

THE GEOCHEMICAL NEWS

Newsletter of The Geochemical Society
in cooperation with The European Association of Geochemistry



The Goldschmidt Issue:
Another Successful VMGC: Moscow, Idaho
Preview: Melbourne, Australia in 2006

July 2005
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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 *G³* (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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From the President(s),

The Moscow (Idaho) Goldschmidt was a great success, as you will see from this issue of the *Geochemical News*. It had by far the largest attendance of any Goldschmidt in North America, including good attendance from Europe and Asia. The organization was flawless, including feeding 1600 people in half an hour every day. On behalf of our Societies we would like to thank Scott Wood, Mickey Gunter and all their helpers for putting in a tremendous amount of work and putting together a great meeting.

The end of June is the time when our various GS committees turn over. We would like to thank the outgoing chairs and members for their hard work over the past years. The operations of the Society are completely dependent on the work of our volunteers. Thank you to those who are rotating off and welcome to the newcomers. If any of you are interested in serving on any of our committees, please let us know. We are always eager to bring in new people. You could at least check the box on the GS membership renewal form to indicate your interest.

During the course of Goldschmidt 2005, the officers of the EAG and the GS took advantage of the opportunity to discuss future links between the Societies. The two Societies jointly own the Goldschmidt conference brand and take joint responsibility for selecting venues, with EAG taking the lead for Goldschmidt meetings in Europe and GS for those in North America. However the geochemical community needs more opportunities to come together and progress our subject at a regional level. Both societies would like to do more for our members through the year, for example by sponsoring sessions at other major earth science meetings. EAG has been aware for some time that our aspirations to do more by way of supporting geochemistry in Europe is limited by lack of a permanent office or indeed the funds to support one, while GS has not had an organised infrastructure in Europe.

At this stage it is early days but we would like to bring the Societies much closer together, with the GS providing the platform of an international organisation and both societies trying to offer more meetings and workshops to members through the EAG in Europe and GS elsewhere. We believe that this will give the geochemical

community greater opportunities to meet and interact, and will especially benefit students and young scientists. At the same time, it is clear that the bipartite approach to the Goldschmidt meetings has been of great benefit in ensuring their freshness and diversity, and is something that must be maintained and fostered.

Discussions in Idaho were very constructive and the officers are now preparing proposals as to how the Societies can come together to gain the benefits of association without losing any of the things that are good about the current modus operandi. We hope that we will be able to bring proposals to GS Board and EAG Council over the summer, prior to making recommendations to you all as members.

Plans for the next Goldschmidts in Melbourne (2006), Cologne (2007) and Vancouver (2008) are on track. We hope to see a lot of you in Melbourne next year!

Tim Drever, GS President
Bruce Yardley, EAG President

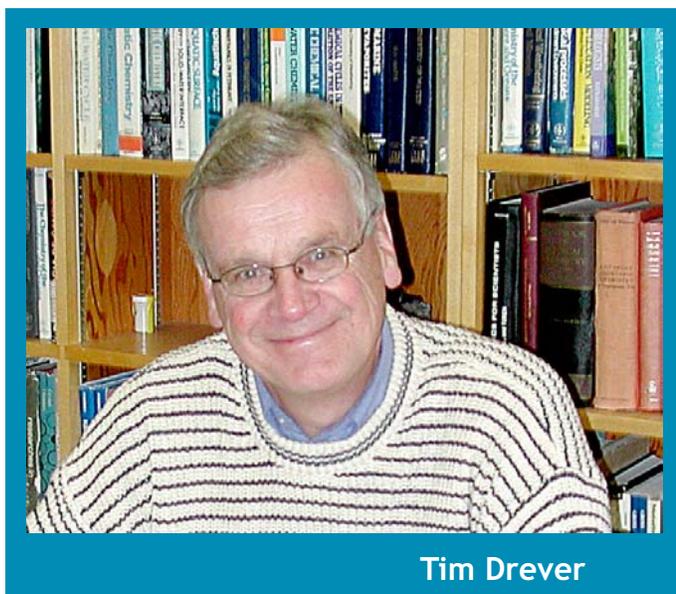
Editors' Corner

Welcome to the Goldschmidt issue of *The Geochemical News*. Once a year we plan to offer a special issue of GN that focuses on the V. M. Goldschmidt Conferences, with special emphasis on the meeting just completed (in this case, Moscow, ID), and on the meeting next to come (in this case, Melbourne, Australia). Our plan is to provide plenty of information on the upcoming meeting, as well as to offer an update on the (undoubted) successes of the previous conference. In this issue we include not only a summary article on the Moscow Goldschmidt meeting, but trip reports from three exciting Goldschmidt field trips to some of the most fascinating geologic features of the US northwest.

This issue also features an introduction to Melbourne; the city and the next Goldschmidt venue. But wait; there's more. We also feature a report from the organizers of a two-day Goldschmidt session devoted to longterm predictions of radioactive waste geochemistry in the environment. This was only one among many high-profile, high-impact sessions that demonstrated both the profound relevance and the outstandingly high quality that we've all come to expect from the Goldschmidt conference series. We enthusiastically congratulate Scott Wood, Micky Gunter and all the other organizers of this year's spectacularly successful meeting, and we look forward to next year's exciting - and sure to be memorable - meeting on the other side of the world.

Until next issue,

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



Tim Drever

COVER: The bluegrass band Steptoe and one of the conference organizers singing the Goldschmidt blues.

NEWS FROM ST. LOUIS

Paytan selected as 2005 Ingerson Lecturer

Dr. Adina Paytan at Stanford University's Department of Geological and Environmental Sciences has been selected as the 2005 Geochemical Society F. Earl Ingerson Lecturer. The lecture will be presented at the 2005 GSA Annual Meeting in Salt Lake City, Utah. The series is named after the Geochemical Society's first president.

2005 Committee Member Changes

Several committee members rotated off of their three year terms this past June. They are: Richard Carlson (Goldschmidt Award), Flip Froelich (Nominations), Sigurdur Gislason (Goldschmidt Award Chair), Roland Hellmann (Nominations Chair), Janet Herman (Clarke Award Chair), Nancy Hinman (Patterson Award), Briant Kimball (Program), Patricia Maurice (Program), William McDonough (Clarke Award), and Barbara Sherwood-Lollar (Patterson Award). Your hard work and long service is much appreciated.

