

# THE GEOCHEMICAL NEWS

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in cooperation with The European Association of Geochemistry

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**University of Idaho**  
**Moscow, Idaho USA**  
**May 20-25, 2005**

## Important Dates:

September 1, 2004

Session proposal deadline

October 1, 2004

Begin acceptance of abstracts

January 15, 2005

Abstract submittal deadline

Hosted by:



Complete details: [www.uidaho.edu/gold2005](http://www.uidaho.edu/gold2005)



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The Geochemical Society

The European Association of Geochemistry

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# Voyage of Discovery

50th Anniversary of the Geochemical Society



## THE GEOCHEMICAL SOCIETY

The **Geochemical Society** is a nonprofit scientific society founded to encourage the application of chemistry to the solution of geological and cosmological problems. Membership is international and diverse in background, encompassing such fields as organic geochemistry, high- and low-temperature geochemistry, petrology, meteoritics, fluid-rock interaction, and isotope geochemistry. The Society produces a *Special Publications Series*, *The Geochemical News* (this quarterly newsletter), the *Reviews in Mineralogy and Geochemistry Series* (jointly with the Mineralogical Society of America), the journal *Geochimica et Cosmochimica Acta* (jointly with the Meteoritical Society), and co-publishes the electronic journal *G<sup>3</sup>* (jointly with the American Geophysical Union: AGU); grants the *V.M. Goldschmidt*, *F.W. Clarke* and *Clair C. Patterson Awards*, and, jointly with the European Association of Geochemistry (EAG), the Geochemistry Fellows title; sponsors the V.M. Goldschmidt Conference, held in North America in odd years and elsewhere in even years, jointly with the EAG; and co-sponsors the Geological Society of America annual meeting and the AGU spring meeting. The Society honors our first President, F. Earl Ingerson, and our first Goldschmidt Medalist, Paul W. Gast, with the *Ingerson* and *Gast Lectures*, held annually at the GSA Meeting and the V.M. Goldschmidt Conference, respectively. The Geochemical Society is affiliated with the American Association for the Advancement of Science and the International Union of Geological Sciences.

Members of the Organic Geochemistry Division are individuals with interests in studies on the origin, nature, geochemical significance, and behavior during diagenesis and catagenesis of naturally occurring organic substances in the Earth, and of extraterrestrial organic matter. GS members may choose to be affiliated with the OGD without any additional dues. The OGD presents the **Alfred E. Treibs Award** for major achievements in organic geochemistry, and **Best Paper** awards (student and professional) in organic geochemistry.

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## THE GEOCHEMICAL NEWS October 2004

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## From President Tim Drever

Next year will be the 50<sup>th</sup> anniversary of the Geochemical Society, so the Idaho Goldschmidt will have special significance. I hope and expect we'll have a great turnout. In this issue you will see a call for nominations or suggestions for the various awards given out by the Society. Please respond! I think it's important that we recognize the achievements of our colleagues; for that to happen, we need nominations. One thing we're working on is a new logo for the Society. If any of you have creative suggestions, please send them in to me (drever@uwyo.edu) or Sue Brantley (brantley@geosc.psu.edu).

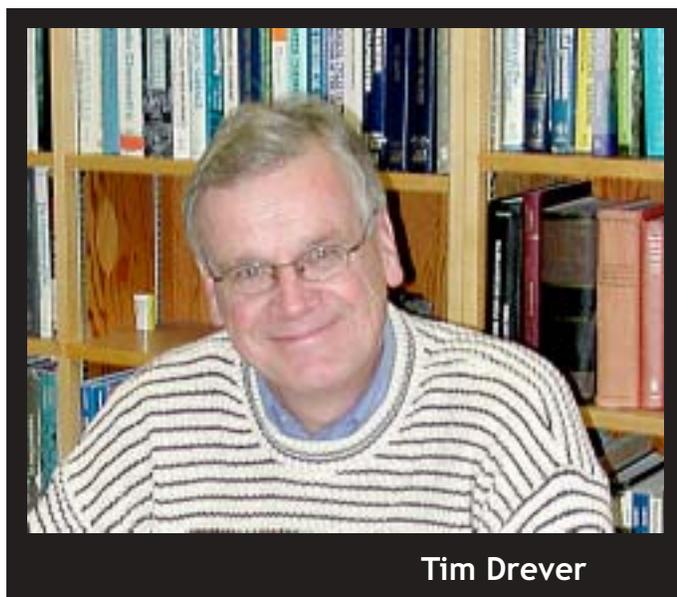
The Board of Directors has been continuing discussion over the summer of issues raised at our meeting in Copenhagen. We changed the definition of a quorum for our meetings to avoid (we hope) the situation that has arisen at the two most recent Board of Directors meetings (in Kurashiki and Copenhagen), where we did not meet the quorum requirements and could thus not take any formal votes. We also added the Editor of the Geochemical News to the Board of Directors—an obvious decision, given the importance of the GN to the Society. We decided that future Goldschmidts outside Europe and N. America would be inserted into the schedule rather than being scheduled as replacements for Europe or N. America. This means that neither Europe nor North America will go without a Goldschmidt for more than two years. We also voted to raise the membership dues by \$5.00. We have not raised our dues since membership was separated from the subscription to *Geochimica* ten years ago. We never like to raise dues but the funds are needed to maintain and improve the services we offer to our members.

We will again have an active presence at the GSA meetings in Denver. Seth Davis will be there manning our booth—stop in and chat—and renew your membership! The Ingerson Lecture will be given by Roberta Rudnick on Tuesday at 3 and the GS-MSA reception will be at 5:30 that evening. I hope to see many of you there.

The first issue of the new joint magazine *Elements* will be out in January. I am really looking forward to seeing it.

One less happy item: we note the passing of Roland Wollast, who was one of the great figures of aqueous geochemistry. We shall miss him as a friend as well as a scientist.

*Tim Drever, GS President*



Tim Drever

## News from the European Association of Geochemistry

The EAG is the organisation that, working with the Geochemical Society, is responsible for selecting venues and overseeing the very popular and successful European Goldschmidt conferences, most recently in Copenhagen. Hitherto, EAG activity has mainly revolved around these meetings. If you attend one of them, a portion of your registration fee pays for EAG membership, so some people will be members without being aware of the fact! The EAG and the GS work closely together through the Goldschmidt Forum to ensure that Goldschmidt Conferences continue to be the best international meetings for geochemists of all persuasions, and at Copenhagen we agreed to continue to further coordinate our activities.

Geochemistry is an international science, but the largest concentrations of practitioners are in North America and in Europe. This is why most Goldschmidt conferences have been on these continents, but for 2006 Melbourne, Australia will be the venue, following the success of taking the 2003 conference to Japan. Quite apart from the opportunity to bring new groups of scientists into the Goldschmidt circle that this peripatetic existence creates, it is also a bonus for many delegates to be able to enjoy the distinctive local flavour of each venue. Already, many Europeans have been poring over maps to plan their trip to Moscow, Idaho next year. The Copenhagen meeting attracted outstanding geochemists from around the world, and Susan Stipp and her organising committee and helpers are to be congratulated on an excellent meeting that succeeded in providing a platform for new fields of geochemical endeavour that are evolving today, as well as bringing together challenging new science in more established fields. Goldschmidt conferences in Europe now attract such large numbers of attendees that size has become a major factor in future planning; the facilities needed to host a meeting with up to 2000 delegates (the number that attended the Davos meeting in 2002) are hard to find.

At Copenhagen, EAG Council committed to supporting further geochemical sessions and meetings in Europe, following the lead of GS in sponsoring sessions at North American meetings. This will complement our support of Goldschmidt Conferences. Our ideas began to be formulated at Copenhagen but still have some way to go: we hope to pursue support for workshops in some of the new and developing fields of geochemistry, and to propose sessions for general meetings in Europe such as EUG. The aim is to actively promote geochemistry and provide a range of opportunities for geochemists to interact and for students to present their results. We also look forward to participating in *Elements* alongside other Societies in related fields.

*Terry Seward (EAG President)*

*Bruce Yardley (EAG Vice-President)*

Note: Electronic images of the EAG Officers were submitted by email, but were found to have been automatically deleted by the Good Taste facility of the Geochemical News Firewall.



## Greetings from the Business Office,

### Annual Membership Sets a New Record

As of September 15, 2004, the Geochemical Society has over 2,400 members. The highest annual membership ever previously recorded was in 1964 with 2,383. Thank you all for your generous support.

### The 2005 Membership Drive begins October 1st

I will be mailing notices by e-mail and/or by post beginning on October 1<sup>st</sup>. To reduce our costs, please renew early. If you have a Visa or Mastercard, you may renew your membership on-line at: [http://gs.wustl.edu/cgi-bin/g\\_s\\_register.pl](http://gs.wustl.edu/cgi-bin/g_s_register.pl)

A 2005 Membership Form is available elsewhere in this issue.

Also, please take a moment to verify your contact information as it appears on your mailing label for this issue. If your address or e-mail address is incorrect, please let me know via e-mail at: [office@gs.wustl.edu](mailto:office@gs.wustl.edu).

Are you curious what you get for your 2005 membership? If so, then visit <http://gs.wustl.edu/join/> for more information.

### Geochemical Society at GSA – Denver.

Once again, GS will have an exhibit at the upcoming GSA Annual Meeting in Denver, Colorado on November 7-10, 2004. I will be there to meet with members, answer any questions or problems (within reason) and of course, renew memberships.

Roberta Rudnick has been chosen as the 2004 Ingerson Lecturer. Her presentation on **Geochemical Probing of Continental Dynamics** will be given on Tuesday, November 9th at 2:30pm in the Colorado Convention Center (Rms 709/711). That evening, MSA and GS will be hosting a joint reception from 5:30 – 7:30pm, in Lobby C of the Colorado Convention Center. This is a ticketed event (\$10 for Professionals, \$5 for Students) so get them while they last.

For complete details on GSA – Denver visit their website at: <http://www.geosociety.org/meetings/>

### Elements Magazine

Beginning in 2005, all Geochemical Society members will receive a subscription to Elements Magazine as part of their membership. So that you can see what a great magazine this is, all 2004 members will be receiving the premier issue (January 2005). Back issues will not be available for this subscription, so you will want to make certain you've renewed your membership.

### GSA TODAY Available On-Line

GSA Executive Director Jack Hess wanted to let GS members know that they can access GSA Today online at <http://www.gsjournals.org/gsaonline/?request=index-html>. Also, members can sign up to receive GSA CONNECTION at: <http://rock.geosociety.org/Enews/>.

Most Sincerely,

Seth Davis, Geochemical Society Business Manager  
Washington University  
Earth and Planetary Sciences  
One Brookings Drive, CB 1169  
St. Louis, MO 63130-4899 USA

ph. 314-935-4131, fx. 314-935-4121  
e-mail. [gsoffice@gs.wustl.edu](mailto:gsoffice@gs.wustl.edu)

P.S. The calls for GS Award Nominations are elsewhere in this issue, but please remember that the deadline is earlier than in previous years. The selection committees can only pick from those that are nominated, so if you know of someone who is deserving recognition, please submit a nomination.



Seth Davis



## Editors' Corner

In this issue you will find some great pictures and a summary of the events of the most recent, and by all reports highly successful, Goldschmidt Conference held in Copenhagen, Denmark. The growth in attendees and the high quality of the science presented at recent Goldschmidt meetings attests to the significance of modern geochemical research. We are looking forward to the upcoming Goldschmidt Conference, to be held in Moscow, ID. The list of planned symposia are exciting and diverse, and the conference is to be held in a beautiful part of North America, with outstanding regional opportunities for field trips and outdoor tourism. We especially hope that students will be encouraged to attend: student registration and accommodation fees should be quite affordable for this conference. We have had some great feedback on the "Ten Notables" article, published in the July issue of *Geochemical News*. We hope to print a follow-up article sometime in 2005, so please continue to send us any suggestions regarding geochemists you believe should have made the initial list, but did not! On a sadder note, we include an obituary for Rolland Wollast, an accomplished geochemist who will be greatly missed by the geochemical community.

This will be the last print edition of the *Geochemical News* that you will receive for some time. The Geochemical Society and the European Association of Geochemistry have decided to join several other societies in the launching of the magazine, *Elements*. You will receive your first print edition of *Elements* this January. This exciting new, interdisciplinary magazine will allow us to share news, review articles, meetings announcements and other information with more than just each other. The new magazine will become a perk of membership for many other affiliate societies, whose members will be able to see what we are up to, as we gain insights into what they are doing! Never fear, however, the *Geochemical News* will continue - at least for the time-being - in a new all-electronic format, with one special Goldschmidt print edition to be produced each year. The new format will give us a chance to expand our coverage of meetings, continue to print job ads (free, send them in!), and include more color material. We'd love to have your feedback on how the new electronic version of *Geochemical News* will be of most value to you.

Johnson R. Haas ([johnson.haas@wmich.edu](mailto:johnson.haas@wmich.edu)),  
Carla Koretsky ([carla.koretsky@wmich.edu](mailto:carla.koretsky@wmich.edu)),  
Editors

# The Geochemical Society 2005 Awards Nominations

## Nominations will be separately called for the Alfred Treibs Award of the Organic Geochemistry Division

*Please take the time to honor your deserving friends and colleagues! It is up to you, as members of the Geochemical Society, to ensure that all of geochemistry is recognized, and all geochemists are considered!*

### Important Notice!

Nominations should be sent by e-mail whenever possible and submissions should include a nomination cover sheet. These coversheets are available for download from the GS website at: <http://gs.wustl.edu/archives/nominations.html>

### V.M. Goldschmidt Award

The V. M. Goldschmidt Award shall be made for major achievements in geochemistry or cosmochemistry, consisting of either a single outstanding contribution, or a series of publications that have had great influence on the field. The award will normally be given annually at the V.M. Goldschmidt Conference. Current members of the Geochemical Society Board of Directors and past recipients of the award are ineligible for nomination.

Nominations should include (1) a completed [Cover Sheet](#), (2) a brief CV for the candidate, (3) an additional page, if necessary, listing the candidate's publications, and (4) up to three supporting letters. Awards are based solely on scientific merit, without regard to citizenship or membership in the Society.

To be considered for the 2005 award, nominations must be received by **November 1, 2004**. Nominations received later will be considered for the 2006 award. Nominations should be submitted to:

Sigurdur Gislason  
Science Institute  
University of Iceland  
Dunhagi, IS-107 Reykjavik, Iceland  
T: 354-525-4800  
F: 354-525-4499  
Email: [sigrq@raunvis.hi.is](mailto:sigrq@raunvis.hi.is)

**Past Recipients:** P.W. Gast (1972), R.M. Garrels (1973), H.E. Suess (1974), H.C. Urey (1975), H.P. Eugster (1976), S. Epstein (1977), G.J. Wasserburg (1978), H. Craig (1979), C.C. Patterson (1980), R.N. Clayton (1981), K.B. Krauskopf (1982), S.S. Goldich (1983), A.O. Nier (1984), J.B. Thompson (1985), C.J. Allgre (1986), W.S. Broecker (1987), H.C. Helgeson (1988), K.K. Turekian (1989), E. Anders (1990), A.E. Ringwood (1991), S.R. Hart (1992), S.R. Taylor (1993), H.D. Holland (1994), R.A. Berner (1995), A.W. Hofmann (1996), D. Lal (1997), W. Stumm (1998), J.L. Bischoff (1999), G. Eglinton (2000), I. Kushiro (2001), J. Hayes (2002), B.J. Wood (2003), J. O'Neil (2004).

### F. W. Clarke Award

The F. W. Clarke Award shall normally be made annually at the V. M. Goldschmidt Conference to an early-career scientist for a single outstanding contribution to geochemistry or cosmochemistry, published either as a single paper or a series of papers on a single topic. Eligibility for this award is met if either of the following criteria is satisfied on the first day of the year in which the award is given: (a) the candidate must have received a recognized doctorate or its equivalent within the last six (6) years; or (b) must not have celebrated their thirty fifth (35th) birthday. Current members of the Board of Directors and past recipients of the award are ineligible for nomination. The Clarke and Patterson medals cannot be awarded for the same accomplishment.

