



# The Geochemical News

Biannual Newsletter of the Geochemical Society

Number 66

September 1984

## Officers for 1985

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Organic Geochemistry Division: Chairman, John Zumberge, Cities Service Co.;  
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## Meetings and Symposia

GEOCHEMICAL SOCIETY 1984 ANNUAL MEETING in conjunction with the Annual Meeting of the Geological Society of America, Reno, Nevada, 4 through 8 November. Hotel reservation deadline October 12 (reservation form on p.8); preregistration deadline October 5 (registration form on p.6). For further information see GSA News and Information Vol. 6 No. 8, August 1983, or apply to GSA Meetings Department, P.O. Box 9140, Boulder, CO 80301, Tel. 303-447-2020.

Sunday, Nov. 4

GS ORGANIC GEOCHEMISTRY DIVISION SYMPOSIUM: GEOCHEMICAL RECONSTRUCTION OF DEPOSITIONAL AND DIAGENETIC ENVIRONMENTS  
Palace A/B, MGM, 1:00 p.m.

George E. Claypool and John E. Zumberge, Presiding

- 1 Martin B. Goldhaber\*, M.L. Tuttle,  
M.J. Baedeker: RESPONSE OF THE CARBON-SULFUR  
SEDIMENTARY RECORD OF GREAT SALT LAKE,  
UTAH TO CHANGING DEPOSITIONAL  
ENVIRONMENTS [33625] ..... 1:00 P
- 2 M.J. Baedeker\*, S.S. Lindsay: ORGANIC  
GEOCHEMISTRY OF SEDIMENTS OF GREAT SALT  
LAKE, UTAH: INFLUENCE OF CHANGING  
DEPOSITIONAL ENVIRONMENTS [33173] ..... 1:30 P
- 3 Judith A. McKenzie\*, Gregor P. Eberli:  
STABLE-ISOTOPE SIGNALS AS INDICATORS OF  
PALEOENVIRONMENTAL CHANGES IN LAKES:  
GREAT SALT LAKE, A CASE STUDY [33634] ..... 2:00 P
- 4 John W. Farrington\*, Robert B. Gagosian,  
Stuart G. Wakeham, Cindy Lee, John K. Volkman:  
ORGANIC GEOCHEMISTRY OF RECENT SEDIMENTS  
FROM THE PERU UPWELLING AREA [33637] ..... 2:30 P

- 5 Lisa M. Pratt\*: INFLUENCE OF PALEOCLIMATE  
ON ABUNDANCE AND TYPE OF ORGANIC MATTER  
PRESERVED IN EARLY CRETACEOUS TETHYS  
[33623] ..... 3:00 P
- 6 J. Michael Moldovan\*, Wolfgang K. Seifert,  
Emilio J. Gallegos: THE EFFECTS  
OF GENETIC ENVIRONMENT ON THE COMPOSITION  
OF BIOLOGICAL MARKERS IN PETROLEUM [33630] .... 3:30 P
- 7 J.E. Zumberge\*, S.E. Palmer, C.J. Schiefelbein:  
KINETICS OF STERANE AND HOPANE EPIMERIZATION:  
LABORATORY SIMULATION BY HYDROUS PYROLYSIS  
[42895] ..... 4:00 P
- 8 Ronald C. Surdam\*, Laura J. Crossey,  
E. Sven Hagen, Henry P. Heasler:  
TIME-TEMPERATURE RECONSTRUCTIONS OF  
DIAGENETIC SYSTEMS [51690] ..... 4:30 P
- 9 Simon C. Brassell\*, Neil Robinson,  
Geoffrey Eglinton: MOLECULAR MARKERS OF  
MICROBIAL CONTRIBUTIONS TO SEDIMENTS  
[33633] ..... 5:00 P

Monday, Nov. 5

GEOCHEMISTRY I: WATER-ROCK INTERACTION (I)  
Palace A/B, MGM, 8:00 a.m.

John A. Apps and Varda N. Fleer, Presiding

- 1 Art F. White\*, Andy Yee: COUPLED CATION-ELECTRON TRANSFER MECHANISMS ASSOCIATED WITH THE DISSOLUTION OF IRON-CONTAINING SILICATES AT 25 DEGREES C [51679] ..... 8:00 A
- 2 Patricia M. Dove\*, J. Donald Rimstidt: THE SOLUBILITY AND STABILITY OF SCORODITE [42174] ..... 8:15 A
- 3 D.A. Parkhurst, G.E. Brown\*, G.A. Parks, G.A. Waychunas: STRUCTURAL STUDY OF ZINC COMPLEXES IN AQUEOUS CHLORIDE SOLUTIONS BY FLOURESCENCE EXAFS SPECTROSCOPY [52087] .... 8:30 A
- 4 D.C. Melchior\*, D. Langmuir, P.S.Z. Rogers: CHEMICAL MODELING OF TENORITE SOLUBILITY IN SALINE WATERS [52110] ..... 8:45 A
- 5 Demetrius C. Pohl\*, George A. Parks: SOLUBILITY OF URANINITE UNDER REDUCING CONDITIONS AT ELEVATED TEMPERATURES AND PRESSURES [52223] ..... 9:00 A
- 6 George R. Holdren, Jr.\*, Patricia M. Speyer: STOICHIOMETRY OF ALKALI FELDSPAR DISSOLUTION AT VARIOUS PH VALUES AND AT ROOM TEMPERATURE [41212] ..... 9:15 A
- 7 John A. Apps\*, John M. Neil: ALBITE SOLUBILITY IN THE AQUEOUS PHASE TO 350 DEGREES C [53041] ..... 9:30 A
- 8 Wu-Liang Huang\*, Ann M. Bishop, Roy W. Brown: EFFECT OF FLUID/SOLID RATIO ON ALBITE DISSOLUTION AND ILLITE FORMATION AT 200 DEGREES C AND 500 BARS [52529] ..... 9:45 A
- 9 Varda N. Fleer\*, Bruce W. Goodwin: THE EFFECTIVE SOLUBILITY OF GRANITE [50958] ..... 10:00 A
- 10 Robert B. Heimann\*, Mary Ann T. Stanchell: REACTION OF Ca-SATURATED MONTMORILLONITE WITH GROUNDWATERS OF DIFFERENT IONIC STRENGTHS AT TEMPERATURES BETWEEN 25 AND 200 DEGREES C [50574] ..... 10:15 A
- 11 James L. Krumhansl\*: PRELIMINARY ESTIMATE OF A SOLUBILITY PRODUCT FOR SWy-1 SMECTITE UNDER HYDROTHERMAL CONDITIONS [51538] ..... 10:30 A
- 12 Eric H. Oelkers\*, Harold C. Helgeson: CALCULATION OF DIFFUSION COEFFICIENTS OF AQUEOUS SPECIES IN HYDROTHERMAL SYSTEMS AT PRESSURES AND TEMPERATURES TO 5 KB AND 1000 DEGREES C [52667] ..... 10:45 A
- 13 John C. Tanger IV\*, Harold C. Helgeson: REVISED EQUATIONS OF STATE FOR CALCULATING THE STANDARD MOLAL THERMODYNAMIC PROPERTIES OF AQUEOUS SPECIES IN HYDROTHERMAL SYSTEMS AT PRESSURES AND TEMPERATURES TO 5 KB AND 1000 DEGREES C [49882] ..... 11:00 A
- 14 William M. Murphy\*, Harold C. Helgeson: KINETICS OF TRANSIENT AND STEADY-STATE HYDROLYSIS OF ROCK-FORMING SILICATES [52669] ..... 11:15 A