Rotating on to GS committees as of July 1st are: Vickie Bennett (Nominations Chair), Liane Benning (Patterson Award), Patrick Brady (Goldschmidt Award), Richard Carlson (Clarke Award), Louis Derry (Nominations), Marilyn Fogel (Program), James Kubicki (Nominations), Andreas Lutge (Program), Patricia Maurice (Goldschmidt Award), Samuel Mukasa (Goldschmidt Award Chair), Eric Oelkers (Program), Laurie Reisberg (Clarke Award Chair), Susan Stipp (Clarke Award) and Arthur White (Patterson Award). Thank you for your service and support.

2006 Geochemical Society Award Nominations Sought: Nominations must be received by November 1, 2005.

The **V.M. Goldschmidt Medal** is awarded 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 **F.W. Clarke Medal** is awarded 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.

The **C.C. Paterson Medal** is awarded for a recent innovative breakthrough in environmental geochemistry of fundamental significance, published in a peer-reviewed journal.

The **A.E. Treibs Medal** is awarded by the Organic Geochemistry Division for major achievements in organic geochemistry of a period of years.



Seth Davis

Submission requirements and procedures are on the GS website at: <http://gs.wustl.edu/archives/nominations.html>

Please take the time to honor your peers! It is up to you to ensure that all of geochemistry is recognized and all deserving geochemists are considered!

Best regards,
Seth Davis
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Epilogue: The 15th Annual V.M. Goldschmidt Conference, May 20-25, 2005, University of Idaho, Moscow, Idaho, USA

The 15th Annual V.M. Goldschmidt Conference, a Voyage of Discovery, was held at the University of Idaho in Moscow, Idaho, USA on May 20-25, 2005. In addition to the two charter sponsors of the Goldschmidt Conference, the Geochemical Society and the European Association of Geochemists, twelve other societies/associations provided varying degrees of support. These societies/associations were the: Association of Applied Geochemists, Division of Geochemistry of the American Chemical Society, Geochemical Society of Japan, Inland Northwest Research Alliance, International Association of Geochemistry, International Humic Substances Society, International Mineralogical Association, Microbeam Analysis Society, Mineralogical Association of Canada, Mineralogical Society of America, Society of Geology Applied to Mineral Deposits, and United States Geological Survey. The three conference organizers were Scott A. Wood and Mickey Gunter of the University of Idaho and Peter Larson of Washington State University. The conference accepted 1713 abstracts which were published as a supplement to *Geochimica et Cosmochimica Acta*, and attracted a total of 1558 delegates and 36 accompanying persons, making it the largest ever held in North America by more than 50%. The distribution of delegates by country was United States (1009), Canada (127), France (61), United Kingdom (59), Germany (51), Japan (37), China (33), Australia (32), Switzerland (25), and Russia (14). One or more delegates also came from the following countries: Austria, Belgium, Brazil, Denmark, Egypt, Finland, Greece, Iceland, India, Israel, Italy, Korea, the Netherlands, New Zealand, Norway, Peru, Portugal, Slovakia, South Africa, Spain, Sweden, Taiwan, Turkey, and Venezuela. There were 1150 professional registrations vs. 408 student registrations.

The focal point for the conference was the Kibbie Dome at the University of Idaho, where conference headquarters, registration, computer access, submission of presentations, exhibits, poster sessions, and lunches and dinners were located. The set up of the Kibbie

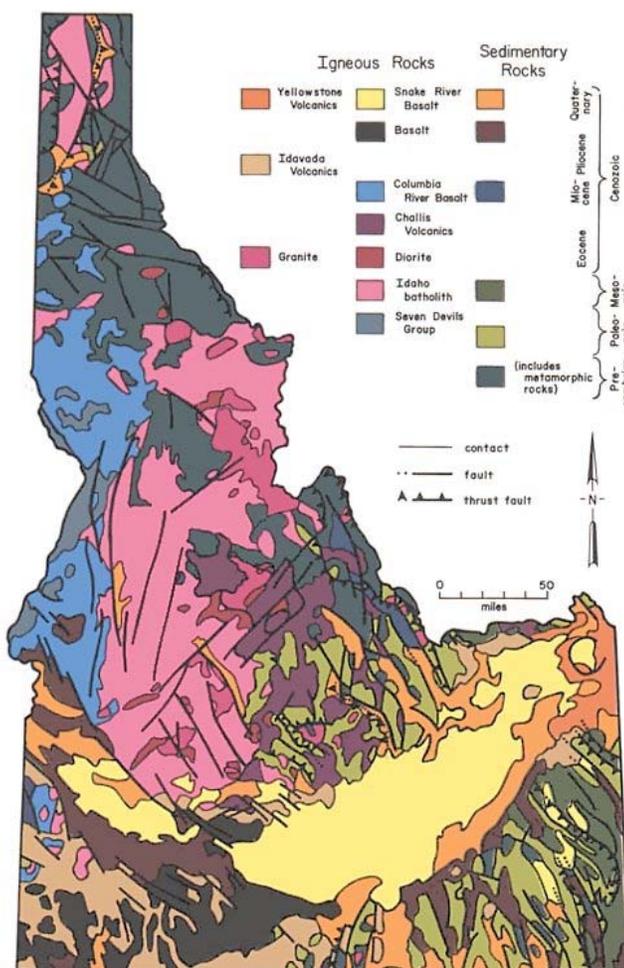
Dome and preparations for the various events were ably carried out by Terry Evans and Tom McGann and their staff. The delicious food and beverages throughout the conference were prepared and served by Gail Babcock (Executive Chef) and Jerry Curtis (General Manager Campus Dining) and their staff. Oral sessions took place in the Administration Auditorium, Albertson Hall, Renfrew Hall, Agricultural Science and the College of Natural Resources. Eleven parallel oral sessions were run using a web-based system for delivery of PowerPoint presentations. By all accounts, the system worked beautifully,

thanks to the dedication and hard work of Greg Cox and the rest of the staff of Information Services.

The conference was organized around 84 special symposia and 19 general symposia. A large number of topics were covered including analytical, aqueous, environmental, forensic, hydrothermal, igneous, isotope (stable and radiogenic), metamorphic, mineral deposit, organic, and planetary geochemistry and mineralogy, as well as biogeochemistry and geomicrobiology. The quality of the science presented, both orally and via poster, was excellent, thanks in large part to Peter Larson, the International Program Committee and the symposia chairs.

The conference opened officially during the Welcoming Party on the evening of Friday, May 20th with a bag pipe procession by the Border Highlanders Pipes and Drums, followed by short welcoming speeches by two of the conference organizers (Scott Wood and Mickey Gunter), the dean of the College of Science (Judy Parrish, who also read excerpts from a letter from the Governor of Idaho, Dirk Kempthorne), and

the president of the University of Idaho (Tim White). Delegates clearly enjoyed the exhibits, the excellent selection of inexpensive microbrews and wine, the magnificent food, and the entertainment by the Old Time Fiddlers. It was a great party to kick off the conference and the celebration of the 50th Anniversary of the Geochemical Society.





