Youcheng, Hao, Shisheng
8:00	Oxygen and Hydrogen Isotope Examination of Sodic and Sodic-Calcic Alteration in Mesozoic Arc Igneous Rocks, Western U.S.	— Battles, Denise A.
8:00	Geochemistry of Dolomites in the St. Peter Sandstone of the Michigan Basin.	— Winter, B. L., Johnson, C. M., and Valley, John W.
8:00	Speciation and Isotopic Composition of Sulfur in the Oxford Clay Formation (Jurasic, U.K)	— Chu, T-H, Bonnell, L. M., Anderson, T. F., Kenig, F.
8:00	Improving U-Pb Concordance of Zircon Through Sequential Dissolutlon in a Mlcrowave Oven.	— Palais, David G., Mukasa, Samuel B.
8:00	Magmatism in the Carolina Terrane: Isotopic Evidence for a Grenville-Age Source for Late Proterozoic Volcanics and a Mantle Source for Silurian Concord Syenite,	— Kozuch, M., Heatherington, A. L., and Mueller, P. A.
8:00	Trace Element Signature of Late Jurassic Siliclastic-Carbonate Sedimentary Strata From Western Montana, Southeastern British Columbia and Southern Alberta	— Sablock, Jeanette
8:00	Carbon Isotope Analysis of Conodont Organic Material — Procedure and Preliminary Results	— Over, D. Jeffrey, Grossman, Ethan L.
8:00	Formation of Cogenetic Silica Over- and Undersaturated Syenites: Evidence From Several Localities	— Landoll, J.D., Foland, K. A., Henderson, C.M.B.

8:00	The Kramer Deposit of Southern California - Preliminary Insights On the Origins of Zoned Lacustrine Evaporite Borate Deposits.	— Swihart, G. H., Mcbay, E. H., Smith, D. H., Siefke, J. W.
8:00	Isotopic and Geologic Studies of the Veins of the Bowling Green Fault Zone, Ohio, and Their Genetic Implications	— Carlson, Ernest H.
8:00	Hydrodynamism, Crude Oil Distribution and Geochemistry of the Stratigraphic Column in a Transect of the Eastern Venezuelan Basin	— Gallango, O., Escandon, M., Alberdi, M., Parnaud, F., and Pascual, J. C.
8:00	Non-Systematic Weathering Profile in the Blue Ridge Mountains, N.C.: Role of Geochemical Variables	— Ciampone, M. A., McVey, D. E. Gerke, T. L., Briggs, W. D., Zhang, Y., Maynard, J. B., and Huff, Warren D.
8:00	Kinetics of Quartz Precipitation under Hydrothermal Conditions at 100 to 300 ℃	— Polster, Wolfgang, Barnes, H. L.

Experimental and Theoretical Studies of Hydrothermal Mineral/Fluid Interaction

Wednesday, Oct 28

Time	Title	Authors
8:00	Kinetics of Quartz Precipitation and Dissolution under Hydrothermal COnditions at 100 to 300 Degrees C	— Polster, W., Barnes, H.L.
8:15	Predicting Fluoride and Chloride Concentrations of Hydrothermal Fluids	— Zhu, Chen
8:30	Theoretical Geochemistry of Thermophilic Metabolism	— Shock, Everett L.
8:45	Thermodynamic Properties of Hydrocarbon Liquids at High Pressures and Temperatures	— Aagaard, P., Oelkers, E.H., and Helgeson, H.C.
9:00	Preliminary Investigation of the Effects of Mineralogy and Fluid Composition On the Growth of Thermophilic Bacteria in Geothermal Hot Springs On the Island of Vulcano, Italy.	— Amend, J. P., Helgeson, H. C., Gurrieri, S., Valenza, M., and Clark, Douglas S.
9:15	The Dissolution Rate of Albite as a Function of Chemical Affinity and the Stoichiometry of Activated Complexes in Aluminosilicate Dissolution Reactions	— Oelkers, Eric H., Schott, Jacques
9:30	Experimental Support for a Sodium Chloride Species with Cl:Na>1 from Solubility Data on the Assemblage Albite + Andalusite + Quartz	— Baumgartner, L. P.
9:45	Thermodynamic Properties of Aqueous Species and the Solubilities of Minerals at High Pressures and Temperatures: The System Fe-O-S-H2O-NaCl	— Pokrovskii, V. A., Helgeson, H. C.
10:00	Mineral/Fluid Partitioning and Isotopic Fractionation of Boron in Laboratory Grown Calcite	— Hemming, N.G., Hanson, G. N. and Reeder, R. J.
10:15	Solubility of Microcline, Muscovite, and Quartz and the Speciation of Al in Supercritical H2O	— Walther, John V., Woodland, Alan B.
10:30	Evidence for Coupled Adsorption and Reduction of Hexavalent Chromium on the Surface of Biotite	— Ilton, Eugene S., Veblen, David R.
10:45	Surface Chemistry, Rate Laws, and Isotach Plots	— Lasaga, A. C., Burch, T. E., and Nagy, K. L.
11:00	Effect of NaCl on Gibbsite Dissolution Rate at pH 3 and 80°C	— Ganor, Jiwchar, Lasaga, A. C.
11:15	Ab-Initio Studies of the Kinetics and Mechanisms of Feldspar Dissolution: Ion Exchange, H3O Cataysis, and the Formation of Leached Layers	— Xiao, Yitian, Lasaga, A. C.
11:30	The Effect of Crystal Structure on Equilibria and Reaction Rates	— Sverjensky, Dimitri A.
11:45	A Comprehensive Empirical Rate Law for Aqueous Pyrite Oxidation by Ferric Iron and Dissolved Oxygen	— Williamson, Mark A., Rimstidt, J. D., Newcomb, W.D.