GEOCHEMISTRY II: ORGANIC GEOCHEMISTRY

Capitol 1, MGM, 3.30 p.m. (Follows GEOMORPHOLOGY I, Papers 1-6)

Karen L. Presteggaard and Janina Rafalska-Bloch, Presiding

- 7 M.H. Engel\*, S.A. Macko: THE EFFECT OF RACEMIZATION ON THE STABLE ISOTOPIC COMPOSITION OF AMINO ACIDS: A METHOD FOR EVALUATING THE ORIGIN(S) OF AMINO ACIDS IN FOSSILS AND SEDIMENTS [51510] ..... 3:30 P
- 8 J. Rafalska-Bloch\*, W.P. Lanier, J.V. Bonilla, M.H. Engel: BEHAVIOR OF BIOMONOMERS DURING PROTOKEROGEN SYNTHESIS: CONDENSATION, RACEMIZATION AND DECOMPOSITION REACTIONS OF AMINO ACIDS AND SUGARS [51507] ..... 3:45 P
- 9 S.E. Drummond\*, D.A. Palmer: THERMAL DECARBOXYLATION OF ACETATE: BOUNDARY CONDITIONS FOR THE ROLE OF ACETATE IN THE PRIMARY MIGRATION OF NATURAL GAS [50210] ..... 4:00 P
- 10 Tylon O. Willingham\*, Bartholomew Nagy, Lois A. Nagy, David H. Krinsley, David J. Mossman: COMPARISON OF THE DENISON REEF, HURONIAN SUPERGROUP, CANADA AND THE VAAL REEF, WITWATERSRAND SUPERGROUP, SOUTH AFRICA: THE NATURE OF KEROGEN AND MINERAL DIAGENESIS [47272] ..... 4:15 P

- 11 Barbara A. Price\*, Jeffrey L. Bada: AGE DETERMINATION OF MARINE SEDIMENTS USING DECOMPOSITION REACTIONS OF THREONINE AND SERINE IN MONOSPECIFIC FORAMINIFERAL SHELLS [49819] ..... 4:30 P

- 12 Eli Tannenbaum, I.R. Kaplan\*: ROLE OF MINERALS IN PRODUCTION OF GAS AND CONDENSATE HYDROCARBONS DURING PYROLYSIS OF ORGANIC MATTER [42651] ..... 4:45 P

- 13 Philip A. Meyers, Jürgen Rullkötter, Keith W. Dunham\*: PALEOZOIC OILS OF THE MICHIGAN BASIN: ORGANIC GEOCHEMICAL EVIDENCE OF MIGRATION [34487] ..... 5:00 P

POSTER SESSION II GENERAL GEOCHEMISTRY (I)  
Fronton Foyer, MGM, 2:00 p.m. - 6:00 p.m.

Authors will be present from 2:30 p.m. - 4:30 p.m.

- Robert H. Brigham\*, James R. O'Neil: THE MOVEMENT OF WATER THROUGH A COOLING PLUTON: AN OXYGEN ISOTOPE STUDY [36192] ..... Booth 7

- M.L. Rivers\*, J.V. Smith, I.M. Steele, K.W. Jones, A.L. Hanson: FLUORINE IN PERIDOTITE AND ECLOGITE XENOLITHS FROM THE MANTLE [40785] ..... Booth 8

- Yuch-Ning Shieh\*, Teresa M. Mensing: CORRELATION BETWEEN OXYGEN ISOTOPE AND CHEMICAL COMPOSITIONS IN FELDSPARS FROM A PRECAMBRIAN BASEMENT CORE IN OHIO [48578] .... Booth 9

- E.W. Jalajala\*, A. Kaufman, T.-L. Ku: ACTINIDE MICRODISTRIBUTIONS WITHIN MONAZITE [51472] ..... Booth 10

- Bruce W. Chappell\*, Wayne N. Sawka: VERTICAL DISTRIBUTION OF RADIOACTIVITY IN DIFFERENT TYPES OF GRANITE CRUST: IMPLICATIONS TO HEAT FLOW IN THE SIERRA NEVADA BATHOLITH, USA AND THE LACHLAN FOLD BELT, AUSTRALIA [51192] ..... Booth 11

- Kevin G. Knauss\*, William J. Beiriger: DACHKARDITE FORMATION BY HYDROTHERMAL ALTERATION OF A DEVITRIFIED HIGH-SILICA RHVOLITE [40260] ..... Booth 12

- Björn T. Larsen\*: A QUANTITATIVE CRYSTAL FRACTIONAL MODEL FOR A CENTRAL VOLCANO/CAULDRON IN THE OSLO GRABEN [42931] .. Booth 13

- R.W. Carlson\*, W.K. Hart: REGIONAL CHEMICAL AND ISOTOPIC MAPPING AND THE VOLCANO/TECTONIC EVOLUTION OF THE NORTHWESTERN U.S. [41239] ..... Booth 14

- M. Hill\*, J.C. Hepburn, R. Hon: ANALYSIS OF ACCRETED TERRANES USING ISOTOPE AND TRACE ELEMENT GEOCHEMISTRY OF IGNEOUS ROCKS [46130] ..... Booth 15

- Georges R. Dagenais\*, Karlis Muehlenbachs: OXYGEN ISOTOPE CONTRASTS BETWEEN GRANITOID ROCKS OF ACCRETED AND OLD CRATONIC TERRANES IN THE YUKON [44906] ..... Booth 16

- Jonathan M. Husch\*, Thomas J. Hennigan: THE GEOCHEMISTRY AND ORIGIN OF LATE ARCHEAN AMPHIBOLITES FROM THE RUBY RANGE, MONTANA [41345] ..... Booth 17

- Janet A. Viglino\*, Colin M. Graham, Russell S. Harmon: EXPERIMENTAL HYDROGEN ISOTOPE FRACTIONATION FACTORS IN THE SYSTEM CHLORITE - H<sub>2</sub>O [40965] ..... Booth 18

- R.A. Zielinski\*, C.A. Bush, R.W. Spengler, B.J. Szabo: ROCK-WATER INTERACTION IN ASH-FLOW TUFFS, YUCCA MOUNTAIN, NEVADA-- THE RECORD FROM URANIUM STUDIES [51580] ..... Booth 19

- Rona J. Donahoe\*, Bruce S. Hemingway, J.G. Liou: ZEOLITE STABILITY IN TUFFACEOUS SEDIMENTS AT SEARLES LAKE, CALIFORNIA [36524] ..... Booth 20

- Gail S. Peretsman\*, William T. Holser: GEOCHEMISTRY OF EVAPORITES FROM THE NORTH ATLANTIC RIFT [45425] ..... Booth 21

- R.S. Fisher\*, C.W. Kreitler: ISOTOPIC AND GEOCHEMICAL COMPOSITION OF DEEP-BASIN BRINES, PALO DURO BASIN, TEXAS [44200] ..... Booth 22