Nominations should include (1) a completed [Cover Sheet](#), (2) a letter from the nominator containing a brief explanation of the significance of the nominee's work, (3) a brief CV for the nominee, (4) a copy of the paper(s) for which the nominee is being considered for the award, and (5) up to three supporting letters. Awards are based solely on scientific merit, without regard to citizenship or membership in the Society.

To be considered for the 2004 award, nominations must be received by **November 1, 2004**. Nominations received later will be considered for the 2005 award. Nominations submitted (as pdf, MS Word, or text files) by email to the committee chair are encouraged. Nominations should be submitted to:

Janet Herman  
Department of Environmental Sciences  
University of Virginia  
Charlottesville, VA 22903, USA  
Tel: 434-924-0553  
Fax: 434-982-2137  
Email: [jsh5w@unix.mail.virginia.edu](mailto:jsh5w@unix.mail.virginia.edu)

**Past Recipients:** D.A. Papanastassiou (1972), H. Ohmoto (1973), L. Grossman (1974), D. Walker (1975), J.R. Wood (1976), B. Mysen (1977), D.J. DePaolo (1978), A.C. Lasaga (1979), R.W. Potts (1980), J.F. Meade (1981), P.J. Patchett (1982), E.B. Watson (1983), A. Mackenzie (1984), E.M. Stolper (1985), M.D. Kurz (1986), E. Takahashi (1987), F.M. Phillips (1988), R.J. Walker (1990), D. Sherman (1991),

E. Klein (1992), Y Zhang (1993), C. Agee (1994), R. Lange (1995), P.M. Dove (1996), J. Blundy (1997), M. Humayun (1998), A.M. Scheidegger (1999), J. Farquhar (2000), C.C. Lundstrom (2001), R. Blake (2002), P.D. Asimow (2003), A. Grottooli (2004).

#### Clair C. Patterson Award

The Clair C. Patterson Award, for a recent innovative breakthrough in environmental geochemistry of fundamental significance, published in a peer-reviewed journal, will normally be made annually at the V.M. Goldschmidt Conference. The award has no age or career stage restrictions, but the Clarke and Patterson medals cannot be awarded for the same accomplishment. Current members of the Geochemical Society Board of Directors and past recipients of the award are ineligible for nomination.

Nominations should include the name, address, and chief fields of specialization of the nominee, and be accompanied by a curriculum vita of not more than two pages, a list of no more than 10 peer-reviewed publications relevant to the accomplishment being recognized, and up to three support letters. Nominators should include a letter of not more than two pages, giving name, address, phone number, signature, and a brief description of the nominee's contribution to environmental geochemistry. Awards are based solely on scientific merit, without regard to citizenship or membership in the Society.

To be considered for the 2004 award, nominations must be received by **November 1, 2004**. Nominations received later will be considered for the 2005 award. Nominations should be submitted to:

Bob Aller  
 Marince Science Research Center  
 SUNY - Stone Brook  
 Stony Brook, NY 11794-5000 USA  
 T: 516-632-8746  
 F: 516-632-3066  
 Email: [raller@notes.cc.sunysb.edu](mailto:raller@notes.cc.sunysb.edu)

**Past Recipients:** M.L. Bender (1998), R.L. Edwards (1999), E.A. Boyle (2000), F. M.M. Morel (2001), H. Elderfield (2002), W.F. Fitzgerald (2003), G. Luther (2004).

#### Geochemistry Fellows

The European Association of Geochemists (EAG) and the Geochemical Society (GS) established in 1996 the honorary title of Geochemistry Fellow, to be bestowed upon outstanding scientists who have, over some years, made a major contribution to the field of geochemistry. Existing and new Urey, Goldschmidt, and Treibs Medal winners become Fellows automatically. Up to 10 new Fellows will be elected each year. Membership in either organization is not a factor in consideration of Fellows candidates. Current members of the Fellows Selection Committee, the GS Board of Directors, and the EAG Council are ineligible for nomination. Any member of either organization may nominate Fellows by right.

Nominations should include (1) a completed [Cover Sheet](#), (2) a brief CV for the nominee, (3) an additional page for citations, if necessary, and (4) up to three supporting letters. Awards are based solely on scientific merit, without regard to citizenship or membership in either Society.

To be considered for the 2004 award, nominations must be received by **November 1, 2004**. Nominations received later will be considered for the 2005 award. Nominations submitted (as pdf, MS Word, or text files) by email to the committee chair are encouraged, although signed originals of documents must also be submitted by conventional mail. Nominations should be submitted to:

Roberta Rudnick  
 Department of Geology  
 University of Maryland  
 College Park, MD 20782 USA  
 T: 301-405-1311  
 F: 301-405-3597  
 Email: [rudnick@geology.umd.edu](mailto:rudnick@geology.umd.edu)

#### Geochemistry Fellows (excluding Urey, Goldschmidt, and Treibs Medalists)

**1996** – W. Compston, W. Dansgaard, J. Edmond, J.M. Hayes, M. Javoy, H.-K. Mao, S. Moorbath, J. Reynolds, J.-G. Schilling, N. Shackleton, M. Tatsumoto, W. Stumm, G. Tilton, G. Turner, H. W nke, W. White

**1997** – P. Abelson, J. Bottinga, I. Carmichael, D.J. DePaolo, B.J. Gilletti, T. Krogh, I. Kushiro, G.W. Lugmair, F.T. Mackenzie, A. Navrotsky, M. O'Hara, K. O'Nions, D.M. Shaw, E.M. Stolper, G.W. Wetherill, D. York

**1998** – T.J. Ahrens, F. Albarede, M.L. Bender, E.A. Boyle, E.M. Galimov, J.I. Hedges, M. Kastner, Y. Kolodny, C.H. Langmuir, J.R. O'Neil, G. Parks, J.C.G. Walker, D. Walker, E.B. Watson, B.J. Wood, J. Veizer, E. Zinner

**1999** – H.L. Barnes, G.E. Brown, C.W. Burnham, W.S. Fyfe, N. Shimizu

**2000** – H. Elderfield, G. Faure, F.A. Frey, G. Hanson, F.J. Millero, F.M. Morel, M. Ozima, D. Rumble II, T.M. Seward, G.A. Zindler

**2001** - A. Halliday, C.J. Hawkesworth, W.J. Jenkins, B.B. Joergensen, I. Tolstikhin, R. Wollast

**2002** - D. Des Marais, M. Drake, I. Friedman, C. Martens, P. Meyers, G. Sposito, and J. Wasson

**2003** – R.C. Aller, R.W. Carlson, M. Fogel, S. Krishnaswami, J.W. Morse, H. Palme, D. Rickard

**2004** - C. Lee, S. Macko, and B. Somayajulu

## Citation for presentation of the 2004 Alfred E. Treibs Medal to Roger Summons

John M. Hayes

Department of Geology and Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543, USA

Roger Summons came to organic geochemistry with training in organic chemistry, a background in plant biochemistry, and an intellectual personality that is both strong and engaging. The combination has yielded important new information about microbial processes, earth history, and petroleum geochemistry. It is also creating a succession of inspired students, postdoctoral associates, and collaborators.

Roger was among the first full-time students when the University of New South Wales, Australia, established a new campus at Wollongong. He became interested in organic chemistry and stayed on to complete a Ph.D. in that subject, specializing in the study of complex, nitrogen-containing compounds produced by plants. The task was to determine the molecular structures of these materials. Elemental analyses yielded chemical formulas. Spectroscopic techniques provided information about chemical bonds. Overall structures were estimated and then assembled using unambiguous synthetic reactions. If the product matched the natural material, the structure was accepted as correct. The chemists who solved such problems efficiently and elegantly were recognized as laboratory *artists*. In fact, the coupling of enormous experimental skill with incisively chosen scientific objectives has been a hallmark of Roger's career.

A postdoctoral appointment at Stanford University acquainted Roger with the most modern approaches to the study of natural molecules. He worked with Alan Duffield and Joshua Lederberg in the Department of Genetics just as revolutionary ideas about artificial intelligence and computer-assisted interpretation of spectral data were being combined with rapidly developing, new instrumentation. Even in these early studies, he was remarkably productive. After completing his doctoral and postdoctoral work in less than five years, he was author or coauthor of 21 papers.

From 1973 until 1983, Roger was at Australian National University, first in the Research School of Chemistry and then in the Research School of Biological Sciences, where he studied plant hormones and physiology and the photosynthetic metabolism of carbon, nitrogen, and oxygen in aquatic unicellular organisms. Two visitors fired his interests in biogeochemistry and earth history. With Andrew Benson – one of the elucidators of the pathway of carbon in photosynthesis – Roger worked on element cycling on the Great Barrier Reef. At the Australian Institute of Marine Sciences (Townsville, Queensland), he crossed paths with another visitor, the American paleobiologist Preston Cloud. The latter's influence was so strong that Roger soon applied to join the staff of the Baas-Becking Geobiological Laboratory, then located at the Bureau of Mineral Resources, in Canberra.

Roger's first paper from the Baas-Becking Laboratory commanded attention. Summons and Powell (1986) announced in *Nature* that obligately anaerobic, green photosynthetic bacteria had flourished in Paleozoic seas. The conclusion and the evidence were both revolutionary. Structurally, a series of aromatic, polyisoprenoid hydrocarbons found in Silurian and Devonian oils resembled isorenieratene, a carotenoid pigment produced only by the Chlorobiaceae. Like algae, these organisms derive energy from sunlight and build biomass from dissolved inorganic carbon. Unlike algae, they require sulfide as an electron donor and are poisoned by O<sub>2</sub>. Their pathway of carbon fixation, the very rare, reversed tricarboxylic-acid cycle, happens to be distinguished by very low isotopic discrimination. Brilliantly, Roger produced the first compound-specific isotopic analyses of diagnostic microbial products, demonstrating that the ancient molecules were uniquely enriched in <sup>13</sup>C, linking them decisively to the Chlorobiaceae, and pioneering an investigative technique that has led to many subsequent breakthroughs in biogeochemical research.

In the modern world, the Black Sea is the only large, marine basin where sulfide reaches the photic zone. The new interpretation required that, in earlier times, such remarkable stratification was attained in open-ocean environments. The extraordinary claim was accepted as Summons and Powell (1987)

provided extraordinary evidence in a second, more detailed report in *Geochimica*. That account was recognized by the Organic Geochemistry Division of the Geochemical Society as the Best Paper of 1987. Evidence for episodes of widespread, near-surface anaerobic conditions has been accumulating ever since. The aryl-isoprenoid molecular proxy stands as one of the most reliable environmental indicators. It represents nicely both the talents of its originators and the value of organic-geochemical lines of evidence.

A third paper from Roger's initial work at the Baas-Becking Laboratory – again placed in *Nature* – established another major theme of his subsequent work in organic geochemistry. Jackson *et al.* (1986) reported the presence of abundant petroleum hydrocarbons and associated source rocks in the Mesoproterozoic (1.7 × 10<sup>9</sup> years old) McArthur Basin. A follow-up paper in *Geochimica* (Summons *et al.*, 1988) presented clear evidence for the presence of hopanes and steranes, included thorough comparisons to all other reports of Precambrian lipid biomarkers, and – laying the foundation for what is now a flourishing line of research at many institutions – systematically discussed the paleobiological implications of these findings.

And then the Baas-Becking Laboratory was closed, a victim of financial pressures in the Australian research environment. Roger stayed on at the Bureau of Mineral Resources and turned his attention to petroleum geochemistry, exploiting molecular biomarkers as a means of recognizing relationships between oils and between oils and source rocks. In 1998, he was the honored lecturer of the Petroleum Explorationists Society of Australia. By 2004, petroleum-geochemical studies accounted for 50 of the entries in his extensive list of publications.

Collaborations with paleobiologists and biogeochemists continued. He was a leading member of the second phase of the Precambrian Paleobiology Research Group – Proterozoic, led at UCLA by Bill Schopf (1987-1988). With Linda Jahnke of the Ames Research Center (National Aeronautics and Space Administration, USA), he first examined microbial sources of the hopanoid carbon skeletons that appear in petroleum (Summons and Jahnke, 1990), then extended the work in a continuing series of studies of microbial products (*e. g.*, Jahnke *et al.*, 2001). Precambrian problems, often attacked together with visiting students and postdocs, have been a principal focus. As a result of this work, Roger is now recognized as an authority on Precambrian Paleobiology and the key member of teams that have provided the earliest secure evidence for oxygenic photosynthesis (Summons *et al.*, 1999) and for the evolution of eukaryotic cells (Brocks *et al.*, 1999). His contributions are shaping the early chapters of texts dealing not only with earth history but with biological evolution.

To facilitate the work, Roger often welcomed visitors not only into his laboratory but, together with his wife, Elizabeth, and daughters Justine, Alice, and Rebecca, into his home. Eager, young collaborators would find themselves spending their days in Roger's laboratory, sharing meals with this family, and sleeping in the basement apartment.

In all, it provided an example not only of scientific excellence but also of social and intellectual generosity. Not a bad formula for a professor. In 2001, Roger accepted appointment as Professor of Geobiology in the Department of Earth, Atmospheric, and Planetary Sciences at the Massachusetts Institute of Technology, Cambridge, Massachusetts. There, he welcomes an ever-widening array of students and research associates, thus ensuring that – to the good fortune of geochemists everywhere – we can look forward to many further examples of the Summons style.

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## In Memoriam: Roland Wollast (1932-2004) Universite Libre de Bruxelles

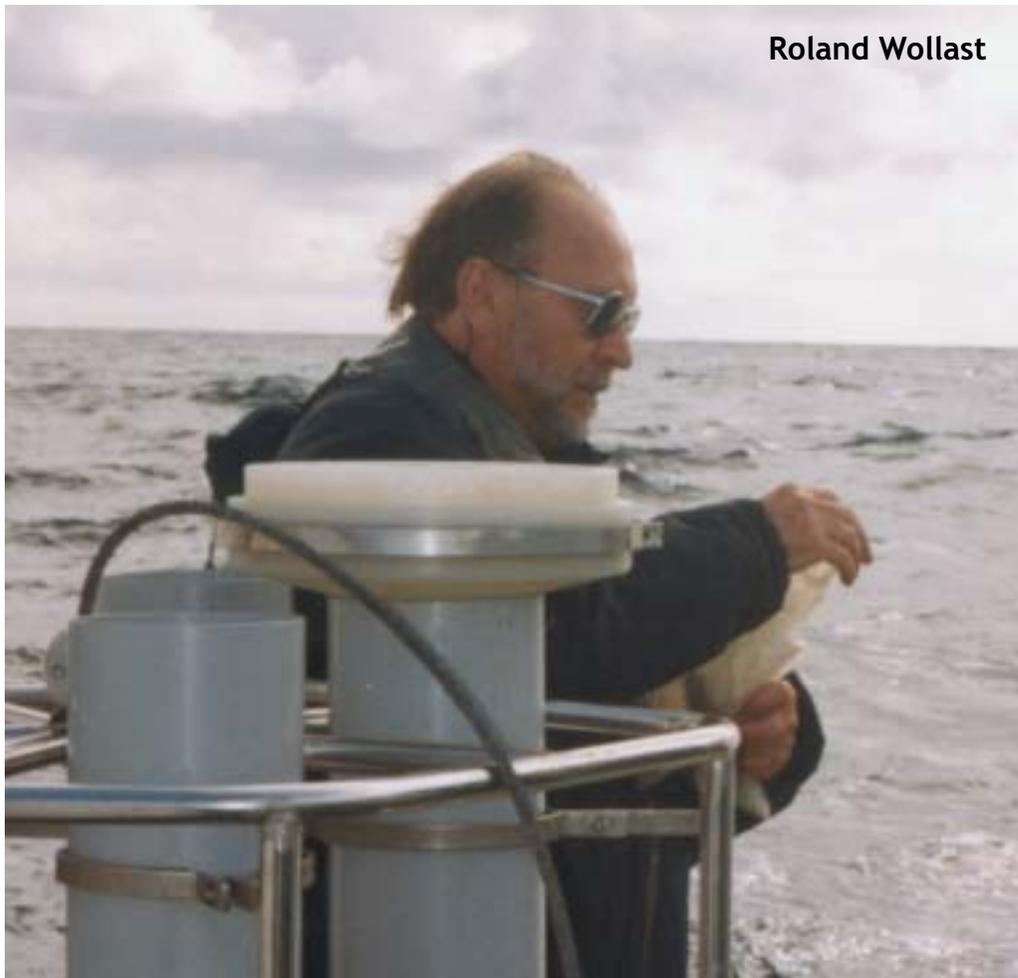
Professor Roland Wollast, a world leader in global and regional investigations of the biogeochemical dynamics and cycling of the nutrient and trace metal elements at the Universit Libre de Bruxelles (ULB), Brussels, Belgium, died Wednesday, July 28, of complications arising from bypass heart surgery. Roland spent his entire professional career at ULB, receiving a B.S. (Licencie) in Chemistry in 1956 and his Ph.D. (Docteur en Sciences) in 1960. Roland was an Assistant and Head of Tutorials in the Chemistry of Solids Laboratory in the 1960s and became an Associate Professor at the university in 1972. He then went on to develop and direct the Water Treatment and Pollution Laboratory and the Chemical Oceanography Laboratory at ULB and became a Professor (Professeur Ordinaire) in 1991. Roland also held appointments at the Universit de Lige, Fondation Universitaire Luxembourgeoise (Arlon, BE), University of South Florida, and the University of Hawaii.