Hors d'oeuvres table at the Welcoming Party complete with Goldschmidt 2005 ice sculpture.

Oral sessions began on Saturday morning. The schedules for Saturday and Sunday were similar: 11 parallel oral sessions running from 8:30 to 12:00, lunch in the Kibbie Dome from 12:00-13:30, parallel oral sessions again from 13:30 to 16:30, plenary addresses by the Urey Medalist (Alexandra Navrotsky, Saturday) or the Patterson Medalist (Ken Bruland, Sunday) from 16:40 to 17:10, posters and social hour from 17:15 to 19:30, and dinner together in the Kibbie Dome from 19:30 to 21:00. The poster sessions were well attended and once again lubricated with local beers and wines, and plenty of hors d'oeuvres. Musical entertainment was provided each evening along with dinner. Having lunches and dinners together in the Kibbie Dome and included in the registration fee, although necessary because of local logistics, turned out to be one of the most popular aspects of the conference. The feeling of togetherness engen-

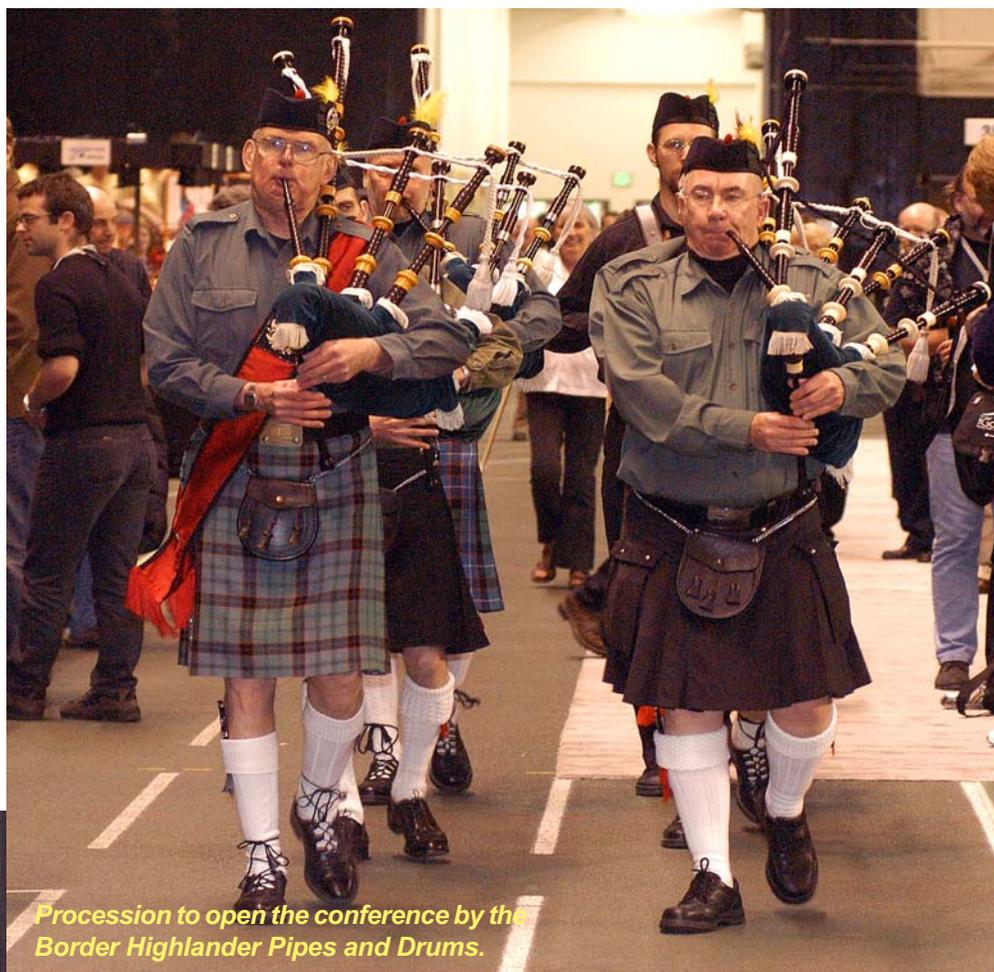
dered by having meals on site made this large Goldschmidt conference feel more like a much smaller Gordon or Penrose Conference, and facilitated scientific exchange and networking with colleagues. Many participants remarked that communal meals in a single location should be the model for future Goldschmidt conferences.

Monday morning the plenary session was held, in which the Geochemical Society, the European Association of Geochemistry, the Mineralogical Society of America and the Geochemical Society of Japan presented various awards, and plenary lectures were given by Tim Drever (President of GS), Bruce Watson (Goldschmidt Medalist) and Eric Oelkers (Guest Lecture). To start the Plenary Session and in celebration of the 50th Anniversary of the Geochemical Society, a mimosa toast was made using keepsake champagne flutes inscribed with the conference logo. Immediately after the Plenary Session, about 300 delegates headed south to Lewiston for the Hells Canyon Jet Boat Tour. Although a number of participants got caught in a surprise downpour on Sunday morning as they walked between sessions, the weather was beautiful for the Boat Tour on Monday as well as the remainder of the conference and related field trips. The



Welcome message by University of Idaho President Tim White.

jet boats traveled 90 minutes into Hells Canyon (the deepest canyon in North America) with gorgeous views of columnar jointing in the Columbia River basalts and bighorn sheep. The boats made a brief stop at Heller's Bar and then returned to Hells Gate State Park, where the boaters were joined by 200-300 other conference participants for a western-style barbeque featuring planked salmon (flown in fresh from Alaska that day!), mouth-watering tri-tip sirloin steaks and grilled portobello mushrooms. Entertainment was provided by Steptoe, a local bluegrass band (joined by a special guest for three songs), and by the Nez Perce tribe. Those delegates who did not attend the Hells Gate Barbeque were given gift certificates towards lunch or dinner in selected Moscow restaurants, and otherwise had the afternoon and evening free to explore Moscow and the surrounding areas.



Procession to open the conference by the Border Highlander Pipes and Drums.



Viewing exhibits and socializing at the Welcome Party.