- David A. Vanko\*: CHLORINE-RICH AMPHIBOLES AND CHLORINE-RICH FLUID INCLUSIONS IN QUARTZ: EVIDENCE FOR HIGH-SALINITY OCEANIC HYDROTHERMAL SYSTEMS [50940] ..... Booth 23

- J. Robert Bodnar\*, S.M. Sterner: SYNTHETIC FLUID INCLUSIONS IN NATURAL QUARTZ [51559] ..... Booth 24

- D.K. Nordstrom\*, C.E. Roberson, J.W. Ball, B.B. Hanshaw: THE EFFECT OF SULFATE ON ALUMINUM CONCENTRATIONS IN NATURAL WATERS: II. FIELD OCCURRENCES AND IDENTIFICATION OF ALUMINUM HYDROXYSULFATE PRECIPITATES [43634] ..... Booth 25

Jessica Posey-Dowty\*, Maria Borcsik,  
David Crerar, Ronghua Zhang: THE  
DISSOLUTION KINETICS OF CALCITE FROM 25  
DEGREES C TO 300 DEGREES C IN AQUEOUS  
SOLUTIONS [37412] ..... Booth 26

Kristin Hemlein\*, John Grover: KINETIC  
EXPERIMENTS ON THE FORMATION OF CALCITE  
AND CALCIAN DOLOMITE FROM HIGH-MG CALCITE  
AT 250-350 DEGREES C [42902] ..... Booth 27

J. Donald Rimstidt\*: QUARTZ SOLUBILITY AT  
LOW TEMPERATURES [42200] ..... Booth 28

M.A. McKibben\*, H.L. Barnes: KINETICS OF  
AQUEOUS PYRITE OXIDATION [50884] ..... Booth 29

J.B. Murowchick\*, H.L. Barnes: THE  
RECOGNITION AND SIGNIFICANCE OF POROUS  
PYRITE [50879] ..... Booth 30

Gene Whitney\*, H. Roy Northrop:  
RECONSTRUCTING AN ANCIENT FLUID-FLOW  
REGIME USING THE MINERALOGY AND STABLE  
ISOTOPE GEOCHEMISTRY OF DIAGENETIC CLAYS  
IN SANDSTONE [52548] ..... Booth 31

Marilyn G. Truscott\*, Denis M. Shaw:  
BORON ABUNDANCE AND LOCALIZATION IN  
GRANULITES [51619] ..... Booth 32

Lorraine J. Alcott\*, Joseph L. Graf:  
RARE EARTH ELEMENT DISTRIBUTIONS WITHIN  
LIMESTONES AND DOLOMITES OF THE BONNETERRE  
FORMATION IN THE VICINITY OF THE VIBURNUM  
TREND, SOUTHEAST MISSOURI [37352] ..... Booth 33

Mark D. Feldman\*, L. Paul Knauth:  
HYDROGEN ISOTOPE GEOCHEMISTRY OF TRACE  
WATER IN SEDIMENTARY DOLOMITE [42432] ..... Booth 34

Tuesday, Nov. 6

GSA CENTENNIAL PROGRAM AND GEOCHEMICAL SOCIETY  
SYMPOSIUM: EARTH-SURFACE CHEMICAL CYCLES IN THE GEOLOGIC  
PAST (FULL DAY)  
Broadway II, MGM, 8:30 a.m.

Robert A. Berner and Robert M. Garrels, Presiding (AM)  
C. Bryan Gregor and Preston E. Cloud, Jr., Presiding (PM)

MORNING SESSION

1 Jan Veizer\*, Siegfried L. Jansen:  
BASEMENT AND SEDIMENTARY RECYCLING:  
SEDIMENTARY AND GEOCHEMICAL RECORD [33007] .... 8:30 A

2 James C.G. Walker\*: CARBON DIOXIDE ON THE  
EARLY EARTH [33223] ..... 9:10 A

3 H.D. Holland\*: NEAR-SURFACE GEOCHEMISTRY  
DURING THE PRECAMBRIAN [33008] ..... 9:50 A

4 Robert A. Berner\*, Robert Raiswell:  
DEPOSITION OF SEDIMENTARY ORGANIC MATTER  
OVER PHANEROZOIC TIME [33243] ..... 10:30 A

5 William T. Holser\*, Mordechai Magaritz:  
TRENDS AND EVENTS IN THE EXOGENIC CYCLES  
OF SULFUR AND CARBON [45400] ..... 11:10 A

AFTERNOON SESSION

6 William W. Hay\*, Eric J. Barron:  
GEOCHEMICAL CYCLES, PALEOGEOGRAPHY,  
TOPOGRAPHY AND CLIMATE [33011] ..... 1:30 P

7 A.C. Lasaga\*, R.A. Berner, R.M. Garrels:  
A MODEL FOR ATMOSPHERIC CO<sub>2</sub> AND OCEAN  
CHEMISTRY OVER THE PAST 100 MILLION YEARS  
[33224] ..... 2:10 P

8 F.B. Van Houten, M.A. Arthur\*:  
PHANEROZOIC CHAMOSITIC IRONSTONES,  
PHOSPHORITES, AND THE ROLE OF CLIMATE AND  
OCEANIC ANOXIA [33006] ..... 2:50 P

9 Wallace S. Broecker\*: RADIOCARBON DATING  
OF BENTHIC FORAMINIFERA AS A MEANS OF  
DETERMINING RATES OF DEEP WATER FORMATION  
OVER THE LAST 20,000 YEARS [33001] ..... 3:30 P

10 J.M. Edmond\*: THE CONTEMPORARY  
GEOCHEMICAL CYCLE [33005] ..... 4:10 P

11 Michael B. McElroy\*: INFLUENCE OF THE  
MARINE BIOTA AT HIGH LATITUDE: CHANGES IN  
ATMOSPHERIC CO<sub>2</sub> [33003] ..... 4:50 P

Wed., Nov. 7

GEOCHEMISTRY III: GEOTHERMAL AND HYDROTHERMAL GEOCHEMISTRY  
Palace A/B, MGM, 8:00 a.m.

Derrill M. Kerrick and Teresa S. Bowers, Presiding

1 Teresa S. Bowers\*, Hugh P. Taylor, Jr.:  
AN INTEGRATED CHEMICAL AND STABLE-ISOTOPE  
MODEL OF THE ORIGIN OF MID-OCEAN RIDGE  
HOT SPRING SYSTEMS [52999] ..... 8:00 A

2 W.C. Shanks\*, D.R. Janecky: INCREMENTAL  
REACTION MODELING AND SULFUR ISOTOPE  
EVOLUTION OF SEAFLOOR HYDROTHERMAL  
FLUIDS: 21 DEGREES N AND JUAN DE FUCA  
RISE [43944] ..... 8:15 A

3 David J. Des Marais\*: ISOTOPICALLY LIGHT  
CARBON IN MID-OCEAN RIDGE BASALTS--FACT  
OR ARTIFACT? [51458] ..... 8:30 A

4 James H. Chen\*, G.J. Wasserburg, K.L. Von  
Damm, J.M. Edmond: 234U/238U AND LEAD  
ISOTOPE COMPOSITIONS IN HOT SPRINGS ON  
THE EAST PACIFIC RISE AT 21 DEGREES N  
[42547] ..... 8:45 A