After his retirement in 1997, Roland became a *Professor Emeritus* at the ULB and continued to pursue several research projects that he had already initiated. Right up until his untimely death, he remained active and involved in on-going investigations in the Laboratory of Chemical Oceanography and Water Geochemistry, currently headed by Lei Chou (LC), that he had founded. One of the major research projects that Roland recently coordinated, and was very close to his heart, was the "Ocean Margin EXchange (OMEX)", funded by the European Union from 1993 to 2000 and involving more than 40 laboratories. During this effort LC was closely at Roland's side managing OMEX. The OMEX project was directed at the study, measurement, and modeling of the processes and fluxes occurring along and across the European shelf break bordering the North Atlantic Ocean. This project was considered by the European authorities as an exemplary multidisciplinary and integrated project.

Roland was one of a small cadre of geochemists (now more popularly called biogeochemists) who was truly holistic and global in approach to scientific research. He employed a variety of scientific methodologies and skills to solve a scientific problem and had the uncanny and unusual ability to develop field and experimental programs that initially have regional significance but eventually contribute to an understanding of the global Earth surface system. Perhaps even more importantly, Roland was able to take his laboratory and field observations and interpret them in the context of a sound theoretical foundation. We have yet to read a

paper of Roland's in which there were not equations or a model describing quantitatively the results of his work.

Roland was a "man for all seasons", a truly interdisciplinary scientist. His work in coastal oceanography is perhaps the most notable of his contributions and has had a substantial impact on the field. He was arguably the world leader in studies of the biogeochemistry of carbon, nitrogen, and heavy metals in coastal and estuarine environments. However, this was not his only academic strength. His contributions to the field of geochemistry spanned a range of subject matter. These include fundamental experimental studies involving the thermodynamics and kinetics of mineral-solution reactions; modeling and interpretation of the global biogeochemistry of nutrient and other element cycles, including, and perhaps most importantly, human impacts on these cycles; the



Roland Wollast

geochemistry of carbon and carbonates; and even fundamental phase equilibria studies dealing with the formation of the alkaline silicon oxides. Although statistics alone can be an inadequate indication of one's contributions to a field of academic endeavor, we would be remiss not to mention that Roland published more than 200 articles and held more than 60 major research grants and contracts during his career—an enviable record of scholarship. As with many senior professors, he served on innumerable national and international committees and was a member and active on various committees in the Belgian Royal Academy of Science.

Aside from being an exceptional researcher, Roland was an outstanding teacher and student mentor. In a system that does not necessarily award teaching and mentoring of young students, Roland maintained

an active teaching program in geological, geochemical, oceanographic, and environmental subjects. He supervised the research work of many students, including 28 Ph.D. dissertations. Many of his papers are co-authored with his students. For example, some former students include: Jean-Pierre Vanderborgh who did some of the original and classical work in the modeling of nutrient distributions in sediment pore waters, and over the years was a close associate and friend of Roland's; Gilles Billen who went on to become a world-class scholar in nutrient biogeochemistry; Lei Chou who has been a mainstay of Roland's laboratory over the past two decades; and more recently Phillippe Van Cappellen and Pierre Regnier. By his own example, Roland encouraged all his students to work hard and at their maximum intellectual capacity. With everyone, including his students, Roland suffered fools badly but was too kind and patient to let them know it. He attempted to lead his students gently but persuasively toward self-discovery of the errors of their ways, a trait similar to that of his life-long friend and collaborator, Robert M. Garrels.

Bob Garrels was very influential in Roland's career. Other than Bob being Roland's best and dearest friend, we believe Bob was also influential in encouraging Roland to use his exceptional talents in thermodynamics and kinetics for investigation and solution of problems dealing with the geochemistry of the environment. Their friendship and research cooperation started in 1962 when Roland was an Assistant and Head of Tutorials in the Chemistry of Solids Laboratory and Bob was a Senior Post-doctoral Fellow at the ULB, and lasted until Bob's untimely death in 1988. Roland translated Bob's and Charlie Christ's book on "Solutions, Minerals and Equilibria" into French in 1966. Their first co-authored paper was that dealing with the diffusion coefficient of silica in seawater published in *Nature* in 1971 and still recognized and cited as the best estimate of this important parameter.

Roland Wollast was one of Fred Mackenzie's (FTM) best friends and a research collaborator for nearly four decades. FTM first met Roland in Bermuda in the 1960s when Roland came to the island paradise to work with Bob Garrels and Fred on various aspects of seawater chemistry. At that time and for many summers thereafter, Roland, Bob Garrels, Michele Loijens, Lei Chou, Bob Berner, Hal Helgeson, Owen Bricker, Neil Plummer, Don Thorstenson, John Morse, and many others collaborated in research and teaching at the Bermuda Biological Station for Research. Roland and FTM's first paper, co-authored with Owen Bricker in 1968, on the experimental precipitation of sepiolite and its significance in low-temperature environments was a result of their initial meeting and research collaboration in Bermuda. This paper was the first of 12 journal articles and one book that Roland and FTM co-authored over the years. During his Bermuda sojourns, Roland was part of BBSAC, the Bermuda Biological Station Athletic Club.

Roland Wollast had the foremost influence on LC's career. They met for the first time in 1980 when Roland was visiting Bob Garrels and FTM at Northwestern University where LC was a graduate student under Bob's supervision. Being extremely passionate about mineral dissolution studies, Roland invited LC to his laboratory the following year to continue her dissertation research on the kinetics and mechanisms of albite dissolution. In addition, Roland encouraged LC to enter the field of oceanography and showed her how rigorous and critical a scientist must be when investigating natural phenomena. The two became good friends and worked closely together for nearly 25 years.

Roland was a truly "holistic" man—a scholar, a teacher, a gentleman, a fine chef, a colleague, and a friend to many scientists and students spanning four generations. We remember fondly many superb dinners we had in Roland's and Michele Loijens', his companion and colleague of many years, company. Many times over a meal and excellent wine, we would begin dinner at eight and talk about science and politics until the wee hours of the morning.

Roland played a visionary and central coordinating role in European marine science. In addition, his scientific preciseness and directness were an example to younger scientists, many of whom have gone on to

important research or policy-making positions in Europe. There is a small sign that appeared in Roland's laboratory some years ago. In our minds, it symbolizes Roland's approach to being a scientist—reflecting an individual with the highest standards of hard work and dedication but also a person who had a sense of humor and recognized that what we do as scientists should be fun and contribute to the betterment of the society. It reads:

Theory is when one knows everything but nothing works.

Practice is when everything works but no one knows why.

Here, theory and practice are joined, nothing works and we do not know why.

Roland's ashes will be scattered in the North Sea, reflecting his life-long association with the sea and his love and dedication to the field of oceanography. Roland is survived by his companion, Michele Loijens, his children, Pascaline, Alain, and Marc, his sisters, Elisabeth and Jo, his brother, Pierre, and 10 grandchildren. With Roland's passing, the world has lost a fine gentleman and scholar and a friend to many. He will be dearly missed by all.

*Fred T. Mackenzie (FTM)*

*Lei Chou (LC)*



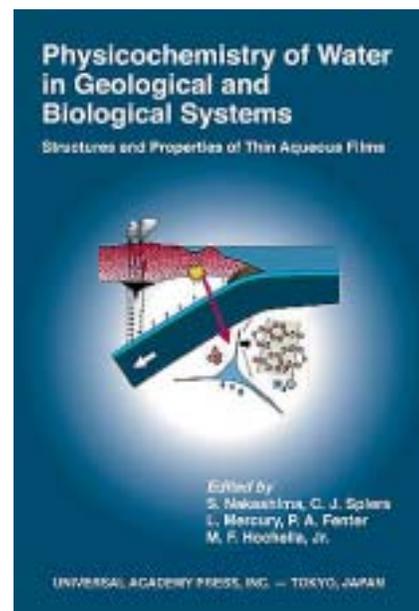
## Physicochemistry of Water in Geological and Biological Systems

Edited by: S. Nakashima, J. Spiers, L. Mercury, P. A. Fenter, M. F. Hochella, Jr.

Paperback, 290 pages. ISBN 4-946443-90-8, Frontier Science Series No. 43 (FSS-43) ISSN 09 15-8502. Universal Academy Press, Inc. Price: 8,000 JP Yen.

Contains the proceedings of the International Symposium on Physicochemistry of Water and Dynamics of Materials and the Earth - Structures and behaviors of the thin film water, held on September 13, 2003, at Digital Multi-room & Media Hall, West Building No. 9 of the Tokyo Institute of Technology, in Japan

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# Processes in Geochemistry: A Copenhagen Goldschmidt Retrospective

**The rotunda of the Geocenter** buzzed every afternoon, when most of the 1500 conference participants assembled for posters and discussion. After a full day of deciding between 10 parallel sessions, one could choose between 5 floors of posters, with a beer in hand, or wander in the exhibition hall. The largest sessions presented the latest results on weathering and on the geochemistry of oceans. The most recent Mars data caused quite a stir and there was lively interest in the sessions on biogeochemistry, environments for early life, mineral surface reactivity and metals in the environment. We used an optimisation, based on a list that each participant submitted beforehand, to minimise session overlap, but it was still impossible to select among the 53 symposia and not miss something interesting. On the program were presentations that defined processes ranging from the atomic scale to the cosmic and that aimed to explain events from the dawn of time, from the development of the Earth and from now, with changing climate and concerns for the environment.

The long Nordic days showed themselves at their finest. In the light evenings, many Goldschmidt backpacks could be seen wandering the streets of Copenhagen or at one of the many social events. These included visits to the mineral collections from Greenland, a concert of folk music in a historic church, and the conference dinner, which began by bringing participants on a boat tour of the canals, to dinner and dancing in the renovated cannon repair hall, and for some of us, ended with a walk back downtown as the sun rose again.

Plenary Day, a new event this year, was a festive occasion that celebrated our science and our award winners. Five specially invited speakers gave exciting talks on topics of general interest, such as Rod Ewing who put the problems of nuclear power into perspective and Dorthe Dahl-Jensen who presented climate history as revealed by the Greenland ice-core drilling in relation to the current focus on global warming. Later in the afternoon, the awards of the sponsoring societies were presented against a background slide show highlighting the recipients and the topics of their research. The celebration ended with an evening in the famous Tivoli Gardens.

Theme plenary sessions were held each morning in the large auditorium of the Geocenter. In these well-attended events, this year's award winners presented longer, more general talks that put their research into a broader perspective.

Forty volunteer young researchers worked from early morning to midnight, loading talks into the central computer, keeping the projectors running, answering questions at the help desk, pouring beer at the poster sessions and running for the hundreds of other tasks that kept the conference going smoothly.

From the feedback we have received, both during the conference and in the many emails later, the people who came to Copenhagen enjoyed themselves - perhaps almost as much as we did.

*Susan Stipp, Convenor*

*Børge Svane Nielsen, Technical Coordinator*



*Poster sessions, exhibitions, beer and discussion in the Geocenter Rotunda (all photos, except where noted, Børge Svane Nielsen).*



*During the poster session.*

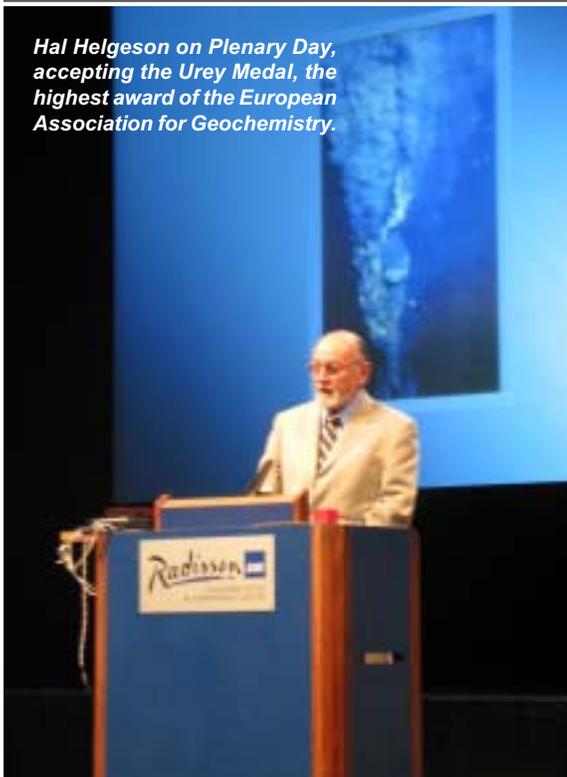


*The Geocenter rotunda, center of the conference.*



*Picnic lunches, available to all on-site, encouraged wandering in near-by parks and relaxed discussion.*

*Hal Helgeson on Plenary Day, accepting the Urey Medal, the highest award of the European Association for Geochemistry.*



*Exhibitions showcased the latest technological advances.*

*One of forty young scientist volunteers, who helped make Copenhagen Goldschmidt a success, checking a presentation during transfer to the central computer.*



*Plenary Day featured general talks on hot topics. Rod Ewing discussing problems related to Pu (photo: Morton Lech Hjuler).*





**University of Idaho  
 Moscow, Idaho USA  
 May 20-25, 2005**

**Important Dates:**

September 1, 2004

Session proposal deadline

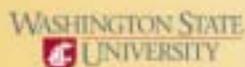
October 1, 2004

Begin acceptance of abstracts

January 15, 2005

Abstract submittal deadline

Hosted by:



Pullman, Washington

Complete details: [www.uidaho.edu/gold2005](http://www.uidaho.edu/gold2005)