Application of Stable Isotope Geochemistry to Metamorphic Petrology

Wednesday, Oct 28

Time	Title	Authors
13:30	Contact Metamorphism Associated with Emplacement of the Papoose Flat Pluton, Inyo Mountains, California	— Nyman, M. W., Law, R. D., and Morgan, S. S.

13:45	Up- and Down-Temperature Fluid Flow during Contact Metamorphism: Mary Kathleen, Australia	— Cartwright, Ian, Oliver, Nicholas, H. S.
14:00	Geochemical Evidence for Fluid-Flow in the Notch Peak Contact-Metamorphic Aureole	— Nabelek, Peter I., Labotka, Theodore C.
14:15	Stable-Isotopic Signatures and Tectonic Correlation: a New Statistical Approach and Application to the Cyclades	— Lieberman, J., Matthews, A., Ganor, Jiwchar
14:30	Petrologic and Stable Isotopic Evidence for Reaction-Enhanced Fluid Flow during Metamorphism of Precambrian-Cambrian Sedimentary Rocks, Lone Mountain, Nevada	— Richards, Ian J., Labotka, Theodore C.
14:45	Stable Isotope Evidence for Hydrologic Conditionas during Regional Metamorphism in the Panamint Mountains, California	— Bergfeld, D., Nabelek, P. I., and Labotka, T. C.
15:00	Mineralogic, Petrologic, and Stable-Isotopie Evidence for Fluid Infiltration during Metamorphism of Pelitic Schist and Quartzite, Rio Mora, New Mexico	— White, C. A., Grambling, J. A., and Yapp, Crayton, J.
15:30	Stable Isotope Systematics of Coexisting Biotite and Muscovite in High-Grade Pelitic Rocks of Southwestern Maine	— Colucci, M.T., Dyar, M.D., Gregory, R.T., Guidotti, C.V., and Holdaway, M.J.
15:45	Oxygen Isotope Zoning in Garnet and Staurolite From Tierra Del Fuego, Chile: Evidence for Closed System Mineral Growth During Regional Metamorphism.	— Kohn, M. J., Valley, J., Elsenheimer, D., and Spicuza
16:00	Oxygen Isotope Diffusion: Applications to Thermometry and Fluid Flow	— Eiler, J., Valley, J. W., and Baumgartner, Lukas P.
16:15	A Numerical Method for Retrieving High Oxygen Isotope Temperatures From Plutonic Igneous Rocks: An Example From the Laramie Anorthosite Complex, Wyoming, USA.	— Farquhar, James, Chacko, Thomas, and Frost, B. Ronald
16:30	Effects of Magmatic and Metamorphic Volatiles on the Evolution of Fluid-Rock Interactions and Fluid Pressure during Contact Metamorphism	— Hanson, R. Brooks
16:45	Sub-Millimeter Scale Zonation of d18O in Quartz and Feldspar, Maol Na Gainmhich Epigranite, Isle of Skye, Scotland	— Elsenheimer, Don, Valley, John
17:00	Oxygen and Carbon Isotope Variations in a Carbonatite-Pyroxenite Reaction Zone From the Jacupiranga Complex, Brazil.	— Santos, R. V., Clayton, R.N., and Mayeda, K. Toshiko
17:15	Nitrogen Isotope Signatures of High-T Fluid-Rock Interactions	— Bebout, Gray E.

Quantitative Chemical Hydrogeology: Calculation of Solute Transport and Water Rock Interaction in Geochemical Processes

Thursday, Oct. 29

8:00	Genesis of Mississippi Valley-Type (Mvt) Deposits	— Lichtner, P.C., Biino, G. G.
8:15	Maintenance of High Tds in Pore Waters Above the New Albany Shale of the Illinois Basin	— Ranganathan, Vishnu
8:30	Experimental Aspects of Subsurface Contaminant Transport at Multiple Scales	— Jardine, P. N. Luxmoore, R. L. Wilson, G. V. O'Dell , J. D.
8:45	Experimental Constraints on Stress-Enhanced Water-Rock Interaction and Pore-Fluid Expulsion During Sandstone Compaction	— Dewers, Thomas Hajash, Andrew
9:00	Temperature Dependence of the Relative Stabilities Of Surface and Aqueous Al-Oxalate Complexes	— Fein, Jeremy B. Brady, Patrick V.
9:15	Changes in Mineral Solubilities Resulting From biodegradation of Btx: A Laboratory Study	— Kelly, Walton R. Herman, Janet S.
9:30	A Critical Evaluation of Methods to Estimate Standard State Association Constants for Aqueous Complexes at 25 Degrees C And 1 Bar	— Sassani, D. C. Shock, E. L.
9:45	Calculation of the Oxidative Solubilities of Hydrocarbon Liquids in Aqueous Electrolyte Solutions Coexisting with Authigenic Carbonate Minerals in Sedimentary Basins	Helgeson, H. C. Pokrovskii, V. A.
10:00	Calculation of Rate Constants for Net Instream Chemical Reactions in an Acidic, Metal-Rich Mountain Stream	— Kimball, B. A., Broshears, R. E. Bencala, K.E., McKnight, D. H.