5 Marjorie S. Goldfarb\*: MECHANISMS OF  
SULFIDE DEPOSITION AT HYDROTHERMAL VENTS  
[36211] ..... 9:00 A

6 Dimitri A. Sverjensky\*: MOBILITY OF TRACE  
ELEMENTS DURING HYDROTHERMAL ALTERATION  
PROCESSES [40595] ..... 9:15 A

7 Cole L. Smith\*, Walter L. Ficklin, John M.  
Thompson: ENRICHMENT OF ARSENIC, ANTIMONY,  
AND TUNGSTEN IN THE WATERS OF SOME  
MODERN HIGH-TEMPERATURE GEOTHERMAL  
SYSTEMS [50127] ..... 9:30 A

8 C.M. Lesher\*, H.L. Gibson, I.H. Campbell:  
COMPOSITION-VOLUME CHANGES IN  
HYDROTHERMALLY ALTERED ANDESITE AT  
BUTTERCUP HILL, NORANDA DISTRICT, QUEBEC  
[51884] ..... 9:45 A

9 Sigurdur R. Gislason\*, Hans P. Eugster:  
OXYGEN FUGACITIES IN A BASALT-METEORIC  
WATER GEOTHERMAL SYSTEM: KRAFLA, NE  
ICELAND [34609] ..... 10:00 A

10 J.N. Valette-Silver\*, L. Brown, J. Klein,  
R. Middleton: STUDY OF EROSION HISTORY  
USING LOBE PROFILES: IMPACT OF AGRICULTURE ON  
EROSION IN THE CHESAPEAKE BAY AREA [41434] ..... 10:15 A

11 E.C. Thornton\*, W.E. Seyfried, Jr.:  
SEDIMENT ALTERATION, PETROLEUM  
GENERATION, AND METAL DEPOSITION IN THE  
GUAYMAS BASIN HYDROTHERMAL SYSTEM: AN  
EXPERIMENTAL STUDY [52959] ..... 10:30 A

12 W.C. Sidle\*: RIFT ZONE MICROSEEPAGES IN THE  
EASTERN SNAKE RIVER PLAIN, IDAHO [50981] ..... 10:45 A

13 Wayne E. Ramage\*, Heinrich D. Holland:  
CHEMICAL ZONING OF GANGUE DOLOMITE IN LEAD  
ORES OF THE VIBURNUM TREND, MISSOURI [52047] .. 11:00 A

14 W.M. Kemp III\*, John R. Bowman: A STABLE  
ISOTOPE AND FLUID INCLUSION STUDY OF  
CONTACT Al(Fe)-Ca-Mg-Si SKARNS IN THE  
ALTA STROCK AUREOLE, ALTA, UTAH [52988] ..... 11:15 A

15 Peter J. Vrolijk\*: STABLE ISOTOPE AND  
PALAEOHYDROLOGIC EVOLUTION OF VEINS IN THE  
KODIAK ACCRETIONARY COMPLEX [49900] ..... 11:30 A

16 S.M. Sterner\*, D.M. Kerrick, R.J. Bodnar:  
EXPERIMENTAL DETERMINATION OF UNMIXING IN  
H<sub>2</sub>O-CO<sub>2</sub>-NaCl FLUIDS AT 500 DEGREES C AND  
1 kb USING SYNTHETIC FLUID INCLUSIONS:  
METAMORPHIC IMPLICATIONS [50896] ..... 11:45 A

GEOCHEMICAL SOCIETY LUNCHEON AND AWARDS CEREMONY,  
FOLLOWED BY GEOCHEMICAL SOCIETY DISTINGUISHED LECTURE  
Caruso's Restaurant, MGM, 12 noon

Luncheon and Presentation of Awards ..... 12:00

Goldschmidt Medal and Strock Honorarium: Alfred  
O. C. Nier, University of Minnesota

Clarke Medal: Andrew S. Mackenzie, British  
Petroleum Company

Treibs Medal: Wolfgang K. Seifert, Chevron  
Research Company

Best Paper, Organic Geochemistry Division: A. S.  
Mackenzie and D. P. McKenzie - Isomerization  
and aromatization of hydrocarbons in sedimentary  
basins formed by extension. Geological Magazine  
120, 417-470 (1983)

Geochemical Society Distinguished Lecture ..... 1:00 P  
Hans Eugster: OIL SHALES, EVAPORITES AND ORE DEPOSITS

Note: MSA AND MINERAL PHYSICS COMMITTEE OF AGU OPEN  
MEETING ON PHYSICS AND CHEMISTRY OF GEOLOGICAL MATERIALS  
Mayer Room, MGM, 2.30 p.m.

Charles T. Prewitt, Presiding

1. Panel of Invited Speakers: NEW DIRECTIONS AND  
FUNDING OPPORTUNITIES FOR RESEARCH ..... 2:30 P

2. General Discussion ..... 3:30 P

GEOCHEMISTRY IV: WATER-ROCK INTERACTION (II)  
Palace A/B, MGM, 1:30 p.m.

Paul A. Baker and Y. Kolodny, Presiding

- 1 Juha A. Karhu\*, Samuel Epstein: OXYGEN ISOTOPE RATIOS IN COEXISTING PHOSPHATE AND MICROCRYSTALLINE QUARTZ IN SOME NORTH AMERICAN CHERTS [42545] ..... 1:30 P
- 2 Boaz Luz\*, Yehoshua Kolodny: ISOTOPIC COMPOSITION OF MAMMALIAN BONE PHOSPHATE AND ITS RELATIONSHIP TO ENVIRONMENTAL WATER [42972] ..... 1:45 P
- 3 Warren W. Dickinson\*: OXYGEN ISOTOPE EVIDENCE FOR CALCITE EQUILIBRATION IN SANDSTONES, GREEN RIVER BASIN, WYOMING [50173] ..... 2:00 P
- 4 Paul A. Baker\*, Donna J. Burns: DIAGENESIS OF DEEP-SEA CARBONATE SEDIMENTS--ISOTOPIC AND TRACE ELEMENTAL STUDIES [41020] ..... 2:15 P
- 5 William H. Casey\*, Antonio C. Lasaga, Albert L. Guber: NON-STEADY STATE CHEMICAL MASS TRANSFER AND DIAGENESIS IN THE SALT MARSH AND INTERTIDAL ZONES [42009] ... 2:30 P
- 6 Douglas G. Neese, John D. Pigott\*: IN SITU ROCK/WATER GEOCHEMISTRY OF A HOLOCENE MARINE TANGENTIAL OOID ENVIRONMENT, BROWNS CAY, BAHAMAS [51508] ..... 2:45 P
- 7 Peter K. Swart\*: URANIUM AS A TRACER IN THE PROCESSES OF DOLOMITIZATION [41400] ..... 3:00 P
- 8 Stephen J. Burns\*, Paul A. Baker: GEOCHEMICAL STUDIES OF THE ORIGIN OF DOLOMITE IN THE MIOCENE MONTEREY FORMATION OF CALIFORNIA [49164] ..... 3:15 P
- 9 Boaz Lazar\*, Heinrich D. Holland: FLUID INCLUSIONS IN HALITE: CLUES TO THE CHEMICAL EVOLUTION OF SEAWATER [47593] ..... 3:30 P
- 10 Timothy P. Wilson\*, David T. Long: THE BEHAVIOR OF BROMIDE DURING THE DISSOLUTION OF HALITE AT 25 DEGREES C AND 1 ATM [44926] ... 3:45 P
- 11 Ronald K. Stoessell\*: BROMIDE PARTITIONING IN HALITE-BRINE SYSTEMS: STOICHIOMETRIC SATURATION, RECRYSTALLIZATION, AND THERMODYNAMIC EQUILIBRIUM [40557] ..... 4:00 P
- 12 L. Paul Knauth\*, Norman Hubbard: ISOTOPE GEOCHEMISTRY OF FORMATION WATERS IN THE PALO DURO BASIN, TEXAS [42457] ..... 4:15 P
- 13 Norman Hubbard\*, J.C. Laul: BEHAVIOR OF NATURAL URANIUM, THORIUM, AND RADIUM RADIONUCLIDES IN BRINE [52642] ..... 4:30 P
- 14 Daniel Melchior, Pamela S.Z. Rogers, Donald Langmuir\*: THE GEOCHEMISTRY OF Ca, Sr, Ba AND Ra SULFATES IN SOME DEEP BRINES FROM THE PALO DURO BASIN, TEXAS [40695] ..... 4:45 P
- 15 W.A. Elders\*, L.H. Cohen, A.E. Williams, S. Neville, P. Collier, C. Oakes: NATURALLY-OCCURRING RADIONUCLIDES IN THE SALTON SEA GEOTHERMAL FIELD, CA: A NEAR-FIELD NATURAL ANALOG OF A WASTE REPOSITORY IN SALT [49830] ..... 5:00 P
- 16 Marc C. Monaghan\*: TRANSPORT OF NUCLIDES THROUGH SOILS [52849] ..... 5:15 P