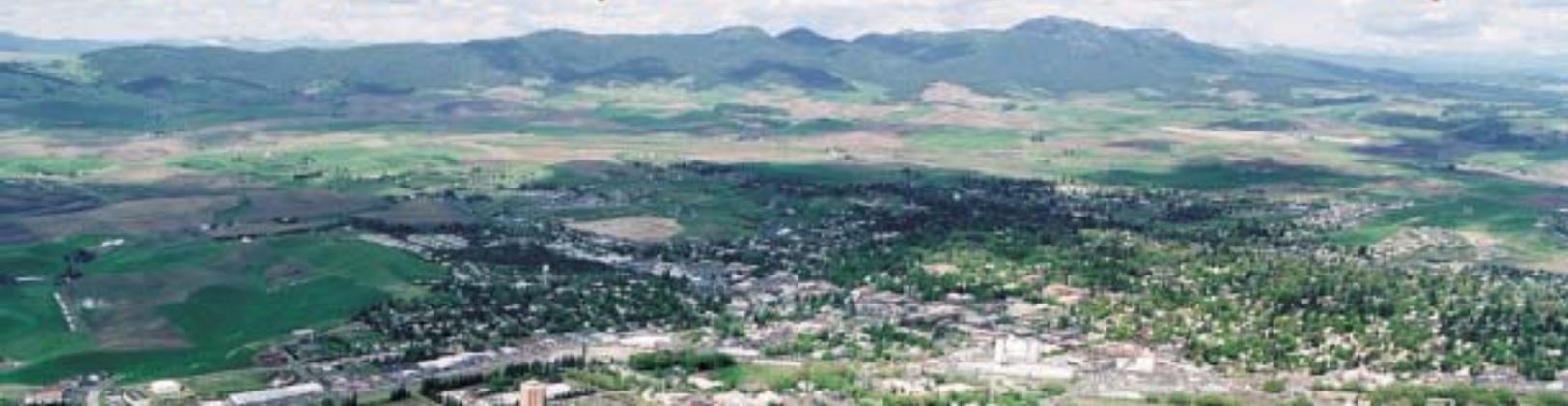


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- The Microbeam Analysis Society
- The Geochemical Society
- The European Association of Geochemistry
- The Mineralogical Society of America

# Voyage of Discovery

50th Anniversary of the Geochemical Society



# 15<sup>th</sup> V.M. Goldschmidt Conference

## A VOYAGE OF DISCOVERY

Moscow, Idaho USA  
May 20-25, 2005

**The 15<sup>th</sup> Annual V.M. Goldschmidt Conference** will take place May 20-25, 2005 on the campus of the University of Idaho in Moscow, Idaho, USA. The year 2005 is the 50<sup>th</sup> Anniversary of the Geochemical Society, and special events are being planned to celebrate this milestone. The theme of the conference is "A Voyage of Discovery", a reference to the fact that the Lewis and Clark expedition (the Corps of Discovery), which was charged by President Thomas Jefferson to explore the Missouri River, reached what is present-day Idaho on August 12, 1805. Hence, Goldschmidt comes to Idaho during the bicentennial of this historic event. However, the theme also reflects the fact that the 15<sup>th</sup> Goldschmidt meeting will enable geochemists and mineralogists to come together on a "voyage of discovery" of the most recent developments in their fields. The Local Organizing Committee (LOC) invites you to come and discover the world-class geology and unparalleled opportunities for outdoor recreation in the Inland Northwest. A major focus of the LOC has been to keep costs low for everybody, but particularly for students. The combination of low student registration fees that include most meals, the possibility of staying in very economical on-campus housing, and the relative accessibility of Moscow for North Americans should result in attendance by record numbers of students.

### IMPORTANT DATES

Both Abstract Submission and Early Registration will be available on the conference website ([www.uidaho.edu/gold2005](http://www.uidaho.edu/gold2005)) starting October 1, 2004. The deadline for abstract submission is January 15, 2005. Early registration ends March 20, 2005. The deadline for registering for field trips will also be March 20, 2005.

### VENUE

The University of Idaho Campus is well suited to hosting a major international event like Goldschmidt 2005. All the oral sessions for Goldschmidt 2005 will be held in lecture halls (with capacities between 70 and 400 each) located within a few buildings in the core of the University of Idaho campus (and less than a 10-minute walk from the on-campus housing). These lecture rooms are also all within a five-minute walk of one another, and contain facilities for PowerPoint and transparency (overhead) projection. Posters, exhibits, meals (lunches and most dinners are included in the registration fee), and the plenary session will take place in the Kibbie Dome, a large facility similar to the exhibition halls of most convention centers that also doubles as an indoor football stadium, and is less than a 10-minute walk from the lecture halls in which the oral sessions will take place. Figure 2 demonstrates the proximity of the lecture halls, on-campus housing and the Kibbie Dome. A photograph, taken from another angle, of the area where delegates will walk between on-campus housing and oral sessions is shown in Figure 3. Posters and exhibits will be highlighted by dedicated sessions running for 2 to 3 hours prior to dinner.

For those not staying in the new Living Learning Center complex (see Figure 4) or more traditional on-campus housing, Moscow hotels are within a five-minute ride from the conference site, and most people will be able to walk to and from their hotels in 10 to 30 minutes. Pullman hotels are less than a 20-minute ride from the conference site. Transportation to and from the conference site from area hotels will be provided, as required. The close proximity of all conference activities and on-campus housing, together with catered lunches and dinners, will provide an excellent opportunity for interacting with other delegates throughout the conference.

The University of Idaho is only eight miles from Washington State University, located in Pullman, Washington, co-host of the



*Figure 1. Hells Canyon through which the Snake River flows. Although not apparent from the photo, this is the deepest canyon in North America. Participants in the conference barbecue will have the opportunity to jet boat part way into the canyon.*

**Figure 2. Conference facilities on the University of Idaho campus. The white arrows point to the three buildings where oral sessions will be held. KD refers to the Kibbie Dome which will house exhibits, poster sessions and conference meals. LLC refers to the Living Learning Center, the main on-campus housing for the conference.**



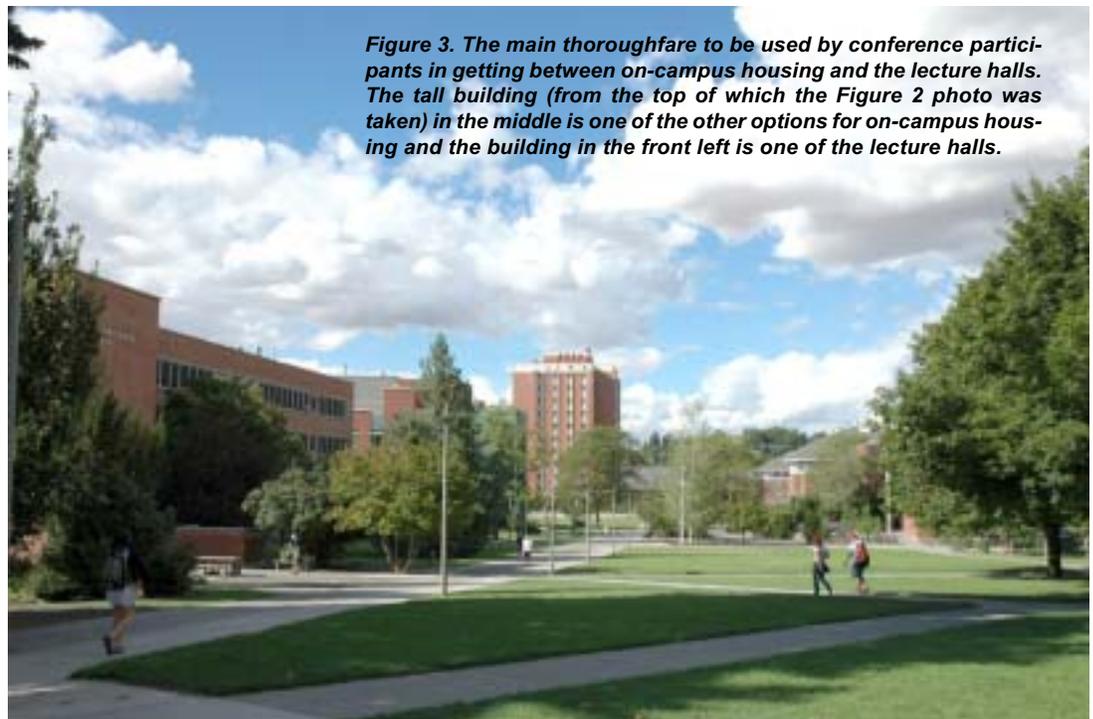
Monuments are within a day's drive of Moscow, including: Olympic Mountains National Park, North Cascades National Park, Mount Rainier National Park, and Mount St. Helens National Monument, all in Washington, Craters of the Moon National Monument in Idaho, Yellowstone National Park in Wyoming, Montana and Idaho, Grand Teton National Park in Wyoming, Glacier National Park-Waterton Lakes National Park, which straddle the border between Montana and Alberta, Banff National Park in Alberta, and Crater Lake National Park, John Day Fossil Beds National Monument, and Newberry Crater National Monument, all in Oregon. The Eagle Cap Wilderness Area in the Wallowa

Mountains of Oregon, the Columbia River Basin, Mount Hood, the Sawtooth National Recreation area (including Sun Valley, Idaho), Lakes Coeur d'Alene and Pend d'Oreille in Idaho, the Bitterroot Mountains on the Idaho-Montana border, and Mount Borah (the highest peak in Idaho) represent just a fraction of additional points of interest in the area. The major cities in the Pacific Northwest (Seattle, Portland, Spokane, Boise) rate as some of the most beautiful in the U.S. and offer a full array of shopping, fine dining, cultural and historical attractions, and sporting events.

conference. Moscow and Pullman are located in an area of the Pacific Northwest called the Palouse (from the French word "pelouse" meaning "lawn"), a term coined by early French trappers owing to the vivid green hills they encountered in the area. The famous Appaloosa horse comes from this area. The Palouse, nestled in the foothills of the Rocky Mountains, consists of gentle rolling hills of loess, overlying the Columbia River Basalts. Moscow Mountain, an intrusion of granite to the north, rises approximately 2500 feet above the town, itself at an elevation of 2500 feet. The area is largely agricultural, with the main commodities being wheat, lentils, and dry peas (sorry, no potatoes are grown in northern Idaho!). The Palouse hills change color with the seasons, from green in the Spring, to light brown in Summer, to brown in Autumn, and finally to white in Winter. The conference logo represents the Palouse hills and their changing character throughout the year. May is one of the most beautiful times of year to visit the area.

The Pacific Northwest/Rocky Mountain area is world-famous for its opportunities in outdoor recreation including hiking, horseback riding, rafting, kayaking, hunting, fishing, spring snow skiing, wind surfing, hang gliding, mountain biking, etc. Idaho contains the largest roadless wilderness area in the contiguous U.S., the deepest canyon in the U.S. (Hells Canyon – Figure 1), and numerous world-class rivers for watersports (Snake, Salmon, Lochsa, Selway, Clearwater, to name a few). A large selection of National Parks and

Mountains of Oregon, the Columbia River Basin, Mount Hood, the Sawtooth National Recreation area (including Sun Valley, Idaho), Lakes Coeur d'Alene and Pend d'Oreille in Idaho, the Bitterroot Mountains on the Idaho-Montana border, and Mount Borah (the highest peak in Idaho) represent just a fraction of additional points of interest in the area. The major cities in the Pacific Northwest (Seattle, Portland, Spokane, Boise) rate as some of the most beautiful in the U.S. and offer a full array of shopping, fine dining, cultural and historical attractions, and sporting events.



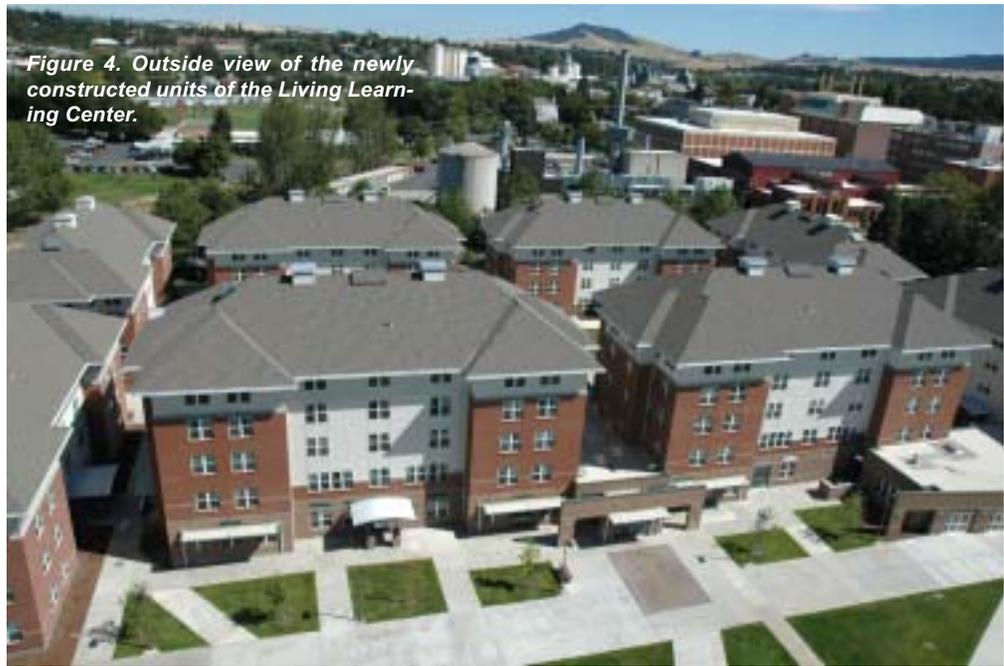
**Figure 3. The main thoroughfare to be used by conference participants in getting between on-campus housing and the lecture halls. The tall building (from the top of which the Figure 2 photo was taken) in the middle is one of the other options for on-campus housing and the building in the front left is one of the lecture halls.**

The Pacific Northwest, including the Palouse, is also famous for its gourmet coffee (e.g., Starbuck's, Seattle's Best), excellent regional beers (microbrews), and fine dining on fresh seafood and wild game. Moreover, the region is a leader in the production of "organic" produce. Also, there are local wineries in central Washington that now compete favorably with those from California and other more well-known wine-producing regions of the world. Being university towns, Moscow and Pullman have many establishments for nocturnal beverage-tasting activities.

#### PROGRAM

The International Program Committee (IPC) has been hard at work devising a scientific program that is exciting and covers all areas of geochemistry and mineralogy. The composition of the IPC is available on the conference website. Below is a partial list of more than 60 special sessions to be offered. See the conference website for the complete list of special sessions, the names of the organizers, and general descriptions.

- *Advanced methods for characterizing and identifying biomineralization in extreme environments*
- *Advances in accessory mineral geochemistry and geochronology*
- *Apatite: analysis, properties, and applications*



*Figure 4. Outside view of the newly constructed units of the Living Learning Center.*



*Figure 5. Shared living and kitchen area in a suite in the Living Learning Center.*

- *A-type granites and related rocks through time*
- *Basalt Geochemistry and mantle dynamics*
- *Carbon and gold*
- *Cosmogenic nuclides and surface process research: new developments and applications*

- *Current research on hydrothermal fluids and magmatic volatiles in PGE deposits*
- *Dissolved organic matter and its interaction with trace metals and organic pollutants in natural waters*
- *Energetic considerations for the emergence and proliferation of life in extreme environments*
- *Evidence for early planetary differentiation: Mars, Moon, and asteroids*
- *Forensic geochemistry*
- *Geochemical controls on microbial processes*
- *Geochemistry and geochronology of the Cascade Volcanic Arc*
- *Geochemistry and biogeochemistry of zero-valent metals*
- *Geochronology of tectonic processes*
- *High-precision geochronology, intercalibration, and absolute time-markers in the geologic record*
- *Igneous processes and their rates from U-series studies*
- *In situ ancient biomolecules and their isotopic signals: Clarkia and beyond*
- *Interaction along mineral grain boundaries: Diffusion, mass transfer, and the role of fluids*
- *Interfacial biogeochemical processes*
- *Isotopic ratio measurement using microbeam methods: Where do we stand and where are we going?*
- *Isotopic records of early planetary evolution*
- *Kinetics and metamorphic processes: A session in honor of the Dana Medalist Bill Carlson*
- *Metamorphic processing of geochemical tracers in subduction zones*
- *Microbial mineral transformations I: Microbial influences on mineral speciation and stability*
- *Microbial mineral transformations II: Microbially-induced solid phase transformations*
- *Mineralogy and geochemistry of uranium and transuranic elements*
- *Nanogeoscience*
- *Nearly nano-compositional imaging at the sub-micrometer scale using ion beam mass spectrometry to study earth and planetary issues*

Figure 6. The Student Recreation Center where delegates can get a work out during the conference. An indoor climbing wall is contained within the glass tower at the back.