Oral sessions resumed on Tuesday, with the schedules for Tuesday and Wednesday similar to those for Saturday and Sunday, except that there were no late afternoon plenary lectures and no poster sessions on Wednesday. The Gala Dinner-Dance took place Tuesday evening. Delegates enjoyed halibut (again flown in fresh from Alaska), beef tenderloin and curried tofu while listening to the Mike Lynch jazz quartet. After the meal and a short program including a presentation by Simon Turner, organizer of the 16th Annual Goldschmidt Conference in Melbourne in 2006, some of the tables were cleared away to provide a dance floor, and delegates partied to the wee hours of the morning to the tunes of Citizen, a classic rock band.

For those with any stamina remaining, a Farewell Party was held Wednesday evening after the close of the oral sessions. Musical entertainment was provided by the country/bluegrass band Beargrass. During dinner on Wednesday, conference co-organizer Scott Wood "played" guitar and "sang" a couple of parody songs about mineralogists and geochemists, the lyrics of which are provided at the end of this article.

The size of the Kibbie Dome allowed Goldschmidt 2005 to have a larger than usual number of exhibitors (35 total; 20 commercial, 15 non-profit). Delegates could visit exhibit booths of the various societies that helped sponsor the meeting, commercial publishers (e.g., Blackwell, Springer, Elsevier) and local businesses. The three days with dedicated poster/exhibit hours, the Welcoming Party, and the Farewell Party gave both the posters and the exhibits excellent exposure.

All field trips offered by the organizing committee had sufficient participants to operate, and some were oversubscribed. Pre-meeting field trips included a visit of the proposed nuclear waste site at Yucca Mountain in Nevada, and an expedition to the northwest border zone and main Bitterroot lobe of the Idaho Batholith. Both a scientific and a non-technical trip to the Clarkia Miocene fossil deposits took place during the conference. Post meeting trips included: 1) Geology, geochemistry and microbiology of Yellowstone National Park; 2) The Columbia River Basalt Group in southeastern Washington and northeastern Oregon; 3) Mineral and environmental geochemistry of the Coeur d'Alene Mining District, Idaho; and 4) Extrusive A-type magmatism of the Yellowstone hot spot track. Individual reports on some of these trips can be found elsewhere in this newsletter.

The majority of the credit for the success of the conference goes to all the people already named above, as well as the many volunteers (students, faculty, citizens of Moscow) who helped with registration, shuttles, PowerPoint projection and many, many other tasks. Cami



Start of Sunday morning fun run.

Presidential address by Tim Drever during the Plenary Session.



McClure and her staff at Conferences, Events, Information, and Parking Services insured the overall smooth running of the conference, including pre- and on-site registration, marketing, exhibitor registration, coordination of food services and accommodations, making arrangements for tours and field trips, travel arrangements, and many other tasks. Countless people commented on how friendly and helpful all the conference staff and volunteers were. And finally, a highlight of the conference for many was the opportunity to meet our shy and retiring Conference Manager, Dennis McConnell, who, among other things, answered (and generated) thousands of e-mail messages quickly and patiently, and made sure that everyone was well taken care of.

The 15th Annual V.M. Goldschmidt Conference is over, but probably will not be forgotten soon by anyone who was there. See you next year in Melbourne!

Scott A. Wood and Mickey E. Gunter

Next Page: University of Idaho parody song lyrics...



Participants enjoying the food at the barbeque.



Delegates return to barbeque after the Hells Canyon jet boat tour.

Delegates participating in a Native American dance with the Nez Perce tribe



***Mammas Don't Let Your Babies Grow Up to Be Mineralogists
(To the tune of Mammas Don't Let Your Babies Grow Up to Be Cowboys)***

Mineralogists get harder to love when they start to get old.
They'd rather study zeolites and asbestos than diamonds or gold.
Biaxial indicatrices, refractive indices, and a new crystal structure each day.
If you don't understand him, and he don't die young, he'll probably just go extinct.

Mammas don't let your babies grow up to be mineralogists.
Don't let them have models and read Dana too much.
Make 'em be geochemists and petrologists and such.
Mammas don't let your babies grow up to be mineralogists.
They write textbooks at home, and they're heard to moan
I study minerals not rocks.

Mineralogists like Miller indices and double refraction
Moh's hardness scale and luster and plane polarized light
Most that take mineralogy don't like it, and them that do must be a little bit crazy
If you don't understand it, you're not alone
But mineralogy won't go away.

Mammas don't let your babies grow up to be mineralogists.
Don't let them have models and read Dana too much.
Make 'em be geochemists and petrologists and such.
Mammas don't let your babies grow up to be mineralogists.
They write textbooks at home and they're heard to moan
I study minerals not rocks.

**We're Geochemists
(To the tune of the Beatle's Daytripper)**

We got a good reason, for taking the easy way out.
 We got a good reason, for taking the easy way out.
 'Cause we're geochemists, laboratory types.
 It took us so long, so find out.
 But we found out.

Tried some field work, but it only tired us out.
 Tried some field work, but it only tired us out.
 'Cause we're geochemists, laboratory types.
 It took us so long, so find out.
 But we found out.

Mapping is boring, we prefer phase diagrams.
 Mapping is boring, we prefer phase diagrams.
 'Cause we're geochemists, laboratory types.
 It took us so long, so find out.
 But we found out.

Geologists tease us, they think we're not tough enough.
 Geologists tease us, they think we're not tough enough.
 But we're geochemists, laboratory types.
 It took us so long, so find out.
 But we found out.



Two relaxed conference organizers on the last day.



Dancing the night away and celebrating the 50th Anniversary of the Geochemical Society to the tunes of the band Citizen at the Gala Dinner Dance.

Voyages of Discovery: Moscow Goldschmidt Field Trip Reports

Geology, geochemistry and microbiology of Yellowstone National Park

Led by

*Scott A. Wood, Susan Childers, and Thomas J. Williams (University of Idaho)
Jacob Lowenstern (United States Geological Survey)*

In the days following the 15th Annual Goldschmidt Conference, twenty six conference attendees from nine countries ventured on a six day trip to visit the spectacular geothermal features at Yellowstone National Park in Wyoming. Our trip began with a stop at the Berkeley Pit in Butte Montana; one of the largest acidic mining pit lakes in the world. From Butte, the group journeyed to Chico Hot Springs Lodge in Pray, MT for an opening night dinner and introductory lecture series presented by the trip leaders. The next three days were spent on the Grand Loop touring the geothermal and geologic features of Yellowstone National Park. Our second day began at Mammoth Hot Springs just inside the north entrance to the Park where participants viewed the unique travertine and drip-stone hot spring terraces. From Mammoth we headed south to Obsidian Cliffs and Roaring Mountain where Jake Lowenstern introduced the group more of the volcanic history of the Park, and we got our first close encounter with Yellowstone wildlife—two



Below: Field trip group photo; Back [L-R]: Tom Williams, Efrat Farber, Scott Wood, Susan Childers, Ittai Gavrieli, Chris Armstrong, Erik Galimov, Dan Asael, Matthew Marcus, Mark Kendrick, David Vaughn, Ron Fuge, Chris Khourney, Jake Lowenstern, Andrew Barnicoat.