POSTER SESSION VI GENERAL GEOCHEMISTRY (II)  
Fronton Foyer, MGM, 1:30 p.m. - 5:30 p.m.

Authors will be present from 2:30 p.m. - 4:30 p.m.

- Steven J. Fritz\*, Craig D. Eady:  
HYPERFILTRATION AS A GEOLOGICAL MECHANISM TO PRECIPITATE CALCITE IN THE SUBSURFACE [49561] ..... Booth 37
- Linda M. Bonnell\*, Thomas F. Anderson:  
SULFUR ISOTOPIC VARIATIONS IN CRETACEOUS BLACK AND GREEN SHALES [39635] ..... Booth 38
- Steven M. Burrows\*, Samuel M. Savin, James Aronson: OXYGEN ISOTOPE EVIDENCE FOR THE CONDITIONS OF DIAGENESIS OF THE MUDDY SANDSTONE, EAST FLANK OF THE POWDER RIVER BASIN, MONTANA AND WYOMING [48467] ..... Booth 39
- Robert B. Thomas, Arthur E. Burford, Lindgren L. Chyi\*: CHARACTERISTICS OF RARE EARTH ELEMENTS IN THE HEAVY MINERALS OF THE SEDIMENTS IN SAN LUIS VALLEY, COLORADO [46879] ..... Booth 40
- Frederick N. Robertson\*: ISOTOPIC CONTENT OF GROUND WATER ALONG THE COLORADO RIVER IN ARIZONA AND CALIFORNIA [52579] ..... Booth 41
- Kenneth D. Collerson\*, W.J. Ullman, T. Torgersen: Sr/Ca AND Sr ISOTOPIC EVOLUTION OF GROUNDWATERS FROM THE GREAT ARTESIAN BASIN, AUSTRALIA [50942] ..... Booth 42

- Annemarie Meike\*: A MODEL OF INCIPIENT SOLUTION CLEAVAGE FORMATION [40285] ..... Booth 43
- Lori L. Summa\*, Francois Guichard, Kenneth L. Verosub: TRACE ELEMENT MOBILITY IN TEPHRA FROM THREE DIAGENETIC ENVIRONMENTS [43021] ..... Booth 44
- Arndt Schimmelmann\*, Michael J. Deniro: CARBON AND NITROGEN STABLE ISOTOPE RATIOS OF AQUATIC ARTHROPOD CHITIN AS ENVIRONMENTAL INDICATORS [50306] ..... Booth 45
- E.L. Grossman\*, P.R. Betzer, W.C. Dudley, R.B. Dunbar: ISOTOPIC VARIATION IN PTEROPODS AND ATLANTIDS FROM NORTH PACIFIC SEDIMENT TRAPS [51658] ..... Booth 46
- Michael M. Cheatham, J. Tugel, M. Hurd, W.B. Lyons\*, K. Baker, H.E. Gaudette: THE BIOGEOCHEMISTRY OF ALGAL MATS IN GREAT BAY, NEW HAMPSHIRE, COMPARED TO SOLAR LAKE, SINAI [46518] ..... Booth 47
- J. Tracy Thorleifson\*, L. Paul Knauth: AN IMPROVED STEPWISE FLUORINATION PROCEDURE FOR THE OXYGEN ISOTOPIC ANALYSIS OF HYDROUS SILICA [35213] ..... Booth 48

Thurs, Nov 8

GEOCHEMISTRY V: MANTLE/CRUSTAL GEOCHEMISTRY  
Palace A/B, MGM, 8:00 a.m.