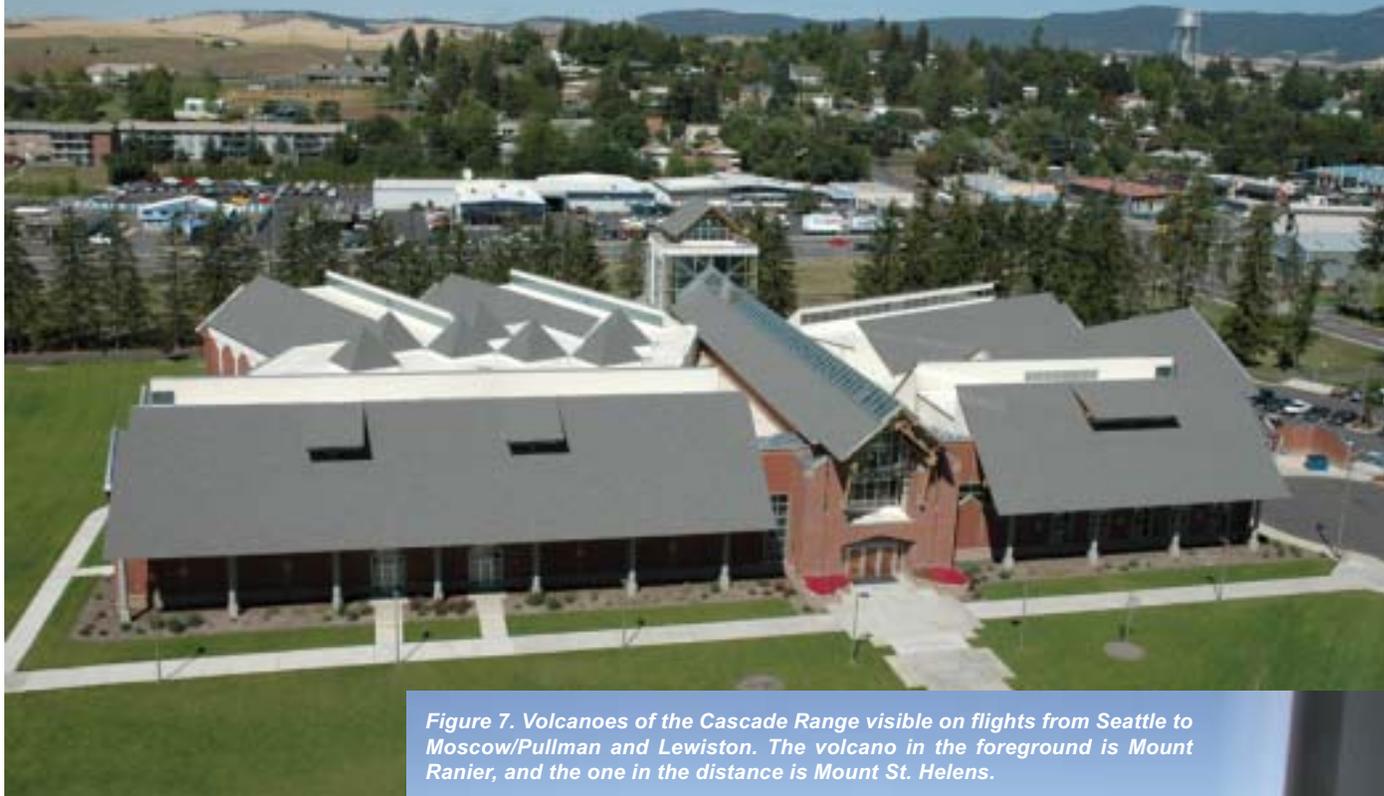


Figure 7. Volcanoes of the Cascade Range visible on flights from Seattle to Moscow/Pullman and Lewiston. The volcano in the foreground is Mount Ranier, and the one in the distance is Mount St. Helens.



- Pressure solution
- Protein-mineral interaction
- Recent advances in electron microbeam induced X-ray microanalysis: Instrumentation, hyperspectral data handling, and applications to geochemistry
- Recent developments in microbeam cathodoluminescence with applications to mineralogy
- Soils as the first factor in ground-water chemistry
- Speciation of metals and metalloids in the environment: Control by mineral structures and surface processes
- Structures and crystal chemistry of minerals
- Subduction zone magmatism and related processes
- Teaching geochemistry
- The halogens and their isotopes in marine and terrestrial aqueous systems
- The roles of methane and methane hydrate in global change from the Precambrian to the present
- The role of optical mineralogy in the 21<sup>st</sup> century: Research and teaching. Session in honor of Don Bloss and Ray Wilcox
- Thermochemical data, theoretical models and reaction/transport codes needed for reliable lifetime predictions of toxic and radioactive waste disposal and remediation schemes
- Vapor-phase transport of metals in ore-forming systems

- Water in mineral structures

In addition to the special sessions, a complete array of general sessions will also be available.

#### ACCOMMODATIONS

The majority of those attending Goldschmidt 2005 will stay in on-campus housing. The advantages of on-campus housing are the very reasonable cost (less than \$50/person/night), proximity to conference events, and convenience. The centerpiece of on-campus housing is the new Living Learning Center (Figures 3 and 5), which consists of suite-style accommodations. Each suite consists of a number of private (mostly

single) bedrooms, shared bathroom, living area, and kitchen. These accommodations are particularly ideal for groups. There are also a number of hotels/motels in the Moscow-Pullman area (see the web site for details). However, space in hotels/motels is limited, so participants preferring hotel accommodation should book early. All Goldschmidt delegates will have access to the Student Recreation Center (Figure 6) which contains an impressive array of cardiovascular and weight training equip-

additional flights from Seattle, rent a car, and make the 40-minute scenic drive north to Moscow. For those participants with some extra time and a desire to see the Pacific Northwest/Rocky Mountain region, it is possible to rent a car and drive from the following major cities, all with excellent international flight connections: Seattle (6 hours), Boise (6 hours), Portland (7 hours), Vancouver (8 hours), Salt Lake City (12 hours), and San Francisco (14 hours). Although all these drives can be made in a single day, a more leisurely pace would maximize sightseeing opportunities. A note to international participants: compared to many other countries, renting a motor vehicle and purchase of fuel are quite inexpensive in North America.



*Figure 8. The Berkeley Pit, Butte, Montana. One of the largest acidic mining pit lakes in the world.*

ment, as well as the tallest indoor climbing wall in the Northwest.

#### TRAVEL

The Moscow/Pullman airport (PUW) is serviced by a commuter airline (Horizon Air) with five flights daily (soon to increase to seven) from Seattle's SeaTac international airport (SEA). There is no doubt that this is one of the most scenic 1-hour flights in the world, passing within view of such geological features as the Cascades volcanoes (including St Helens, Rainer, Hood, Adams, and Baker – Figure 7), the northern Cascades, the Channeled Scablands of the Columbia basin, the Columbia river, the wide expanses of the Columbia river basalts, and the Snake river exiting Hells Canyon – so bring a camera and get a window seat! There are direct, non-stop flights to Seattle from several major world cities including: London, Amsterdam, Copenhagen, Moscow (Russia), Toronto, Tokyo, Taipei, and Seoul. Goldschmidt participants can also fly into the Spokane International Airport (GEG) which has daily, non-stop jet service to and from several major international US airports including (number of daily flights in parentheses): Boise (5), Chicago (1), Denver (3), Las Vegas (2), Los Angeles (1), Minneapolis (3), Phoenix (2), Portland (9), Salt Lake City (5), and Seattle (25). Commercial shuttle service and car rental are available for the 90-mile ride from Spokane to Moscow. Another option is to fly into the airport in Lewiston, Idaho (LWS), which has

#### SOCIAL EVENTS

Several social events are being planned for the conference. These will begin with the Ice Breaker Party in the Kibbie Dome on the evening of May 20. The exhibits will open officially at this event. On every day of the conference, except the Plenary Day, there will be a two- to three-hour time slot prior to dinner dedicated to viewing posters and exhibits. At all meals, poster sessions and other social events in the Dome, beer, wine and hors d'oeuvres will be available. These events will feature some of the outstanding microbrews and wines from the Pacific Northwest.



*Figure 9. Carbonate terraces at Mammoth Hot Springs, Yellowstone National Park.*

The Plenary Day, currently planned for Monday, May 23, will begin with a morning Plenary Session in the Kibbie Dome. That afternoon, conference participants will be able to take a short bus ride down into the Lewiston canyon to Hells Gate State Park. Lewiston is approximately 35 miles south of Moscow, and is located at the confluence of the Snake and Clearwater Rivers. To get to Lewiston, one descends from 2500 ft to 750 ft. over a distance of approximately 5 miles, with spectacular views

Figure 10. Grand Teton National Park



of geology. Hells Gate State Park is located on the Snake River at the end of Hells Canyon (Figure 1). Participants will be able to ride a jet boat part way into this majestic canyon. Afterwards, there will be a barbeque and entertainment with a regional flavor. For participants choosing to remain in Moscow on the afternoon of the plenary day, a side-walk fair in downtown Moscow is planned. Finally, near the end of the conference, there will be banquet, followed by dancing, with a focus on celebration of the Geochemical Society's 50<sup>th</sup> Anniversary. For accompanying persons, a series of day trips to local points of interest is being planned throughout the conference.

#### FIELD TRIPS

An excellent selection of pre- and post-meeting field trips that highlight the rich geology and scenery of the western U.S. are being offered to Goldschmidt participants. A pre-meeting field trip to Yucca Mountain, Nevada (site of the proposed U.S. repository for high-level nuclear waste) is being organized by David Wesolowski of Oak Ridge National Laboratory. Participants in this trip will be staying overnight in Las Vegas with plenty of opportunity for amusement (what happens in Vegas stays in Vegas!). A second pre-meeting trip to view the northwest border zone and main Bitterroot lobe of the Idaho Batholith will be led by Reed Lewis of the Idaho Geological Survey, Thomas Frost of the U.S.G.S., Keegan Schmidt of Lewis-Clark State College and Peter Larson of Washington State University. Participants in this trip will visit exposures of one of the largest cordilleran granitic batholiths in the steep canyons of northern Idaho.

Three post-meeting field trips are also in the works: 1) A trip to mine-impacted (EPA SUPERFUND) sites in the classic ore districts of Coeur d'Alene, Idaho and Butte, Montana (Figure 8) which will be led by Chris Gammons of Montana Tech and Barbara Williams of the University of Idaho; 2) A trip to view the Columbia River Basalts (the youngest, smallest, and best studied large igneous province on Earth) organized by Bart S. Martin, Ohio Wesleyan University, Stephen P. Reidel, Pacific Northwest National Laboratory and Washington State University, Tri-Cities, and Heather L. Petcovic, Western Michigan University; and 3) A visit to Yellowstone National Park (Figure 9), with side trips to Grand

Teton National Park (Figure 10) and Craters of the Moon National Monument, organized and led by Scott Wood, Tom Williams, and Susan Childers of the University of Idaho, and Jake Lowenstern of the U.S.G.S. Additional field trips may also be offered, so check the conference web site for updates.

By Scott A. Wood and Mickey E. Gunter



#### Information for Contributors

*Geochemical News* publishes timely and informative articles, announcements, letters, and reviews relevant to geochemists and geochemistry. Contributions are welcome from professionals, students, and other interested parties. Please send all communications to [geochemical-news@wmich.edu](mailto:geochemical-news@wmich.edu).

Text contributions should be in Microsoft Word format. Graphics submitted as figures to accompany articles MUST be submitted as separate individual files, in one of the following formats only: GIF, JPG, or TIFF. No PDF files for figures! Publication-ready, graphically-designed contributions (i.e. advertisements, announcements) may be submitted as PDF files, and must fit within one page having the dimensions 18.4 cm wide by 22.9 cm tall (or smaller).

Thanks again for your contributions!

# 2004 Geochemical Society Board of Directors Meeting Saturday, June 5, 2004 Copenhagen, Denmark

## Present:

*Board of Directors:* Tim Drever (President), Susan Brantley (Vice-President), Becky Lange (Treasurer), Jeremy Fein (Secretary), Frank Podosek (GCA Editor), Scott Wood (Special Publications Editor), Eric Oelkers (Director), Judith McKenzie (Past President), Mike Whiticar (OGD Chair)

*Guests:* Seth Davis (GS Business Manager), Jun-ichi Matsuda (Org. Committee, 2003 Goldschmidt Conf.), Susan Stipp (Org. Committee, 2004 Goldschmidt Conf.), Simon Turner, Sara Foda (Org. Committee, 2006 Goldschmidt Conf.), Mickey E. Gunter (Org. Committee, 2005 Goldschmidt Conf.), Al Hofmann (Proponent for 2007 Goldschmidt Conf.), Terry Seward and Bruce Yardley (EAG), Friso Veenstra (Elsevier Product Manager), Dominique Weis (Proponent for 2008 Goldschmidt Conf.)

## Apologies:

Malcolm McCulloch (International Secretary), Trudy Dickneider (OGD Secretary), Peggy Delaney, Patricia Dove, Harry Elderfield, Gilbert Hanson, Erwin Suess (Directors).

Note: Because only 1 non-Officer Director was present at the meeting, there was not a quorum and official votes for proposals were carried out via email in the weeks following the Board of Directors meeting. There was a vote to change the definition of quorum in the by-laws (see vote below) for future meetings. The first sentence of By-Law 4.10 will be replaced with, 'A quorum at Geochemical Society Board of Directors meetings shall be the presence of 9 of the 17 Board of Directors members'.

The meeting was called to order at 9:00 a.m.

### 1) President's Report (Drever)

Board of Directors (BoD) meeting will be run with a new format in order to save time for issues requiring discussion. Reports from GS Officers and Editors will be submitted prior to the BoD meeting instead of being presented during the meeting. In consultation with EAG, it is proposed that Goldschmidt conferences that are held in non-North American/ non-European sites will be inserted into the North America/Europe schedule rather than substituting for one of the two as Kurashiki did for the North American 'slot'.

### 2) Treasurer's Report (Lange)

A detailed Treasurer's Report was submitted. \$200K of the GS assets are located in Certificates of Deposit that will mature in 2005. Liquid assets are up from 2002 mainly due to increased performance of stock market. GS yearly accounts in black by about \$23K mainly from profits of Davos Goldschmidt meeting. Most years show that GS breaks even between expenses and income.

Following a proposal from the Treasurer, the Board voted to transfer the proceeds from Washington Mutual Certificates of Deposit to a Solomon Smith Barney account.

This is Becky Lange's last year as GS Treasurer and there was unanimous appreciation expressed for the outstanding job she has done for the GS.