10:15	Modeling the Effects of Water-Rock Interaction on Isotope Ratios Used in Hydrology: Implications for Yucca Mtn.	— Johnson, Thomas M., DePaolo, Donald J.
10:30	Transport During Weathering of Contaminated Soil Treated by Solidification/Stabilization Processes	— Slack, William
10:45	Modelingtransport And Reactions Of Brine: An Example From Double Lakes Of West Texas	— Sanford, Ward B., Wood, Warren S.
11:00	Towards A Realistic Double-Porosity Model	— Steefel, Carl I., Lichtner, Peter C.
11:15	A Combined Diffusion/Kinetic/Thermodynamic Framework for the Prediction of Porosity Reduction in Sedimentary Basin Sandstones Over Geologic Timeframes	— Oelkers, Eric H. Bjorkum, Per Arne Murphy, William M.
11:30	Kinetic Controls on Early Karst Aquifer Porosity Development	— Groves, Christopher G. Howard, Alan D.
11:45	Numerical Simulations of Episodic Basin Dewatering Around a Salt Dome and the Formation of Thermal and Brine Plumes	— Williams, Mark D. Ranganathan, Vishnu

Isotope Geochemistry

Thursday, Oct 29

Time	Title	Authors
13:00	Some Limitations of Isotopic Analyses of Parts of Zircon Crystals for U Th Pb Geochronology.	— Silver, Leon T.
13:15	Crustal Lead Signatures From Paleocene Rocks in Northern Chile.	— Williams, W.C., Bouse-Schaeneman, Robin M.
13:30	Lead (Pb) Isotopic Variations at the Ascutney Mountain Igneous Complex, Vermont: Implications for Petrogenesis and Methods	— Schucker, Dennis E., Foland, K.A.
13:45	U-Pb Ages and Pb Isotope Systematics in Nodular Chert From the Burlington-Keokuk Fms. (Mississippian, Iowa).	— Hoff, J. A., Hemming, S.R., and Hanson, G.N.
14:00	Pb and Sr Isotopic Systematics of Ore Fluids From the S.W. England Orefield	— Wayne, D.M., Banks, D.
14:15	Dating Sulfide Mineralization by Molybdenite Re-Os Geochronometry: the San Manuel-Kalamazoo Base Metal Porphyry, Southwestern Arizona	— McCandless, Tom E., Ruiz, Joaquin
14:30	Oscillatory Crystallization of Magma Through the Feedback Between Reactant Segregation and Mineral Crystallization Rates	— Wang, Yifeng, Merino, Enrique

Aqueous Geochemistry

Thursday, Oct 29

Time	Title	Authors
15:00	Evolution of the Osmium Isotopic Composition of Seawater: The Role of Cenozoic Mountain Building	— Pegram, W. J., Krishnaswami, S. and Turekian, K. K.
15:15	Distribution, Forms and Mobility of Gold Near the Igarape Bahia Gold Deposit, Para State, Brazil	— Machesky, M. M., Bliss, L. N., Andrade, W. O., Rose, A., W., and Kato, Tetsua
15:30	Phosphorous in Sediments of the Amazon River and the Global Flux of P to the Sea	— Rao, Ji-Long, Berner, Robert A.
15:45	Fluid Inclusion Geochemistry of Halite from the Silurian A-1 Evaporite, Michigan Basin	— Leibold III, A. W., Walter, L.M. Huston, T. J., and O'Neil, J. R.
16:00	Diagenetic Saline Formation Waters: Their Role in Crustal Processes	— Land, Lynton S.
16:15	Role of Dissolved Sulfide Oxidation in Dissolution of Recent Carbonate Platform Sediments: Evidence from Pore Water C and S Systems	— Walter, L. M., Bishof, S. A., Patterson, W. P., Lyons, T. W., and Murphy, Sheila F.
16:30	Low-Temperature Oxygen Isotope Exchange in the Kirkpatrick Basalt, Central Transantarctic Mountains, Antarctica	— Fleming, T. H., Elliot, D. H., Bowman, J. R., Foland, K. A.
16:45	Molecular Dynamics Simulation of Geological Fluids and a General Equation of State up to 2000 K and 20,000 Bar	— Duan, Z., Moller, N., Weare,J.H.