George R. Tilton and Peter Deines, Presiding

- 1 S.K. Saxena\*, G. Erkkisson: ANHYDROUS PHASE EQUILIBRIA IN EARTH'S UPPER MANTLE [34895] .... 8:00 A
- 2 Robert T. Gregory, Hugh P. Taylor, Jr.\*: NON-EQUILIBRIUM 180/160 EFFECTS IN MANTLE XENOLITHS [46318] ..... 8:15 A
- 3 Peter Deines\*: EVIDENCE FOR A SYSTEMATIC DEPLETION IN 13C IN PARTS OF THE MANTLE UNDERLYING THE ORAPA, BOTSWANA, KIMBERLITE [42017] ..... 8:30 A
- 4 Michael D. Higgins\*: THE ABUNDANCE OF BORON IN SOUTH AFRICAN KIMBERLITES [51620] .... 8:45 A
- 5 George R. Tilton\*, Sung Tack Kwon: GEOCHEMICAL EVOLUTION OF PRECAMBRIAN MANTLE IN THE SUPERIOR PROVINCE, CANADIAN SHIELD [37915] ..... 9:00 A
- 6 H. Downes\*: GEOCHEMICAL STUDIES OF WESTERN EUROPEAN SUB-CONTINENTAL LITHOSPHERIC MANTLE [44808] ..... 9:15 A
- 7 Mik Rosing\*, Robert F. Dymek: ON THE <sup>13800</sup> ISUA, WEST GREENLAND, "CARBENSCHIEFER FORMATION" (GS): PETROLOGICAL RESULTS AND A REASSESSMENT OF ISOTOPIC STUDIES [41366] ..... 9:30 A
- 8 Barry L. Weaver\*, Paul N. Taylor, John Tarney, Alan E. Wright: EVIDENCE FOR AN ENRICHED MANTLE SOURCE AND CRUSTAL CONTAMINATION IN A PLUTONIC COMPLEX FROM EAST GREENLAND [48992] ..... 9:45 A
- 9 Jiang-feng Chen\*, K.A. Foland, Lisa A. Gilbert, K.A. Randall: DEPLETED MANTLE SOURCES FOR MESOZOIC PLUTONS OF NEW ENGLAND AND SOUTHERN QUEBEC [41598] ..... 10:00 A
- 10 S.S. Sorensen\*: TRACE ELEMENT EFFECTS OF ECLOGITE/PERIDOTITE METASOMATISM, CATALINA SCHIST TERRANE, SOUTHERN CALIFORNIA [51436] ..... 10:15 A
- 11 R. Hon\*, M. Hill, J.C. Hepburn, C. Smith: COMPOSITION AND AGE OF SOURCE MATERIALS FOR LATE PROTEROZOIC MAGMAS IN THE AVALON TERRANE OF EASTERN NORTH AMERICA - EVIDENCE FROM THE BOSTON PLATFORM [46131] ..... 10:30 A
- 12 J. Patchett\*, R. Gorbatschev, O. Kouvo, W. Todt: ORIGIN OF CONTINENTAL CRUST OF 1.9-1.7 Ga AGE: Nd ISOTOPES IN THE SVECOKARELIAN TERRAIN OF SWEDEN AND FINLAND [47262] ..... 10:45 A
- 13 Debra S. Stakes\*, Hugh P. Taylor, Jr.: OXYGEN ISOTOPE AND FIELD STUDY OF THE NORTHERN SAMAIL OPHIOLITE, SULTANATE OF OMAN [53004] ..... 11:00 A
- 14 Peter Stille\*, Mitsunobu Tatsumoto: PRECAMBRIAN THOLEIITIC-DACITIC ROCK SUITES AND CAMBRIAN ULTRAMAFIC ROCKS IN THE PENNINE NAPPE SYSTEM OF THE ALPS--EVIDENCE FROM Sm-Nd ISOTOPES AND RARE EARTH ELEMENTS [52547] ..... 11:15 A
- 15 S.B. Jacobsen\*, R.F. Dymek: Sm-Nd ISOTOPIC EVIDENCE FOR AN ANCIENT DEPLETED COMPONENT IN THE ISUA METASEDIMENTS [33215] ... 11:30 A
- 16 R. Lawrence Edwards\*, G.J. Wasserburg: Sm-Nd AND Rb-Sr SYSTEMATICS OF THE KEMPERSAI AND VOYKAR MASSIFS: EVIDENCE FOR A BELT OF OBDUCTED OCEANIC CRUST IN THE URAL MOUNTAINS, USSR [52369] ..... 11:45 A

GEOCHEMISTRY VI: IGNEOUS AND LOW TEMPERATURE GEOCHEMISTRY  
Palace A/B, MGM, 1:00 p.m.

Denis M. Shaw and R. W. Carlson, Presiding

- 1 Stanley A. Mertzman\*: Sm-Nd DATA AND THE RELATIONSHIP BETWEEN THE MEDICINE LAKE ANDESITE SERIES AND HOLOCENE SILICIC VOLCANISM IN THE MEDICINE LAKE HIGHLAND, CALIFORNIA [48466] ..... 1:00 P
- 2 M. Boily\*, C. Brooks, J.N. Ludden, D.E. James: COMPARATIVE EVOLUTION OF CRETACEOUS TO LATE CENOZOIC SILICIC MAGMATISM IN THE CENTRAL ANDES [42619] ..... 1:15 P
- 3 William K. Wertz\*, Michael R. Perfit: GEOCHEMISTRY OF LATE CENOZOIC VOLCANIC ROCKS FROM THE DOMINICAN REPUBLIC AND THEIR RELATIONSHIP TO POST-SUBDUCTION TECTONICS [45587] ..... 1:30 P
- 4 M. Reagan\*, J. Gill: OPEN-SYSTEM BEHAVIOR EXHIBITED BY THE 1968-PRESENT ERUPTION OF VOLCAN ARENAL, COSTA RICA [36009] ..... 1:45 P
- 5 Ashish R. Basu\*, Deng Wan-Ming, Zhang Wen-You, Harald Mehnert, Judith Hannah: ISOTOPIC STUDY OF TERTIARY ALKALIC VOLCANISM IN CHANGTANG, NORTHERN TIBET [41209] ..... 2:00 P
- 6 Barbara Barreiro\*, Alan Cooper: A RADIOGENIC ISOTOPE STUDY OF ALKALINE LAMPORPHYRES FROM SOUTH ISLAND, NEW ZEALAND [39256] ..... 2:15 P
- 7 G. Ferrara, S. Tonarini, H.P. Taylor, Jr., M.A. Laurenzi, B. Turi\*: OXYGEN AND STRONTIUM ISOTOPE STUDIES OF LEUCITE-BEARING VOLCANIC ROCKS FROM THE ALBAN HILLS, ITALY [46317] ..... 2:30 P
- 8 K.R. Ludwig\*: MINIMIZING THE EFFECT OF VARIABLE INITIAL RATIOS ON U-Pb ISOCHRONS [51604] ..... 2:45 P
- 9 Julie D. Morris\*: TRACE ELEMENT AND Sr, Nd, AND Pb ISOTOPE CONSTRAINTS ON ARC SOURCE REGIONS, THE HALMAHERA ISLAND ARC, NORTHEASTERN INDONESIA [52615] ..... 3:00 P
- 10 James M. Mattinson\*: LABILE Pb IN YOUNG, HIGH-URANIUM ZIRCONS [37912] ..... 3:15 P
- 11 Jeffrey S. Hanor\*: LARGE-SCALE, NON-ADVECTIVE MASS TRANSPORT OF DISSOLVED SALTS IN THE NORTHERN GULF COAST [48957] ..... 3:30 P
- 12 Paul Aharon\*: CONSTRAINTS ON OCEAN CHEMISTRY CHANGE OVER THE GLACIAL CYCLE FROM CARBON ISOTOPE STUDIES OF RAISED CORAL REEFS [50455] ..... 3:45 P
- 13 R.B. Koepnick\*, W.H. Burke, R.E. Denison, E.A. Hetherington, H.P. Nelson, J.B. Otto, L.E. Waite: CONSTRUCTION OF THE SEAWATER  $87\text{Sr}/86\text{Sr}$  CURVE FOR THE CENOZOIC AND CRETACEOUS: SUPPORTING DATA [42666] ..... 4:00 P
- 14 C.D. Frost\*, R.K. O'Nions: Nd ISOTOPIC MASS BALANCE IN THE MEDITERRANEAN SEA [49682] ..... 4:15 P
- 15 D.M. Shaw\*, M. Bergeron, M.D. Higgins, M. Truscott: BORON BUDGET OF THE EARTH [51710] .. 4:30 P
- 16 Michael E. Berndt\*, William E. Seyfried, Jr.: BEHAVIOR OF B AND Li DURING LOW TEMPERATURE ALTERATION OF OCEANIC CRUST [52964] ..... 4:45 P

CLAY MINERALS SOCIETY ANNUAL MEETING, September 30 to October 3 1984, Baton Rouge, Louisiana. Information from Ray E. Ferrell, Dept of Geology, Louisiana State University, Baton Rouge, LA 70803, Tel. 504-388-5306.