Middle [standing L-R]: Huan Hu, Oleg Chudaev, George Chelnikov, Bettina Schilman, Melanie Sierralta, Angela Gouveia, Isabel Dias, Isabel Prudencio, Barbara Mueller.

Front [seated]: Avner Ayalon, Weifang Chen, Yehudit Harlavan, Diana Loomer, Suzanne Simons.

bison grazing just across the highway from our stop. Later that day we were treated to a young grizzly bear near Twin Lakes. After lunch we jumped into an in-depth look at the liquid-dominated geothermal features in western portions of the Park with stops at Norris Geyser Basin, Artists Paint Pots, Beryl Spring, and Fountain Paint Pots. Susan Childers used the varied hot spring features of Norris to introduce us to



Yellowstone field trip attendants assemble for a group photo.

the thermatophilic biota of Yellowstone. We ended day two at Old Faithful Lodge located in the Upper Geyser Basin directly adjacent to Yellowstone's most famous feature-Old Faithful Geyser. Day three completed our tour of the western portions of the Grand Loop with the morning spent Firehole Lake Drive, and at Midway Geyser, Biscuit, and Black Sand Basins. After lunch Jake took part of the group on a tour of the Upper Geyser Basin while the rest of us took a short hike to Lone Star Geyser, which, as if on cue, erupted minutes after we arrived! Day four began with a heart-thumping hike down-and up-Uncle Tom's Trail for a view of Yellowstone Falls and the Grand Canyon of the Yellowstone. We finished our adventures at Yellowstone with a tour of the eastern portions of the Grand Loop with stops at the vapor-dominated Mud Volcano and Sulphur Cauldron, and a tour of geysers and hot springs at West Thumb Basin along Yellowstone Lake. Days five and six were a change of pace with a tour of the Grand Teton National Park including a brisk hike along Jenny Lake. We ended our geologic journeys with a stop at Craters of the Moon National Monument to view one of the largest and youngest basaltic lava fields in the United States outside of Hawaii. The trip leaders would like to thank the National Park Service and the United States Geological Survey for their gracious assistance with our trip. Special thanks to our bus driver Jim who went above and beyond the call of duty.

Tom Williams,
University of Idaho

Columbia River Basalt Field Trip

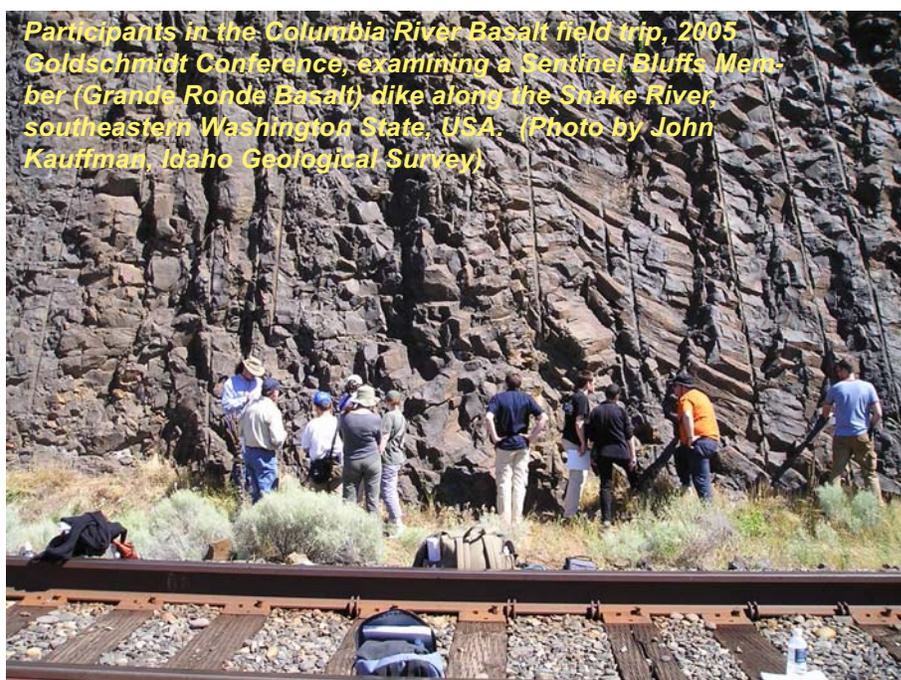
Led by

Bart Martin (Ohio Wesleyan University)
Heather Petcovic (Western Michigan University),
Steve Reidel (Pacific Northwest National Laboratory)

The post-Goldschmidt Conference, Columbia River basalt (CRB) field trip was designed to provide an introduction to the Columbia River Flood Basalt Province and features discussed in Symposium SS-14: Cenozoic Magmatic Evolution of the Western U.S. The field trip highlighted general characteristics of the flood basalt flows, their dike and vent systems, and the tectonic evolution of the province. The leaders were joined by John Bush (U of Idaho) and John Kauffman and Dean Garwood (Idaho Geological Survey) who discussed new and ongoing studies in Idaho. Nineteen geologists and geochemists from the U.S., Canada, France, the United Kingdom, Germany, Italy, and Norway participated.