### 3) Secretary's Report (Fein)

GS BoD actions that were taken since the last Secretary's Report are listed below:

- 1) Approved a proposal to include the Reviews in Mineralogy and Geochemistry Series in GeoScienceWorld listings (10/03).
- 2) Approved (12/03) a three part proposal to:
  - i) create a joint monthly magazine to promote mineralogical and geochemical research interests and to help shape the image and activities of the mineralogical and geochemical disciplines. This endeavor is taken in collaboration with the Mineralogical Society of America, the Mineralogical Association of Canada, the Clay Minerals Society, and the Mineralogical Society (of London);
  - ii) transform the Geochemical News into an electronic newsletter, to cover news and information that is of particular interest and importance to Society members, and to be distributed via email and posted on the Society webpage; and
  - iii) expend resources to hire a professional webpage designer to upgrade the Geochemical Society webpage. The logistics of the upgrade will be supervised by the Business Office of the GS, in consultation with the GS Executive Committee.
- 3) Approved the nomination of James O'Neil for the 2004 Goldschmidt Medal (12/03).
- 4) Approved the nomination of Andrea Grottooli for the 2004 Clarke Medal (12/03).
- 5) Approved the nomination of George Luther for the 2004 Patterson Medal (1/04).
- 6) Approved the nomination of Cindy Lee, Steven Macko, and Bhamidipati Somayajulu to be named as Geochemistry Fellows at the 2004 Goldschmidt Conference (1/04).
- 7) Approved the nomination of Eric Galimov for the 2004 Treibs Medal (2/04).
- 8) Approved a revised scope statement for the publication G<sup>3</sup> (4/03).

## 4) Business Office Report (Davis)

### Business Office Location and Status

The current arrangement that the Geochemical Society has with Washington University is excellent. Washington University is subsidizing the office/storage space, HVAC, electricity, water, maintenance, and janitorial services of the business office. This arrangement can continue as long as the Chair of the Department is willing to house the business office and there is a faculty member in the department willing to supervise the operations.

### Internet Payment Processing

On October 14, 2003, the on-line Membership Renewal went active ([http://gs.wustl.edu/cgi-bin/gs\\_register.pl](http://gs.wustl.edu/cgi-bin/gs_register.pl)). Since then it has become the single most used method of membership renewal. Plans to expand this page or create a new page for the processing of special publications orders, donations, and/or RIM&G Short Course Registrations were discussed.

### Exhibits and Events

The exhibit for the 2003 Goldschmidt Conference was in a high traffic area. The gift pens, stickers and the full color brochure were also eagerly accepted. MSA shipped several issues of RIM&G volumes, of which all but two sold out. Special Publication sales were also satisfactory, but not as high. Following the success of the 2003 Goldschmidt Conference, November 2003 marked the first Geochemical Society exhibit at the Annual GSA Meeting since the business office moved to St. Louis. The 2003 GSA meeting in Seattle, WA also marked the first GS Appreciation Breakfast for GS Committee members.

The Board approved a motion to raise the membership dues for all categories of member by \$5.00. The proposed dues structure is \$10/\$20/\$30 for students/Seniors/professional members. Subscription to GCA is in addition to this. The current subscription price is \$45 and \$122 for students and professionals, respectively.

General Discussion: *Oelkers:* membership numbers are a problem – they are not going up despite the success of Goldschmidt meeting. Why are we not attracting members? We need to explicitly address what advantages are of membership and get word out more effectively.

Should we do more at GSA? *McKenzie:* Marty Goldhaber started efforts to increase involvement at GSA both in terms of program and other activities. The GS Program Committee chair has primary responsibility for promoting GS activities at GSA.

*Lange:* We should look to students for new members; having good presence at GSA will help attract students;

There was unanimous approval for a motion to set up a BoD subcommittee on increasing student membership with Oelkers as chair; and with Davis and Fein as additional members. A report with proposals for action will be prepared prior to the 2004 GSA meeting.

### Development plan

A detailed first draft of a development plan for the Business Office was presented and discussed. The plan describes ideas for improving services for current GS members and for increasing membership and society funds. A revised draft that incorporates suggestions from the BoD will be completed and circulated via email.

### 5) GCA Editor's Report (Podosek)

Since the Kurashiki report, Elsevier terminated their contract with Cadmus-Richmond due to a variety of production-related and service problems. Effective in January 2004, the new compositor is another branch of Cadmus, located in Ephrata, PA, and they have been responsible for composition of GCA, beginning with issue 3 of 2004. Arrangements with the new publisher are going very well: there has not been a single complaint from authors. Production of GCA is changing to involve less paper and more electronic files, with the current ultimate template for each manuscript being a pdf file rather than the hardcopy that was formerly used. Due to increasing pages in the production pipeline, GCA has instituted a temporary fix by printing approximately 50 more pages per issue, with the goal of reducing production time to 3-4 months.

### 6) Nominations Committee (submitted by R. Hellmann)

L. Reisberg (CRPG, Nancy, France) and V. Salters (Florida State University) have been proposed by the Nominating Committee to replace the two outgoing GS Directors on 1/1/05. S. Wood and J. Fein have been nominated to continue with their current positions as Special Publications Editor and Secretary, respectively, for another three year term each. Y. Zhang (University of Michigan) has been nominated to replace B. Lange as GS Treasurer on 1/1/05.

### 7) Special Publication Editor's Report (Wood)

#### Special Publications

- 1) Giggenbach Volume: Volcanic, geothermal and ore-forming fluids: Rulers and witnesses of processes within the Earth. Editors - Stuart F. Simmons and Ian Graham.
  - Joint publication with Society of Economic Geologists (SEG)
  - This volume is identified as SEG Special Publication No. 10. There is no GS Special Publication Number on the volume but it can be considered GS Spec. Pub. No. 8. The GS logo does appear on the volume.
  - Was available at Kurashiki Goldschmidt.
  - As of 1/1/04, 139 volumes had been sold for a total sales of \$5,378. All first authors were given complimentary copies. In the first quarter of 2004, an additional 72 volumes were sold for total revenue of \$2,754. Thus, a grand total of 211 volumes have been sold for a total revenue of \$8,132. Revenues for the Giggenbach volume will be apportioned between GS and SEG according to an MOU previously signed by the two societies.

2) Special Publication 9 (Kaplan Volume): Geochemical Investigations in Earth and Space Science: A Tribute to Isaac R. Kaplan.

- See attachments for list of editors and table of contents.

- All manuscripts have been reviewed.

- To be published by Elsevier.

- The book is now available for sale and orders are being taken both by Elsevier and the GS Business Office.

Reviews in Mineralogy and Geochemistry

Volumes Sponsored to Date by Geochemical Society

1) Molecular Modeling Theory and Application in the Geosciences, v. 42 (2001)

2) Noble Gases in Geochemistry and Cosmochemistry, v. 47 (2002)

3) Applications of Synchrotron Radiation in Low-Temperature Geochemistry and Environmental Science, v. 49 (2002)

4) U-Series Geochemistry, v. 52 (2003)

No additional GS-sponsored RIMG volumes are in the pipeline. There will be a call for proposals for GS-sponsored RIMG volumes in the next GS News.

Joint Publication Series with the Society of Economic Geologists

Wood led a discussion regarding the possibility of having a joint publication series with the Society of Economic Geologists (SEG). One model for such a collaboration would be volumes covering material similar to that covered in the volumes edited by Hu Barnes titled "Geochemistry of Hydrothermal Ore Deposits". These publications covered material of common interest to geochemistry and economic geology, they have been widely used as texts in courses on ore deposit geochemistry, and were obviously very successful, resulting in three editions. Although centered on ore deposits, these volumes contained a wealth of information on geochemistry including radiogenic isotopes, stable isotopes, thermodynamics, aqueous geochemistry, etc., and so their appeal is not restricted to economic geochemists. It is unlikely that Hu Barnes will edit a fourth edition of this volume, and so a vacuum will soon exist in the field.

The proposal is not to simply take over publishing the current version of GHOD in which all the original subject matter is reviewed and updated with each new edition. Rather, the idea is that each joint volume would deal in depth with some particularly "hot" topic of joint interest to GS and SEG members. For example, volumes might be on topics such as "Microbiological influences on ore geology", "Advances in isotopic studies of ore deposits", or "Ore deposits as witnesses to global change".

The idea of the joint publication series was presented to the board for discussion, and was approved by email vote after the BoD meeting (see below). The positive vote provides a mandate for further discussions/negotiations with SEG to come up with a more specific, detailed proposal. The board will vote again on the finalized detailed proposal for each volume.

## 8) Publication Issues

Publication issues

The new magazine *Elements* will be launched in January 2005, with four issues planned for the first year and six issues planned for subsequent years. Questions about how news from the individual societies will be handled have not yet been fully resolved. The Principal Scientific Editors are Rod Ewing, Ian Parsons, and Mike Hochella. The magazine will be distributed as part of the membership of the GS.

As we decided previously, we voted to retain the Geochemical News in an electronic format, starting next year. We also voted to have one hardcopy issue per year to be distributed at the Goldschmidt Conference (it would also be distributed electronically to GS and EAG members). These decisions could be revisited in the future after we evaluate the effectiveness of the electronic approach.

Due to the increased importance of Geochemical News to GS activities, it was decided (see vote below) to amend the GS by-laws to state that the Geochemical News Editor will be a member of the GS Board of Directors (officer member). If there is more than one editor, only one of them may vote as a Director at any given time.

## 9) Goldschmidt Reports

The final Goldschmidt Report for Kurashiki was presented by Jun-ichi Matsuda, who informed the Board that the Geochemical Society of Japan wishes to take part in future Goldschmidt Conferences as one of the sponsoring societies. The 2003 Goldschmidt was a success both scientifically and financially, and the meeting balanced expenses with income. In general, Matsuda reported that having the Goldschmidt meeting in Japan was extremely helpful to Japanese geochemists, serving to increase participation by Japanese geochemists in Copenhagen.

**2004 Goldschmidt Report (Stipp)** Break-ins and thefts less than a week before the meeting were a setback in time and logistics, but shouldn't impact the overall budget significantly due to help from the host university, and the meeting should break even financially. There were 1500 ± 100 participants. The seed money from the GS will be paid back. Suggestion: pay GS expected expenses up front – provides organizers more flexibility. The Board discussed liability issues, and it was decided that conference organizers should use a professional organizer to deal with risk in a more professional way. This approach will increase cost but is likely to be worth it. Should make it common practice to have 'no refund' disclaimer on registration fees.

**2005 Goldschmidt Report (Gunter/Wood):** Planning is on schedule to hold the 2005 meeting from May 20-25, 2005, which includes an extra day due to the plenary day. Website up and running. UI Conferences, Events and Information Services – running administration of meeting. Cambridge Publications for publications. \$20-25K for student sponsorship from participating societies. Theme is 'Voyage of Discovery'. Plenary session includes 50<sup>th</sup> anniversary celebration. The meeting will be very student friendly – accommodation will be inexpen-

sive, student registration will be held to as low as possible, student poster session, ease of access for N. Amer. students, etc.. The International Program Committee has been appointed, and is currently working on the program. Breakeven point is about 800 participants. Free exhibition space and ad in program will be provided for the 2006 Goldschmidt organizers. Visa issues will be examined and clarified as much as possible with sufficient lead time.

**2006 Goldschmidt Report (Turner/Foda):** Melbourne, Australia: 27 August to 1 September, 2006. Melbourne convention center – one roof, walking from local hotels. Professional conference organizers (Tour Hosts). Website set up. Local organizing committee set up. International program committee set up and currently working on planning of sessions. Cambridge Publications will be involved as with previous Goldschmidts. Projection of approximately 1000 participants.

The Board heard presentations from Cologne (Al Hofmann) and Davos (Judy McKenzie) for the 2007 Goldschmidt, voting in favor of Cologne, primarily on the principle of keeping the conference moving among new destinations. The Cologne meeting would probably be at the end of August. The EAG Council and the Goldschmidt Forum also voted for Cologne.

The Board heard a presentation from Dominique Weis for the 2008 Goldschmidt, which would be held in Vancouver, BC in mid-July, and they voted to approve the proposal (as did the EAG and the Goldschmidt Forum).

The Board proposed (as did the EAG and the Goldschmidt Forum) that any future Goldschmidt meetings outside Europe and North America would be inserted into the schedule (as we are doing for Melbourne) rather than replacing either the European or North American meeting (as was done for Kurashiki). This will require amendment of the By-Laws.

## 10) Varia

There was some discussion as to whether the GS should come up with a new logo. The Board authorized Sue Brantley to spend \$250 to have the company that designed the logo for her Water-Rock Interaction conference design a new logo for the GS.

The Board voted that the Geochemical Society should hold a luncheon at the GSA national meetings in conjunction with the Ingerson Lecture, with the Program Committee taking the lead in its organization.

Jobsearch webpage – The Board discussed the lack of places to advertise for positions. Oelkers has put together a webpage to be associated with the Goldschmidt server, containing job seeker and job advertiser/announcement information with the goal being to lead to informal contact. The Board decided that the GS should continue and host/maintain webpage as part of the GS webpage.

The Board discussed the logistics of signing contracts with professional conference organizers and the liability logistics associated with these contracts. Issue was referred to future consideration. Drever will head up efforts to survey previous conference organizers and come up with a proposal for formalizing guidelines for contract signing, risk logistics, etc.

The Board discussed GS/EAG Interactions, including the purpose of having separate entities, reasons for it, possibilities of merger or ways to interact more effectively and frequently.

Meeting adjourned: 5:30 pm

The following motions (details of which are given in the above minutes) were unanimously approved by the Board of Directors via email following the BoD meeting. The email votes were required to officially enact the measures due to the lack of a quorum at the BoD meeting.

1. Change the quorum requirements for BoD meetings
2. Include the GN Editor as a regular BoD member
3. Approve R. Reisberg as a Non-Officer Director
4. Approve V.J.M. Salters as a Non-Officer Director
5. Approve S. Wood as Special Publications Editor
6. Approve J. Fein as Secretary
7. Approve Y. Zhang as Treasurer
8. Approve the choice of Cologne for the 2007 Goldschmidt
9. Approve the choice of Vancouver for the 2008 Goldschmidt
10. Approve that future non-European non-North-American Goldschmidts be scheduled as insertions into the alternation rather than as substitutions
11. Approve that the GN be published once per year in hardcopy in addition to the electronic issues
12. Authorize a joint GS/SEG publication series
13. Authorize transfer of funds from the CD to the SSB account
14. Raise the membership dues for all categories by \$5.00
15. Appoint a subcommittee to promote student membership in GS
16. Authorize the spending of \$250 on the design of a new GS logo
17. Initiate a GS luncheon in conjunction with the Ingerson Lecture at GSA

Respectfully submitted by:

Jeremy Fein  
Secretary, The Geochemical Society  
July 11, 2004

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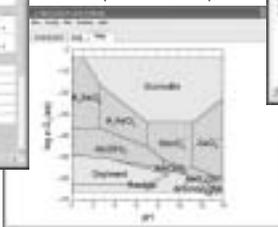
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## MEETINGS ANNOUNCEMENTS

# ASLO Summer Meeting June 19-24, 2005 · Santiago de Compostela, Spain 2005

## A Pilgrimage Through Global Aquatic Sciences

### Planning Committee

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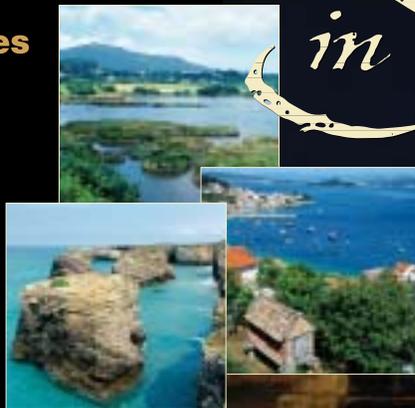
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<http://www.aslo.org/santiago2005>

## MEETINGS ANNOUNCEMENTS

**MOSCOW, IDAHO, USA  
MAY 20-25, 2005**Web-site: [www.uidaho.edu/gold2005](http://www.uidaho.edu/gold2005)

University of Idaho and Washington State University

The Goldschmidt Conference is the premier annual meeting in geochemistry and mineralogy. As did past conferences, the meeting in Idaho will cover the full range of geochemistry from cosmochemistry to the origin of life. However, this conference will be special because 2005 is the 50<sup>th</sup> Anniversary of the Geochemical Society – come celebrate this anniversary in the foothills of the Rocky Mountains! The conference also takes place during the bicentennial of the Lewis and Clark expedition - the Corps of Discovery. The Local Organizing Committee invites you to come on a voyage to discover the latest in the fields of geochemistry and mineralogy, and the superb geology and unparalleled opportunities for outdoor recreation in the Inland Northwest. To register interest, log on to the web site above or e-mail: [gold2005@uidaho.edu](mailto:gold2005@uidaho.edu). Details on the program, travel, accommodation, field trips, etc. are available on the web site.