ASSOCIATION OF ENGINEERING GEOLOGISTS 27TH ANNUAL MEETING, October 7-13, Boston, Massachusetts. Information from Richard Sherman, Metcalf & Eddy, 50 Staniford Street, Boston, MA 02114, Tel. 617-367-4236.

AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS ANNUAL MEETING, October 17-19, Orlando, Florida. Information from Bobby J. Timmons, Timmons Associates, P.O. Box 50606, Jacksonville Beach, FL 32250, Tel. 904-246-4533.

NORTH ATLANTIC PALEOCEANOGRAPHY CONFERENCE, November 6-7, London, England. Information from N. Shackleton, Dept of Quaternary Research, Godwin Laboratory, Free School Lane, Cambridge CB2 3RS, England.

OPHIOLITES THROUGH TIME, November 13-15, Nancy, France. Information from Jacqueline Desmons, Laboratoire de Pétrologie, Université de Nancy, B.P. No. 239, F-54506 Vandoeuvre-les-Nancy Cédex, France.

AMERICAN CHEMICAL SOCIETY ANNUAL MEETING, December 16-21, Honolulu, Hawaii. Information from Thomas Wildeman, Dept of Chemistry and Geochemistry, Colorado School of Mines, Golden, CO 80401. Tel. 303-273-3642.

1985

SALTS AND BRINES, February 24-28, New York. Information from Wm C. Larson, Twin Cities Research Center, Bureau of Mines, 5629 Minnehaha Ave S, Minneapolis, MN 55417, Tel. 612-725-3464.

MINERALOGICAL SOCIETY OF AMERICA SHORT COURSE "MICROSCOPIC TO MACROSCOPIC," May 24-26, Washington College, Chestertown, Maryland. Speakers include Charles Burnham, Roger Burns, Michael Carpenter, Subrata Ghose, Robert Hazen, Raymond Jeanloz, Susan Kieffer, Desmond McConnell, Paul McMillan and Alexandra Navrotsky. Further information from Alexandra Navrotsky, Dept of Chemistry, Arizona State University, Tempe, AZ 85287.



# GSA Annual Meeting • Reno • November 5-8, 1984 PREREGISTRATION

PREREGISTRATION must be RECEIVED by October 5. Send full payment. CANCELLATION requests must be received in writing by October 12. NO refunds after this date.

Type or print • Copy for your records

Name (Last)

(First)

Institution/Employer

Nickname for badge

Address

City

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Zip

Country

Business phone

Home phone

## PREREGISTRATION FEES

Fee

Qty

Amount

Professional member (please circle affiliations) Member # _____			
GSA [1] GIS [2] GS [3] MSA [4] NAGT [5] PS [6] SEG [7] CF [8] .....	( 1 )	\$ 70.00	1
Professional nonmember .....	( 2 )	\$105.00	1
Student (current ID required for badge pickup) .....	( 3 )	\$ 35.00	1
Student nonmember (current ID required for badge pickup) .....	( 4 )	\$ 45.00	1
Guest (fee does not include admission to technical sessions) .....	( 5 )	\$ 25.00	_____

Guest Name (Last)

(First)

City

State/Country

## GUEST ACTIVITIES (guest registration fee is required):

Lake Tahoe Luncheon .....	Nov. 5	( 6 )	\$ 22.00	_____	_____
Winner's Circle—Gaming Tour .....	Nov. 5	( 7 )	\$ 11.00	_____	_____
Virginia City Tour—Mackay Silver Tea .....	Nov. 6	( 8 )	\$ 13.50	_____	_____
Winner's Circle—Gaming Tour (repeat) .....	Nov. 6	( 9 )	\$ 11.00	_____	_____
Mackay Silver Tea—Nevada Museum of Art .....	Nov. 6	(10)	\$ 5.00	_____	_____
Lake Tahoe Luncheon (repeat) .....	Nov. 7	(11)	\$ 22.00	_____	_____
Nevada Yesterday & Today .....	Nov. 7	(12)	\$ 12.00	_____	_____

## SPECIAL EVENTS (registration is required):

GSA Awards Luncheon .....	Nov. 5	(13)	\$ 12.00	_____	_____
Hello, Hollywood, Hello! .....	Nov. 6	(14)	\$ 30.00	_____	_____
Engineering Geology Division Luncheon .....	Nov. 6	(15)	\$ 14.00	_____	_____
Geoscience Information Society Luncheon .....	Nov. 6	(16)	\$ 14.00	_____	_____
History of Geology Division Luncheon .....	Nov. 6	(17)	\$ 14.00	_____	_____
Hydrogeology Division Luncheon .....	Nov. 6	(18)	\$ 14.00	_____	_____
Mineralogical Society Luncheon .....	Nov. 6	(19)	\$ 14.00	_____	_____
National Association of Geology Teachers Luncheon .....	Nov. 6	(20)	\$ 14.00	_____	_____
Paleontological Society Luncheon .....	Nov. 6	(21)	\$ 14.00	_____	_____
Planetary Geology Division Luncheon .....	Nov. 6	(22)	\$ 14.00	_____	_____
Association of Women Geoscientists Breakfast .....	Nov. 7	(23)	\$ 10.00	_____	_____
Coal Geology Division Luncheon .....	Nov. 7	(24)	\$ 14.00	_____	_____
Geochemical Society Luncheon .....	Nov. 7	(25)	\$ 14.00	_____	_____
Geophysics Division Luncheon .....	Nov. 7	(26)	\$ 14.00	_____	_____
Quaternary Geology and Geomorphology Division Luncheon .....	Nov. 7	(27)	\$ 14.00	_____	_____
Society of Economic Geologists Luncheon .....	Nov. 7	(28)	\$ 14.00	_____	_____

## GSA SHORT COURSES (registration not required):

Remote Sensing .....	Nov. 4	(29)	\$ 75.00	_____	_____
Microcomputers & Mining Geologist .....	Nov. 3	(30)	\$ 85.00	_____	_____
Seismic Stratigraphy .....	Nov. 4	(31)	\$100.00	_____	_____
Geowriting .....	Nov. 3	(32)	\$ 75.00	_____	_____
Geowriting (repeat) .....	Nov. 4	(33)	\$ 75.00	_____	_____
Abstracts with Programs (reserved for pickup on-site) .....		(34)	\$ 18.00	_____	_____

Total Remittance \$ \_\_\_\_\_

GSA Reno Run (check to receive information) .....

**FOR OFFICE USE ONLY**

Deposit Date \_\_\_\_\_

Balance Due \_\_\_\_\_ A/R

Refund \_\_\_\_\_ A/P

GSA Check # \_\_\_\_\_

REMIT IN U.S. FUNDS, PAYABLE TO 1984 GSA ANNUAL MEETING  
OR CHARGE:  Master Card  VISA

Card expires: \_\_\_\_\_ mo. / \_\_\_\_\_ yr. \_\_\_\_\_ card number

Signature \_\_\_\_\_

MAIL TO: 1984 GSA ANNUAL MEETING, P.O. BOX 9140, BOULDER, CO 80301.