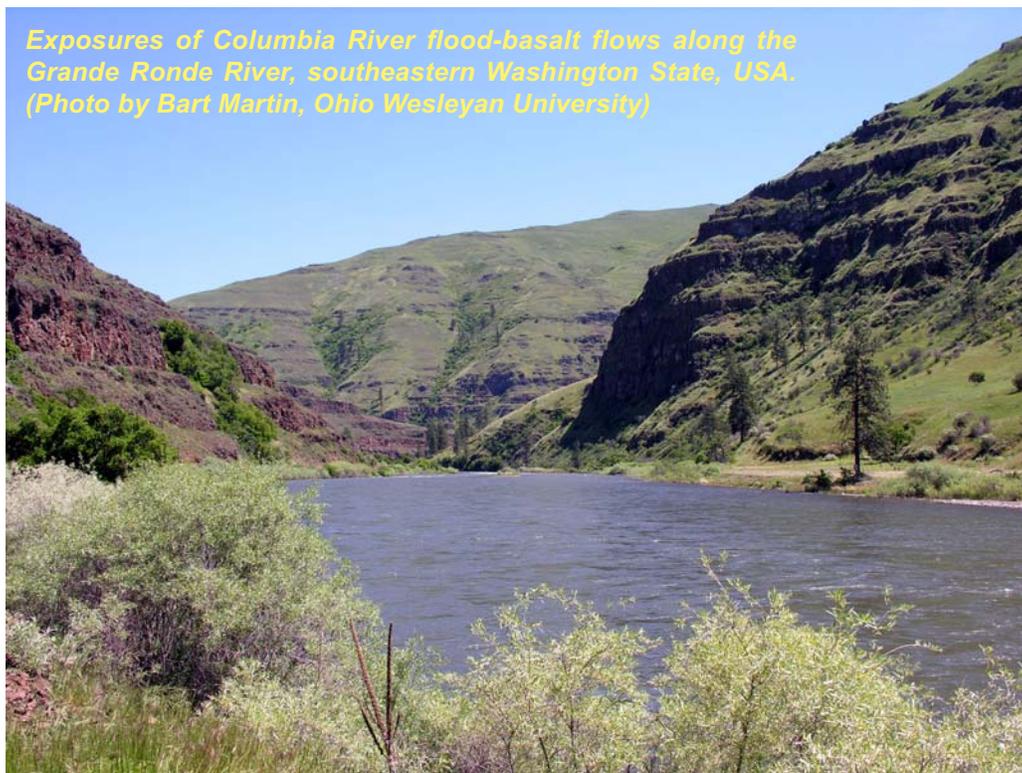
The first day focused on dikes for two voluminous CRB units, the Sentinel Bluffs Member (Grande Ronde Basalt) and the Roza Member (Wanapum Basalt), internal flow structures, and characteristics of flows that constitute the last phase of CRB volcanism. At the Sentinel Bluffs dike, participants viewed physical evidence for multiple episodes of magma injection in the same dike and one of the few localities on the Columbia Plateau where crustal xenoliths are present. The siliceous xenoliths showed evidence for varying degrees of partial melting and possibly account for some of the more evolved compositions found in the dike but not in the flow. Geochemical trends within the Sentinel Bluffs Member and their implications for flow emplacement rates were also discussed. Exposures of Saddle Mountains Basalt flows, youngest of the CRB formations, highlighted some of the controls on flow emplacement as shown by these small to moderate volume (430 to 760 km³) flows that were controlled by the ancestral Salmon-Clearwater river systems.

The second day concentrated on the tectonic development of the area and small scale features of the flows. Participants saw an example of an invasive lava flow that developed when the relatively dense lava flowed across wet sediment. The higher density lava flow sank into and flowed through (invaded) the sediment. An 800-meter descent into the Grande Ronde River canyon cut through typical huge-volume Grande Ronde Basalt flows, several small volume Wanapum Basalt flows and the saprolites that developed on these flows between their eruptions. Along entrenched meanders of the Grande Ronde River that cross cut the main CRB dike swarm, a dike



Participants in the Columbia River Basalt field trip, 2005 Goldschmidt Conference, examining a Sentinel Bluffs Member (Grande Ronde Basalt) dike along the Snake River, southeastern Washington State, USA. (Photo by John Kauffman, Idaho Geological Survey)

Exposures of Columbia River flood-basalt flows along the Grande Ronde River, southeastern Washington State, USA. (Photo by Bart Martin, Ohio Wesleyan University)



for the Umatilla Member (Saddle Mountains Basalt) over 1000 m below the volcano it fed was examined. This stop afforded the opportunity to discuss geochemical evidence that suggests that the Umatilla basalt was emplaced in a few months. The final stops permitted examination of the uppermost Imnaha Basalt flow, the oldest formation of the CRBG, and its contact with the overlying Grande Ronde Basalt as well as the physical relationships between the CRB's, the pre-basalt basement in this region, and the tectonic structures of the area.

The field trip guide can be downloaded from the publications site for the Pacific Northwest National Laboratory. Go to <http://www.pnl.gov/main/publications/> and search on Technical Report PNNL-15221.

The Miocene Clarkia Fossil Deposit

Led by

Hong Yang (Bryant University)

Derek E.G. Briggs (Yale University)

William C. Rember (University of Idaho)

For organic geochemists and paleobiologists who study biomolecules preserved in fossils and sediments, the 15th Annual Goldschmidt Conference could not have picked a better venue than Moscow, Idaho. Only 55 miles away from the conference site lies the middle Miocene Clarkia fossil deposit, which has become an icon for this emerging field of interdisciplinary research. In the past 25 years the Clarkia material has attracted worldwide attention through its preservation of ancient biomolecules and isotopic signals, generating both excitement and controversy.

The mid-conference field trip to the Clarkia Miocene fossil beds was the first field excursion to be fully booked - long before its official closing date. The field trip leaders (Hong Yang, Bill Rember, and Derek Briggs) had to hire two additional vans to accommodate participants on the waiting list. On a perfect sunny day more than 40 scientists participated in the half-day field trip. The first stop at the Emerald Creek site allowed the group to examine the lacustrine sequence before driving to the summit of Bechtel Butte for an overview of the topography of the Tertiary lake bed and its deposits. The highlight for the participants was to immerse themselves in the classic P-33 fossil site (known as the Kienbaum race track site) near Clarkia to investigate the taphonomy of the extraordinarily well-preserved terrestrial fossil biota, which is dominated by a diversity of plants,



Clarkia fossil material uncovered at the P-33 site, showing excellent morphology and original coloration. (Hong Yang photo)

Field trip participants enjoyed fossil hunting at the Clarkia P-33 site. (Derek Briggs photos)



insects and fishes.

A special session entitled *In situ ancient biomolecules and their isotopic signals: Clarkia and beyond* (co-chaired by Derek Briggs and Hong Yang) was convened the following day. Sixteen speakers presented reviews and new data from the Clarkia site and other relevant studies ranging from discussions of geological factors affecting molecular and morphological preservation to the application of *in situ* isotopic signals from compound specific isotope analysis. The symposium provided an ideal platform for discussing interdisciplinary research involving field geology, paleobotany, experimental taphonomy, organic and isotope geochemistry, and molecular biology. Although the Clarkia deposit was the focal point of discussion, the symposium also addressed broader issues in studies of biomolecules and isotope signals from fossil material.

After the symposium the participants enjoyed hospitality at the home of Peg Smiley, whose husband, the late Dr. Charles □ Jack Smiley, conducted pioneer work on the Clarkia fossils. Here discussion of ancient biomolecules continued refreshed by the consumption of local beers.