**Important Dates:****January 15, 2005:** Deadline for abstract submission.**March 20, 2005:** Early registration ends, late registration begins.

**Sponsors:** The Geochemical Society, the European Association of Geochemistry, the Mineralogical Society of America, the Mineralogical Association of Canada, the Geochemical Society of Japan, the International Mineralogical Society, the Division of Geochemistry of the American Chemical Society, the International Humic Substances Society, the Society for Geology Applied to Mineral Deposits, and the Microbeam Analysis Society.



## MEETINGS CALENDAR

**Oct 12-15, 2004: Lithoprobe celebratory conference**, Ontario Science Centre, Toronto, Ontario, Canada. Contact: Ron Clowes; Phone: +1 604 822 4138; E-mail: li\_AT\_lithoprobe.ubc.ca; Web site: <http://www.lithoprobe.ca/about/events/celebratoryConference.asp>

**Oct 13-16, 2004: SOLAS Science 2004**, Halifax, Nova Scotia, Canada. Web site: <http://www.uea.ac.uk/env/solas/ss04/>

**Oct 18-20, 2004: Deep-Water Sedimentary Systems of Arctic and North Atlantic Margins**, Statoil Conference Center, Stavanger, Norway. Organization: Norwegian Geological Society. Contact: Ole J. Martinsen, Norsk Hydro Research Center, N-5020 Bergen, Norway; Phone: +47 5599 6937; Fax: +47 5599 5704; E-mail: ole.martinsen\_AT\_hydro.com; Web site: <http://www.geologi.no/cgi-bin/geologi/imaker?id=1657>

**Oct 18-22, 2004: VIIIth International Earth Sciences Congress**, Santiago de Chile, Web site: [http://www.igm.cl/Cct2004/Cct2004\\_es/index.htm](http://www.igm.cl/Cct2004/Cct2004_es/index.htm)

**Oct 25-29, 2004: Association of African Women Geoscientists Conference**, Kampala, Uganda. Web site: <http://www1.elsevier.com/homepage/sad/gsaf/events/aawg.pdf>

**Nov 7-10, 2004: GSA 2004 Annual Meeting & Exposition - with Mineralogical Society of America**, Denver, Colorado. Web site: <http://www.geosociety.org/>

**Nov 8-11, 2004: LPI Workshop on Chondrites and the Protoplanetary Disk**, Kaua'i, Hawai'i, US. Web site: <http://www.lpi.usra.edu/meetings/chondrites2004/>

**Nov 14-19, 2004: IAVCEI 2004 General Assembly Volcanism and its Impact on Society**, Pucón, Chile. Contact: Jos A. Naranjo or Jorge Clavero, General Secretariat IAVCEI 2004 GA, Av. Santa Maria 0104, Providencia, Santiago, Chile; Phone: +56-2-737 50 50; Fax: +56-2-777 19 06; E-mail: iavcei\_AT\_sernageomin.cl; Web site: [www.sernageomin.cl/iavcei](http://www.sernageomin.cl/iavcei) and [http://www.agu.org/meetings/STG/iavcei\\_stg.html](http://www.agu.org/meetings/STG/iavcei_stg.html) (for travel grants, deadline July 15)

**Nov 17, 2004: RMS/UK SOLAS meeting**, London, U.K. Contact: David Woolf, Centre for observation of Air-Sea Interactions and fluxes, Southampton Oceanography Centre, Waterfront Campus, European Way, Southampton SO14 3ZH, U.K.; Phone: +44 (0)23 80 59 6401; Fax: +44 (0)23 80 59 6400; E-mail: dkw\_AT\_soc.soton.ac.uk

**Nov 22-23, 2004: GeoSur 2004 - International Symposium on the Geology and the Geophysics of the Southernmost Andes, the Scotia Arc and the Antarctic Peninsula**, Hilton Buenos Aires Hotel, Buenos Aires, Argentina. Contact: Angela Marchetto, OGS, Borgo Grotta Gigante 42c - 34010 SGONICO TS Italy; Phone: +39 040 2140339; Fax: +39 040 327040; E-mail: amarchetto\_AT\_ogs.trieste.it; Web site: <http://www.ogs.trieste.it/GeoSur2004/index.html>

**Nov 29-Dec 3, 2004: PORSEC-2004, the biennial Pan Ocean Remote Sensing Conference**, Concepción, Chile. Web site: <http://www.porsec-2004.udec.cl/>

**Dec 6-15, 2004: ICGP 470 - Late Mesoproterozoic-early Neoproterozoic events, Neoproterozoic low latitude glaciations and relationships with the Pan-African orogenic system in Central Africa**, Kinshasa, Democratic Republic of Congo. Web site: <http://www1.elsevier.com/homepage/sad/gsaf/events/470circular.doc>

**Dec 15-18, 2004: ACE 2004 - 5th European meeting on environmental chemistry (ACE)**, Bari, Italy. Contact: Dr. Michele Aresta, METEA Research Center, University of Bari, via Celso Ulpiani 27, 70126 Bari, Italy; E-mail: resta\_AT\_metea.uniba.it; Web site: <http://www.emec5.uniba.it/>

**Dec 5-8, 2004: Salt-Sediment Interactions and Hydrocarbon Prospectivity: Concepts, Applications, and Case Studies for the 21st Century**, Adam's Mark Hotel, Houston, TX U.S.A. GCSSEPM Foundation. Contact: Paul J. Post; Phone: +1 504-736-2954; Fax: +1 504-736-2905; E-mail: paul.post\_AT\_mms.gov; Web site: <http://www.geolsoc.org.uk/template.cfm?name=GCSSEPM1>

**Dec 6-7, 2004: Channel Flow, Ductile Extrusion and Exhumation of lower-mid crust in Continental Collision Zones**, The Geological Society of London, Burlington House, London, U.K. Contact: Helen Wilson, Geological Society of London, Burlington House, Piccadilly, London W1J 0BG; Phone: +44 (0)20 7434 9944; Fax: +44 (0)20 7494 0579; E-mail: helen.wilson\_AT\_geolsoc.org.uk; Web site: [http://www.geolsoc.org.uk/template.cfm?name=channel\\_flow](http://www.geolsoc.org.uk/template.cfm?name=channel_flow)

**Dec 11-20, 2004: Short Course and Workshop on Recent Advances in Magmatic Ore Systems in Mafic-Ultramafic Rocks (IGCP Project 479)**, Hong Kong. Contact: Ms. Christina Yan Wang, Department of Earth Sciences, University of Hong Kong, Hong Kong; E-mail: wangyan2002\_AT\_hkusua.hku.hk; Web site: <http://www.hku.hk/earthsci/IGCP479/>

**Dec 13-17, 2004: AGU Fall Meeting**, San Francisco, California, U.S.A. Contact: E. Terry, AGU Meetings Department, 2000 Florida Avenue NW, Washington, DC 20009 U.S.A.; Phone: +1-202-777-7335; Fax: +1-202-328-0566; E-mail: eterry\_AT\_agu.org; meetinginfo\_AT\_agu.org; Web site: [www.agu.org/meetings](http://www.agu.org/meetings)

**Dec 15-18, 2004: 5th European Meeting on Environmental Chemistry (5th EMEC)**, Bari, Italy. Web site: <http://www.emec5.uniba.it>

**Jan 5-6, 2005: 28th Mineral Deposits Studies Group: Annual Winter Meeting**, Belfast, Northern Ireland. Contact: Miller O'Prey; E-mail mop\_AT\_bgs.ac.uk; Web site: <http://www.mdsg.org.uk>

**Jan 9-12, 2005: Winter Conference: Norsk Geologisk Forening 100 years**, Røros, Norway. Web site: [www.geologi.no](http://www.geologi.no)

**Jan 16-20, 2005: Chapman Conference on The Science and Technology of Carbon Sequestration**, Bahia Resort Hotel, San Diego, CA, USA. Web site: <http://www.agu.org/meetings/cc05acall.html>

**Jan 18-20, 2005: 4th Asia Pacific Symposium on Environmental Geochemistry**, Perth, Western Australia. Organization: APSEG4, EIGG, Brodie Hall Building, 1 Turner Park, Bentley, WA 6102, Australia; Phone: +61 8 9266 3577/7824; Fax: +61 8 9266 7824; E-mail: apseg4\_AT\_curtin.edu.au; Web site: <http://www.apseg4.curtin.edu.au/>

**Feb 7-12, 2005: Fourth ISPET Seminar "Advanced analytical and experimental techniques in petrology"**, Canberra, Australia. For Ph.D. students; application deadline October 15, 2004. Web site: <http://www.dmp.unipd.it/ISPET/Call-ISPET4.doc>

**Feb 10-11, 2005: seismic geomorphology**, Westchase Hilton Hotel, Houston, Texas, US. Contact: Jessica Canfor, Geological Society of London, Burlington House, Piccadilly, London W1J 0BG, UK; Phone: +44 (0)20 7434 9944; Fax: +44 (0)20 7494 0579; E-mail: jessica.canfor\_AT\_geolsoc.org.uk; Web site: <http://www.geolsoc.org.uk/seismicgeomorphology>

**Feb 13-17, 2005: Annual Meeting and Exhibition The Minerals, Metals & Materials Society**, San Francisco, CA, USA. E-mail: mtgserv\_AT\_tms.org

**Feb 24-25, 2005: 7. Geokemian Paivat 2005: Jarj. Vuorimiesyhdistyksen Geologijaosto**, Geologian tutkimuskeskus, Espoo, Finland. E-mail: mari.lahti\_AT\_smoy.fi and reijo.salminen\_AT\_gtk.fi

**Feb 25- March 2, 2005: Aluminium: Lithosphere to Biosphere (and Back), Sixth Keele Meeting on Aluminium**, Bueaco, Portugal. Contact: Dr. Christopher Exley; E-mail: c.exley\_AT\_keele.ac.uk; Website: <http://www.keele.ac.uk/depts/ch/groups/aluminium/meeting2005/meeting2005.htm>

**March 15-18, 2005: 1st International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld-2005)**, Badajoz, Spain. Web site: <http://www.formatex.org/biomicroworld2005>

**Apr 3-7, 2005: International Conference on the Biogeochemistry of Trace Elements (ICOBTE)**, Adelaide, Australia. E-mail: 8thICOBTE\_AT\_csiro.au; Web site: <http://www.clw.csiro.au/conferences/8thicobte/>

**Apr 14-20, 2005: 5th International Symposium on Eastern Mediterranean Geology**, Thessaloniki, Greece. Web site: <http://geonet.geo.auth.gr/5thISEMG/>

**Apr 24-29, 2005: World Geothermal Congress - 2005**, Antalya, Turkey. Web site: <http://www.wgc2005.org/>

**Apr 25-29, 2005: European Geosciences Union (EGU) XXX General Assembly**, Nice, France. Sponsors: EGU, AGU. Contact: EGU Office, Max-Planck-Str. 13, 37191 Katlenburg-Lindau, Germany; Phone: +49-5556-1440; Fax: +49-5556-4709; E-mail: egu\_AT\_copernicus.org; Web site: [www.copernicus.org/EGU/EGU.html](http://www.copernicus.org/EGU/EGU.html)

## MEETINGS CALENDAR

**May 2-6 2005: 37th International Liege Colloquium on Ocean Dynamics: Gas Transfer at Water Surfaces**, Liege, Belgium. Web site: <http://modb.oce.ulg.ac.be/colloquium/2005.html>

**May 5-7 2005: The Fourth International Colloquium "Magmatism, Metamorphism and Associated Mineralizations"**, Agadir, Morocco. Organization: The Department of Geology of the Faculty of Sciences of Agadir, under the auspices of the Minister of Scientific Research. Contact: Secretariat du colloque 3MA, Departement de geologie, Facult Des Sciences, Agadir B.P. 8106 Cit Dakhla, Agadir - Maroc; Phone: + 212 48 22 09 57; Fax: +212 48 22 01 00; E-mail: Colloque3ma\_AT\_esta.ac.ma or Colloque3ma\_AT\_yahoo.fr; Web site: <http://3ma.esta.ac.ma>

**May 15-18, 2005: Window to the World**, John Ascuaga's Nugget, Sparks, Nevada, USA. Contact: Geological Society of Nevada, P.O. Box 13375 Reno, NV 89507, USA; Phone: +1 775 3234569; Fax: +1 775 323 3599; E-mail: gsn symp\_AT\_unr.edu; Web site: <http://www.gsn2005.org/>

**May 15-18, 2004: Halifax 2005**, Dalhousie University, Halifax, Canada. 2005 joint meeting of the Geological Association of Canada, the Mineralogical Association of Canada, the Canadian Society of Petroleum Geologists and the Canadian Society of Soil Sciences. Web site: <http://www.halifax2005.ca/>

**May 18-20, 2005: Eurock 2005, International Symposium**, Brno, Czech Republic. Contact: Dr Pavel Konecny, Inst. of Geonics AS CR, Studentska 1768, CZ-70800 Ostrava-Poruba, Czech Republic; Phone: +420 69 6979111; Fax: +420 69 6919452; E-mail: konecpa\_AT\_ugn.cas.cz

**May 20-24, 2005: Fifteenth Annual V.M. Goldschmidt Conference**, Moscow, Idaho, USA; Web site: <http://www.uidaho.edu/gold2005>

**May 23-27, 2005: AGU Joint Assembly**, New Orleans, Louisiana, U.S.A. Contact: AGU Meetings Department, 2000 Florida Avenue, NW, Washington, DC 20009 U.S.A.; Phone: +1-202-777-7333; Fax: +1-202-328-0566; E-mail: meetinginfo\_AT\_agu.org; Web site: [www.agu.org](http://www.agu.org)

**June 2005: Acid Rain 2005 7th International Conference on Acid Deposition**, Prague, Czech Republic. Contact: E-mail acid2005\_AT\_chmi.cz

**June 5-9, 2005: XIII International Conference on Heavy Metals in the Environment**, Rio de Janeiro, Brazil. Web site: [http://www.rioconventionbureau.com.br/rcvb\\_ingles/congressos/con\\_frames.htm](http://www.rioconventionbureau.com.br/rcvb_ingles/congressos/con_frames.htm)

**June 5-9, 2005: 105th General Meeting American Society for Microbiology**, Atlanta, GA, U.S.A. Web site: <http://www.asm.org/Meetings/index.asp?bid=470>

**June 13-17, 2005: 67th Annual International Conference & Exhibition European Association of Geoscientists & Engineers (EAGE)**, Madrid, Spain. E-mail: eage\_AT\_eage.org; Web site: <http://www.eage.nl/conferences/index2.phtml?confid=17>

**June 19-24, 2005: ASLO Summer meeting**, Santiago de Compostela, Spain. Contact: Helen Schneider Lemay, Registration Coordinator and Meeting Manager, ASLO Business Office, 5400 Bosque Boulevard, Suite 680, Waco, Texas 76710-4446, U.S.A.; Phone: +1 254 399 9635 or toll-free: 800-929-ASLO; Fax: +1 254 776 3767; E-mail: business\_AT\_aslo.org; web site: <http://aslo.org/santiago2005/>

**June 27-29, 2005: Advances in Marine Ecosystem Modelling Research (AMEMR)**, Plymouth, U.K. Web site: <http://www.amemr.info/>