EXTRAMURAL COURSES IN APPLIED HYDROGEOLOGY. Beginning in January 1985, Wright State University will offer a one-year extramural program in applied hydrogeology (including hydrogeochemistry) at both basic (undergraduate) and advanced (graduate) levels, using an Interactive Remote Instructional System (IRIS) developed for professional personnel of the USDA Soil Conservation Service currently enrolled in the program. The program carries academic credit if desired; it consists of two courses at each level, with 6 quarter credit hours for each course at the undergraduate level (12 credits in all), 9 at the graduate level (18 in all). Further information from Ronald G. Schmidt, Department of Geological Sciences, Wright State University, Dayton, OH 45435, Tel. 513-873-3448 or 3455.

Notes on the Annual Meeting Technical Program, by Donald Langmuir (Geochemical Society Representative on the Joint Technical Program Committee of GSA)

This issue carries the schedule of events directly involving the Geochemical Society at this year's GSA Meeting in Reno. As the Society's representative for planning our part of the meeting (John Franz was my conferee), I am convinced that overall we have been as successful as possible in setting up the program.

Our chief problem was that everyone decided to go to Reno, and GSA did not predict it. There were a total of 1825 uninvited abstracts submitted this year, versus 1106 in 1983, and a previous high of 1366 in 1982. In Geochemistry alone, we submitted 156 uninvited abstracts, versus 100 in 1983. Because of space limitations in Reno, GSA decided that all the disciplines would face a 28% rejection rate in oral papers and a 12% rejection rate in poster papers. This meant an overall rejection rate of 24% in 1984 (versus 11% overall for Geochemistry in 1983). For the geochemistry oral papers the rejection rate would have been 34% this year, because we traditionally pre-empt six talks with our Awards Ceremony and Presidential Address or Distinguished Lecture.

Several decisions were made by us and by GSA to minimize rejections and better coordinate the meeting. A few conflicts remain, but some are always unavoidable. First, we instituted a Society Luncheon at which the Awards and Hans Eugster's Distinguished Lecture will be presented. Second, it was decided by GSA (with our agreement) that all papers indicating a preference for "poster" or "either" would be considered for poster sessions only, and that to accommodate the resulting increase in poster papers, poster sessions would be offered every morning and afternoon, Monday through Thursday. (Ours are on Monday and Wednesday afternoons.) Third, we considered it unfair to assign a higher rejection rate to oral than to poster papers. Accordingly, all abstracts were treated as a group with a uniform rejection rate of 23%. This unfortunately meant that because of space limitations a few oral papers were placed in poster sessions, and several papers requesting "poster" were assigned to an oral session. Such decisions were based in part on whether such papers fit in and strengthened the subject groupings within the oral sessions, and would constitute an attractive package to draw and hold an audience.

As always, the great majority of abstracts submitted in Geochemistry were excellent, and we think superior scientifically to the average abstract given at national meetings. This made rejection decisions most difficult. The majority of rejected papers appeared to be of regional or local interest only; GSA policy clearly states that such papers should be offered at the GSA regional meetings, not at the national meeting.

I want to thank Gary Landis and Craig Simmons, and the others who labored long on this year's unprecedented abstract review process. We hope we have pleased most of you, and that we'll see you in Reno. Plan to attend (and encourage others to attend) the Society's first Luncheon Awards Ceremony and Distinguished Lecture on Wednesday November 7. Tickets (\$14) will be available at registration or can be purchased with preregistration (see form on p. ). Two other musts are the Organic Geochemistry Division's Sunday afternoon Symposium, and the all-day Tuesday "Frontiers of Geoscience" Symposium, which is being jointly sponsored by our Society and GSA as a feature of the GSA Centennial Program.

# Official Housing Form

PLEASE COMPLETE AND RETURN BY OCTOBER 12 TO:

**GSA HOUSING BUREAU  
4590 SOUTH VIRGINIA STREET  
RENO, NV 89502**

PLEASE PRINT OR TYPE:  
**HOTEL/MOTEL PREFERENCE**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

**TYPE OF ACCOMMODATIONS**  
(send one reservation form per room)

- |  |   |
|--|---|
| <input type="checkbox"/> Single (1 bed, 1 person)    | <input type="checkbox"/> 1 Bedroom Suite      |
| <input type="checkbox"/> Double (1 bed, 2 persons)   | <input type="checkbox"/> 2 Bedroom Suite      |
| <input type="checkbox"/> Dbl/DbI (2 beds, 2 persons) | <input type="checkbox"/> Add rollaway to room |
| <input type="checkbox"/> Triple (2 beds, 3 persons)  |   |
| <input type="checkbox"/> Quad (2 beds, 4 persons)    |   |

**RATE REQUESTED\*** \_\_\_\_\_

*\*Subject to 7% room tax.*

**ARRIVAL DAY** \_\_\_\_\_ **DATE** \_\_\_\_\_ **TIME** \_\_\_\_\_ **a.m./p.m.**  
**DEPARTURE DAY** \_\_\_\_\_ **DATE** \_\_\_\_\_ **TIME** \_\_\_\_\_ **a.m./p.m.**

**NAMES OF OCCUPANTS**

1. \_\_\_\_\_ 3. \_\_\_\_\_  
2. \_\_\_\_\_ 4. \_\_\_\_\_

**MAIL CONFIRMATION TO:**

**Name** \_\_\_\_\_ **Phone** \_\_\_\_\_ / \_\_\_\_\_  
**University or Company** \_\_\_\_\_  
**Address** \_\_\_\_\_  
Street City State Zip

1. Make reservations by October 12. Reservations after this date are on a space-available basis only.
2. First night's deposit is required. Credit cards and checks will be accepted. Deposit due after hotel confirmation is received.
3. Notify hotel directly for changes in arrival/ departure or type of accommodations.
4. Cancellation 48 hours in advance is required for refund. Request cancellation number at that time.
5. Room assignments are made in the order received. If hotels of your choice are filled, the Housing Bureau will make the best arrangements elsewhere.
6. A confirmation is not a guarantee. To guarantee your room past 6 p.m., notify the hotel of your credit card number.



### Announcement of A Symposium

The Second International Symposium on Hydrothermal Reactions will be held at The Pennsylvania State University, University Park, Pennsylvania, August 12-14, 1985. The conference continues the traditions of the first symposium which was held in Japan in 1982 and the Nobel Symposium on "The Chemistry and Geochemistry of Solutions at High Temperatures and Pressures" held in Sweden in 1979. The purpose of the conference will be to bring together scientists active in research on high pressure aqueous and related chemical systems. Included will be applications to hydrothermal geochemistry, reactions used to prepare electronic materials and ceramics, hydrothermal crystal growth, near- and supercritical separations, corrosion chemistry, and the physical chemistry of fluids at high pressures and temperatures.

The conference co-chairmen are Professor H. L. Barnes of The Pennsylvania State University, and Dr. R. A. Laudise at AT&T Bell Laboratories. Further information may be obtained by writing:

Second International Symposium on Hydrothermal Reactions  
The Pennsylvania State University  
Keller Conference Center  
University Park, Pennsylvania 16802  
U.S.A.