The lower part of the lacustrine deposit preserves diverse fossil biota with *in situ* biomolecules. (Derek Briggs photos)



16th Annual V.M. Goldschmidt Conference 2006
27 August – 1 September 2006
Melbourne Exhibition and Convention Centre,
Melbourne, Australia
www.goldschmidt2006.org

Sponsored by:
European Association for Geochemistry
Geochemical Society
Geological Society of Australia

Invitation

The 16th Annual V.M. Goldschmidt conference in 2006 is being hosted for the first time in the southern hemisphere. Australia's unique, plate-scale natural laboratory will form the backdrop for the presentation of new ideas on a diverse range of geochemical topics. Housed under one roof in the state of the art facilities of the Melbourne Convention Centre, we have an unparalleled opportunity to enjoy stimulating science, some of the finest wines and dining opportunities as well as a gateway to the wealth of Australia's geological record.

Please join us in Melbourne for what promises to be a landmark conference for the global geochemical community.

Venue

The Melbourne Exhibition and Convention Centre, stretching 450 metres along the Yarra River, opened in February 1996 to great acclaim, winning a multitude of architectural and building awards for its unique design. A great benefit of this venue is that the exhibition and all sessions and posters will be located under one roof. The Melbourne Exhibition and Convention Centre (MECC) is located near the Crown Casino and Entertainment Complex. The Complex provides a broad range of restaurants and entertainment facilities.

Just up the river on the south side near St Kilda Road and the Arts Centre, which has various performance spaces for theatre, concerts, opera and ballet, is the South Bank complex, or Southgate, as it is commonly called. This has become a meeting place for all ages. Casual and formal restaurants, wine bars and stylish shops are situated along a paved river frontage. The location is popular for locals and overseas visitors alike.

Accommodation

Accommodation has been secured at highly competitive rates for Conference delegates. Accommodation room rates will range from approximately AU\$90 to AU\$265 and includes budget style to 4.5 star hotels and apartments, all within walking distance to the Melbourne Convention and Exhibition Centre.

Melbourne and exhibition center.



Important Dates
Abstract deadline: 13 April 2006
Registration deadline: 30 June 2006

Left: Featuring three state-of-the-art theatres, the Melbourne Exhibition and Convention Centre will offer the perfect venue for the Goldschmidt 2006 Conference.

Important Dates

Abstract submission is now available through the Conference website. The deadline for receipt of abstracts is no later than 13 April 2006 and Speaker Registration deadline is 30 June 2006. Registration will be open in September 2005 and the Earlybird registration cut off date is 30 June 2006. If you would like to receive a hard copy of the registration brochure in September please visit the website and express your interest.

*Proposed Program***Themes**

- Techniques
- Mineral Deposits/Ore Geochem
- Solar System Formation
- Convecting Mantle
- Lithosphere Evolution
- Subduction Processes
- Geochemical constraints on timescales and mechanisms of tectonic processes
- Biogeochemistry and the origin and evolution of Life
- Aquatic Geochemistry and Fluids in the Crust
- Surface Processes, Low temperature Systems and Landscape Evolution
- Ocean Chemistry and circulation/ Climate and Environment

Chair

Trevor Ireland
Andy Barnicoat
Herbert Palme
Bernie Wood
Roberta Rudnick
Tim Elliot
Derek Vance

Malcolm Walter

John Mavrogenes
Paulo Vasconcelos

Malcolm McCulloch

Co-Chair

Andrew Berry
Chris Heinrich
Marc Norman
Janne Blichert-Toft
Greg Yaxley
Richard Arculus
Joerg Hermann

Mike Russell

Sue Brantley
Rod Brown

Rachael James

Call for Abstracts

Authors are invited to submit abstracts on the themes listed above. All submission of abstracts are to be made online at www.goldschmidt2006.org. Further instructions regarding abstract format and guidelines are also available on the Conference website.

Posters

All posters will be displayed under one roof at the Melbourne Convention and Exhibition Centre. Below is the proposed poster display floor plan:

*General Information**The Host City - Melbourne*

Melbourne, the capital of Victoria, known as Australia's Garden State, is situated on the picturesque tree-lined banks of the Yarra River. It is a thriving cosmopolitan city with a unique balance of graceful old and new architecture surrounded by parks and gardens. Melbourne has a wealth of culture, is Australia's leader in theatre, sport and fashion, and has some of the finest restaurants in the country.

Things to See and Do in Melbourne

The central business district of Melbourne is based around the delta of the Yarra River at the top of a large bay. The city area contains some of Australia's finest parks, gardens and historic buildings, all within walking distance. Melbourne is also Australia's entertainment, sporting and cultural capital.

Melbourne Cuisine

With access to the best produce from as far north as tropical Queensland and down south to temperate Tasmania, with some of the world's finest chefs and demanding diners, Melbourne restaurants and markets provide fantastic multi-cultural food. Australian wines are now in demand around the world and Victoria is one of the premier wine producing regions of Australia. Melbourne is also famous for its beers.

Background: The Twelve Apostles – Great Ocean Road, Victoria. Explore some of the most magnificent coastal scenery in the world, stretching alongside cliffs and beaches down the south-western coastline of Victoria. The Twelve Apostles and Loch Ard Gorge are monuments to the powers of Mother Nature. Seaside villages featuring bed & breakfasts and restaurants are complemented by inviting attractions such as forests and lighthouses.

Places of interest include:

- Melbourne Zoo, recognised as one of the world's best.
- The observation deck of the Rialto (southern hemisphere's tallest building) for a bird's-eye view.
- The sporting precinct which includes the Melbourne Cricket Ground (MCG), scene of the Melbourne 1956 Olympics and still one of the world's great stadiums, as well as Rod Laver arena (venue of the Australian Tennis Open).
- Many waterfront promenades and cafes along the Yarra River or docklands precinct.
- Some of the finest examples of historic gothic architecture (used as backdrops in many major movies).

Weather

Melbourne has a temperate climate. August is at the end of winter, when the average minimum and maximum is 12 to 17 ° C.

Planning your travel

Because of time change and jet lag the Organising Committee suggests you consider arriving in Australia by 25 August 2006. This will also enable you to relax and familiarise yourself with your hotel and its surrounds before the start of the Conference. Melbourne's 23 international airlines can deliver you to Melbourne from anywhere in the world on hundreds of flights every week. The map below details the direct flights that are available to Melbourne, Australia.

Public Transport in Melbourne

The Conference venue is within easy walking distance to most hotels in the Melbourne central business district (CBD). Although it is rapidly expanding, the geographic area of the Melbourne central business district is around 5kms X 5kms. The Melbourne CBD (and its suburbs) is one of a few cities in the world that has a low cost electric tram network, as well as an underground train system.