**June 27-July 1, 2005: International Conference on Mining and the Environment and Metals and Energy Recovery: Securing the Future**, Skellefteå, Sweden. Contact: Expolaris Kongresscenter, Skellefteå, SE-931 78 Skellefteå, Sweden; Phone: +46-919-736000; Fax: +46-910-736010; E-mail: kongresscenter\_AT\_skelleftea.se or tomas.from\_AT\_metallgruppen.se or manfred.lindvall\_AT\_boliden.se or helena.ornberg\_AT\_kongresscenter.skelleftea.se

**July 17-21, 2005: 17th Caribbean Geological Conference**, San Juan, Puerto Rico. Contact: J.H. Schellekens, Dept. of Geology, University of Puerto Rico, P.O. Box 9017, Mayaguez, Puerto Rico, 9017; Phone: +1 787 265 3845; E-mail: Geoconf\_AT\_uprm.edu

**July 3-9, 2005: 7th International Eclogite Conference**, Seggau, Austria. Contact: iec-7\_AT\_uni-graz.at; Web site: <http://www.uni-graz.at/IEC-7>

**July 7-9, 2005: Belomorian Mobile Belt and Its Analogues: Geology, Geochronology, Geodynamics and Metallogeny (BMB\_2005)**, Petrozavodsk, Russia. Web site: [http://geoserv.karelia.ru/Rus/conf/BMB/bmb\\_e.html](http://geoserv.karelia.ru/Rus/conf/BMB/bmb_e.html)

**July 17-22, 2005: 14th International Symposium on Carotenoids**, Edinburgh, U.K. Contact: Prof. Andrew J. Young, School of Biological and Earth Sciences, John Moores University, Byrom St. Liverpool L3 3AF, U.K. Phone: +44 151 231 2173; Fax: +44 151 207 3224; E-mail: a.j.young\_AT\_livjm.ac.uk

**July 31-Aug 8, 2005: Fifth International Dyke Conference IDC5**, Pohjola Wilderness Hotel, Polar Circle, Rovaniemi, Finland. Contact: Rovaniemi-Lapland Congresses, University of Lapland, PO BOX 122, FIN-96101 Rovaniemi, Finland; Phone: +358 (0)16 341 2799; Fax: +358 (0)16 317 843; E-mail: congres\_AT\_ulapland.fi; Web site: <http://idc5.gsf.fi/>

**July 31-Aug 5, 2005: Gordon Conference on Inorganic Geochemistry, Metals in ore-forming systems: Sources, transport, deposition**, Proctor Academy, Andover, New Hampshire, U.S.A. E-mail: Steve.Garwin\_AT\_geoinformex.com or christoph.heinrich\_AT\_erdw.ethz.ch or cline\_AT\_ccmail.nevada.edu; Web site: <http://www.segweb.org/GordonConf.pdf>

**Aug, 2005: IUCr-20 - XX Meeting and General Assembly of the International Union of Crystallography**, Florence, Italy.

**Aug 7-11, 2005 10th International Platinum Symposium: "Platinum-Group Element - from Genesis to Beneficiation and Environmental Impact"**, Oulu, Finland. Contact: Congress Oulu, P.O. Box 56, Fin-90015 Oulun kaupunki, Finland; E-mail: congressoulu\_AT\_ouka.fi; Web sites: <http://www.congressoulu.fi/> and <http://platinumsymposium.oulu.fi/>

**Aug 8-11, 2005: Earth System Processes II**, Calgary, Alberta, Canada. Ancient earth systems, modern earth system processes, and earth system futures. An interdisciplinary, integrative scientific meeting exploring the interactions among Earth's lithosphere, atmosphere, hydrosphere, cryosphere, and biota. Organization: Geological Society of America and Geological Association of Canada. Web site: <http://www.geosociety.org/meetings/esp2/>

**Aug 18-21, 2005: The 8th Biennial SGA (the Society for Geology Applied to Mineral Deposits) Meeting "Mineral Deposit Research: Meeting the Global Challenge"**, Beijing, China. Contact: 8th SGA Biennial Meeting, Secretary: Dr. Jingwen Mao, Institute of Mineral Resources Chinese Academy of Geological Sciences, 26 Baiwanzhuang Road, Beijing, 100037 China; Fax: +86-10 68 33 63 58; E-mail: mail\_AT\_sga2005.com; Web site: <http://www.sga2005.com>

**Aug 22-26, 2005: 13th International Symposium On Placer And Weathered Rock Deposits (PWR-2005) "Placer And Weathered Rock Deposits in Activated Platforms and Orogenes"**, Perm, Russia. Contact: Prof. Natalia Patyk-Kara, IGEM RAS; Phone +7-095-230 8427; Fax: +7-095-230 2179; E-mail pkara\_AT\_igem.ru; Dr. Vladimir Naumov, Perm' State University; E-mail naumov\_AT\_psu.ru, Prof. Boris Osovetsky, Perm' State University, E-mail minmuseum\_AT\_psu.ru

**Aug 23-27, 2005: GES-7, 7th International Symposium on the Geochemistry of the Earth's Surface**, Aix-en-Provence, France. Web site: <http://www.cerege.fr/GES7/index.htm>

**Aug 29-29, 2005: STOMP - Structure, Tectonics and Ore Mineralization Processes**, Economic Geology Research Unit, James Cook University, Townsville, Australia. E-mail: Timothy.Baker\_AT\_jcu.edu.au or Thomas.Blenkinsop\_AT\_jcu.edu.au; Web site: <http://www.es.jcu.edu.au/STOMP/>

**Sept 2005: MAEGS-14 Natural hazards related to recent geological processes and regional evolution**, Association of European Geological Societies, University of Turin, Torino, Italy. E-mail: marco.giardino\_AT\_unito.it

**Sept 4-20, 2005: IAGOD - Metallogeny of the Pacific Northwest: Tectonics, Magmatism & Metallogeny of Active Continental Margins**, Vladivostok, Russia. Web site: <http://www.fegi.ru/iagod/>

**Sep 5-9, 2005: 7th symposium on the Cretaceous**, University of Neuchâtel, Neuchâtel, Neuchâtel (Karl F Ilmi and Thierry Adatte, Geological Institute, University of Neuchâtel, Phone: 41-32-7182655 FAX: 42-32-7182601 EMAIL:

## MEETINGS CALENDAR

karl.foellmi\_AT\_unine.ch, thierry.adatte\_AT\_unine.ch Web: <http://www.unine.ch/geologie/isc7/>

**Sep 7-11, 2005: 6th International Conference on Geomorphology**, Congress Hall-Auditorium of Zaragoza, Zaragoza, Spain. (Organizing Secretariat Geomorfologia, Facultad de Ciencias, Universidad de Zaragoza, C/Pedro Cerbuna 12, Zaragoza 50009, Spain; Fax: +34 976 761106; E-mail: iag2005\_AT\_posta.unizar.es; Web site: <http://wzar.unizar.es/actos/SEG/index.html>)

**Sep 11-16, 2005: AIG-6 - 6th International Symposium on Applied Isotope Geochemistry**, Prague, Czech Republic. Web site: <http://www.aig6.cz>

**Sep 11-15, 2005: 12th International Meeting on Boron Chemistry**, Sendai, Japan. Contact: Prof. Xibai Qiu, IUPAC-2005 Secretariat c/o Chinese Chemical Society, P.O. Box 2709, Beijing 10080, China; Phone: +86 (10) 6256 8157; Fax: +86 (10) 6256 8157; E-mail: qiuxb\_AT\_iccas.ac.cn

**Sep 12-16, 2005: 22nd International Meeting on Organic Geochemistry (22nd IMOg)**, Seville, Spain. 12-16 September 2005. Web site: <http://www.imog05.org>

**Sep 12-16, 2005: 68th Annual Meteoritical Society Meeting**, Gatlinburg, Tennessee, USA; web site: <http://geoweb.gg.utk.edu/2005/metsoc2005.html>

**Sep 14-19, 2005: International Conference on Environmental (Geocological) Problems in Karst, IAH**, Belgrade, Yugoslavia. E-mail: jemcov\_AT\_ptt.yu

**Sep 19-23, 2005: 22nd International Geochemical Exploration Symposium (IGES): "From Tropics to Tundra"**, Perth, Western Australia. Web site: <http://www.promaco.com.au/conference/2005/iges/>

**Fall, 2005: Short course Neutron Scattering applied to Earth Sciences**, San Francisco, California. Organizers: Rudy Wenk, University of California - Berkeley, California. Sponsors: Mineralogical Society of America and The Geochemical Society

**Sep 20-24, 2005: 2nd International Congress of Seas and Oceans**, Szczecin - Swinoujscie, Poland. E-mail: icso\_AT\_wsm.szczecin.pl; Web site: <http://www.wsm.szczecin.pl/iirm/kongres/>

**Sep 26-29, 2005: MRS 2005 Scientific Basis for Radioactive Waste Management XXIX**, Gent, Belgium.

**Oct 2005: Short course Low-Temperature Thermochronometry: Techniques, Interpretations, and Applications**, Snowbird, Utah. Organizers: Todd A. Ehlers (University of Michigan) and Peter Reiners (Yale University). Sponsor: Mineralogical Society of America and Geochemical Society of America

**Oct 16-19, 2005: GSA 2005 Annual Meeting & Exposition - with Mineralogical Society of America**, Salt Lake City, Utah. Web site: <http://www.geosociety.org/>

**Oct 17-19, 2005: International Lead-Zinc Processing Symposium 2005**, Kyoto, Japan. E-mail: akiofuwa\_AT\_waseda.jp

**Nov 6-11, 2005: International Gondwana 12 Conference**, Mendoza, Argentina; Web site: <http://cig.museo.unlp.edu.ar/gondwana>

**Nov 7-11, 2005: 20th World Mining Congress & Expo 2005**, Tehran, Iran. Contact: Mr. A. Almasi, Chief of Executive Committee, No. 25, Ostad Nejatollahi Avenue, Tehran 1599913717, Iran; E-mail: info\_AT\_wmce2005.com.; Web site: <http://www.20wmce2005.com/index.php?page=home>

**Nov 13-15, 2005: Geology Forum 05**, Cape Town, South Africa. Topic: metalliferous ore deposits. Contact: Jon Wills; E-mail: jon\_AT\_min-eng.com; Website: <http://www.min-eng.com/geologyforum05/index.html>

**Nov 30-Dec 2, 2005: 5th Fennoscandian Exploration and Mining Conference**, Rovaniemi, Finland. Contact: Regional Council of Lapland, Ms. Riitta Muhojoki, Project Secretary, P.O. Box 8056, Fin-96101 Rovaniemi, Finland; Phone: +358-16-3301230; Fax: +358-16-318705; Web site: <http://www.lapinliitto.fi/fem2005>

**Dec, 2005: 6th European Meeting on Environmental Chemistry**, Belgrade, Yugoslavia. Contact: Dr. Branimir Jovancevic, Department of Chemistry, University of Belgrade, Akademski trg 12-16, POB 158, 11001 Beograd, Yugoslavia; E-mail: bjovanci\_AT\_chem.bg.ac.yu; Web site: <http://www.science.plym.ac.uk/ace/Meetings.html>

**Dec 5-9, 2005: AGU Fall Meeting**, San Francisco, California, U.S.A. Contact: E. Terry, AGU Meetings Department, 2000 Florida Avenue NW, Washington, DC 20009 U.S.A.; Phone: +1-202-777-7335; Fax: +1-202-328-0566; E-mail: eterry\_AT\_agu.org; meetinginfo\_AT\_agu.org; Web site: [www.agu.org/meetings](http://www.agu.org/meetings)

**Dec 16-22, 2005: 13th International Conference of the Geological Society of Africa**, Cairo, Egypt, 16-22. Contact: Dr Mahmoud Abdeen, GSAF Vice-President (North Africa); E-mail: m\_m\_abdeen\_AT\_hotmail.com; Web site: <http://gsaf.narss.org/>

**Feb 20-24, 2006: AGU Ocean Sciences Meeting**, Honolulu, Hawaii.

**July, 2006: IMA-2006 - XIX General Meeting of the International Mineralogical Association**, Kobe, Japan.

**July 16-23, 2006: 7th International Conference on the Occurrence, Properties, and Utilization of Natural Zeolites (Zeolite '06)**, Socorro, New Mexico, USA. Contact: Dr. Bowman; E-mail bowman\_AT\_nmt.edu

**July 23-28, 2006: 19th General Meeting of the International Mineralogical Association**, Kobe, Japan. Contact: Prof. T. Yamanaka, E-mail b61400\_AT\_center.osaka-u.ac.jp; Web site: [http://www.congre.co.jp/ima2006/index\\_e.html](http://www.congre.co.jp/ima2006/index_e.html)

**Aug 27-Sept 1, 2006: 17th International Mass Spectrometry Conference (IMSC)**, Prague, Czech Republic. Web site: <http://www.imsc2006.org/>

**Oct 22-25, 2006: GSA 2006 Annual Meeting & Exposition - with Mineralogical Society of America**, Philadelphia, Pennsylvania. Web site: <http://www.geosociety.org/>

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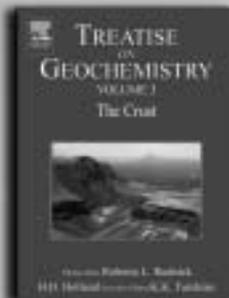
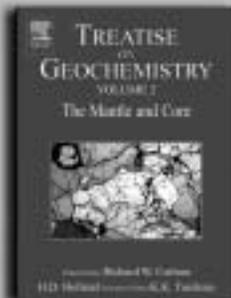
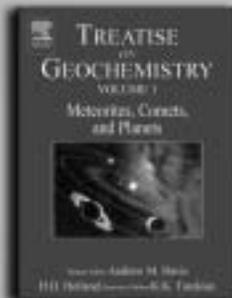
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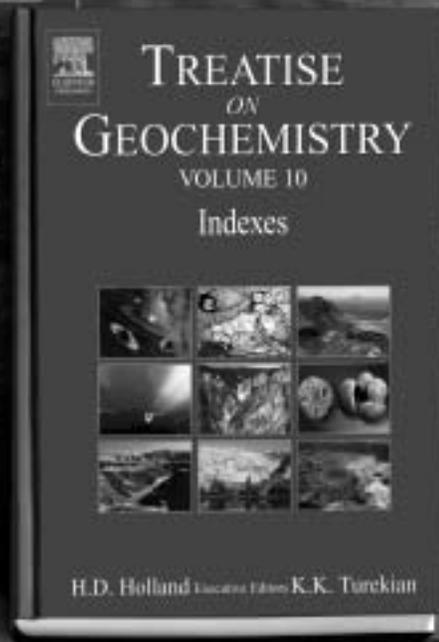
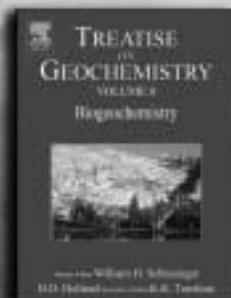
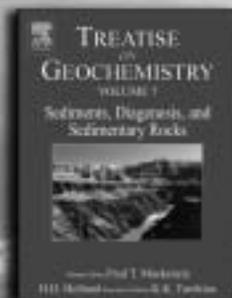
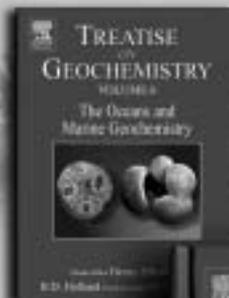
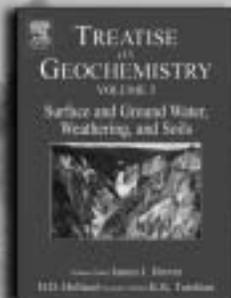
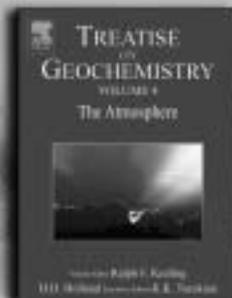
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