There is a free-of-charge historic tram that runs regularly around the perimeter of the Melbourne CBD. This free historic tram is designed for visitors to Melbourne and has high-quality maps and tour guides on board – a most recommended means of getting around the Melbourne CBD.

The city and suburbs is also well-served by taxis and buses, or for something a little different, catch a water taxi along Melbourne's famous Yarra River and docklands area. One of the reasons that Melbourne is regarded as one of the world's safest and most livable cities, is because it is quite safe to walk and travel around Melbourne, day and night. Melbourne is well served by trains, trams, buses and taxis both in the city and surrounding suburbs.

Local Transportation

A shuttle bus, SkyBus operates 24 hours a day between the Airport and the city centre. The service runs approximately every 30 minutes at a cost of AU\$12 each way. Drop off points are located throughout the city centre close to hotels and facilities. Phone: +61 3 9670 7992



Melbourne City Circle Tram

Melbourne Airport is located 20 km or 25 minutes from central Melbourne. A taxi fare is approximately AU\$40.

The Goldschmidt Field Tour Program

Australia is a distant travel destination for many people. It is also well known to many geoscientists for its diversity of geological sites that have figured in the international literature. These include:

- The giant ore deposits at Broken Hill, Mt Isa and at Olympic Dam in South Australia
- The well-preserved and documented history of climatic and ecological change recorded in cave systems at Naracoorte in SA, Buchan in Victoria and Jenolan in NSW and by the huge Barrier Reef system off the coast of Queensland.
- The modern active convergent margin of the Australian plate in the western Pacific where island arc volcanic systems and back arc basins in New Zealand and northwards to Vanuatu and the Solomons have provided much of the standard literature on subduction processes.



- The Palaeozoic to Mesozoic granite terrains stretching from the SE of the continent (the Lachlan Fold Belt) up to NE Queensland.
- The preserved modern marine environments at the Coorong in SE South Australia and at Shark Bay in NW Western Australia, that provide modern analogues for Precambrian surface and diagenetic processes
- The Neogene to Recent with-in plate basalt and mantle xenolith province of eastern Australia and particularly western Victoria.

Accordingly we have assembled a potential program of field tours that will visit many of these highlighted localities. There will be pre- and post-conference programs, and in many cases it will be possible to coordinate your arrival or departure travel to facilitate your rendezvous with your chosen tour. We have initially offered a considerable number of tours and urge interested participants to contact us as soon as possible as we will only be able to run those tours we know to be well patronised.

Proposed field trips include:

- The Great Barrier Reef
- Jack Hills/ Pilbara/ Shark Bay
- The Newer Volcanics province Western Victoria
- Mesozoic Granites in the NE Queensland
- Speleothem Dating and Climate Studies, SE Australia
- The Coorong, Naracoorte caves and SE South Australia
- Recent volcanism and hydrothermal / geothermal processes N Island New Zealand
- Arc volcanic arcs in the West Pacific
- Flinders Ranges Neoproterozoic environments, climates, glaciations, Ediacaran fossils, new Ediacaran stratotype
- The Olympic Dam Copper-Uranium Ore body
- The Broken Hill Pb-Zn Ore Body
- The Mt Isa Ore systems

To submit your interest in attending any of the tours listed above, please visit the website and click on the 'Register' button to register your interest: www.goldschmidt2006.org

Pre and Post Conference Tours

Pre and Post Conference Tours will be specially arranged to enable participants to experience the contrasts of this vast southern continent. View the spectacular Monolith of Uluru (Ayers Rock), discover the Australia Outback in Alice Springs and explore the Great Barrier Reef with its prolific coral wonderland.

Background: Melbourne skyline at dusk.

Other Tours and Accompanying Persons' Program

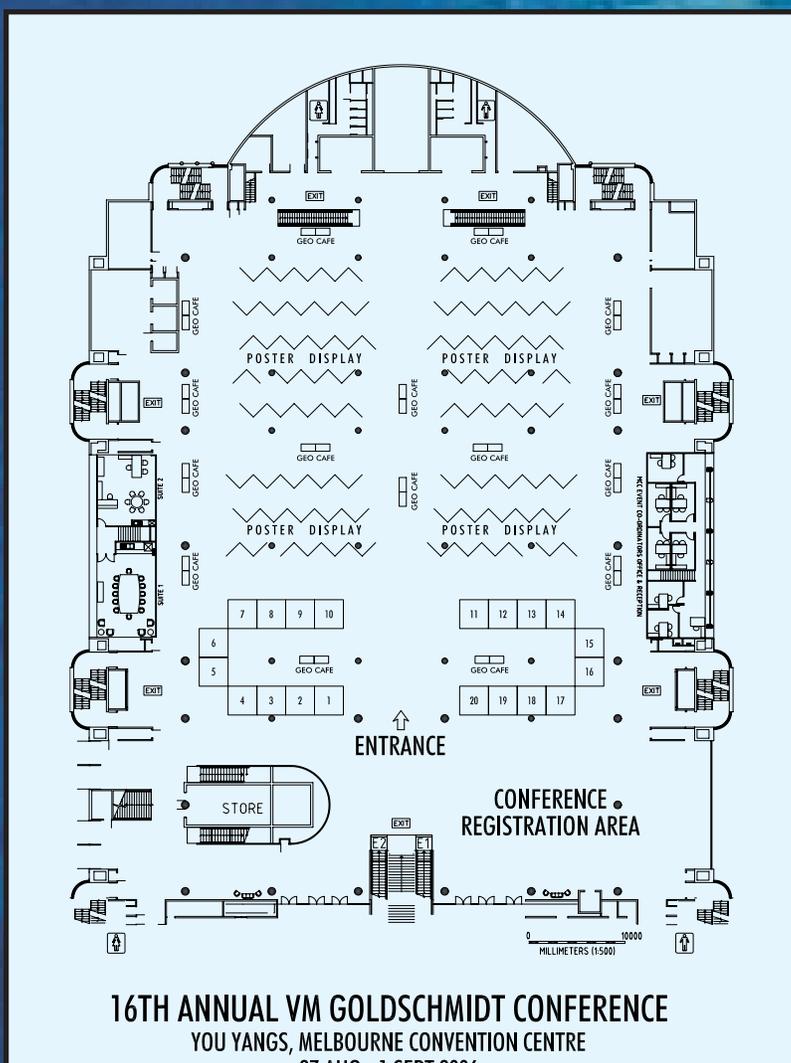
Food, wine and the arts are a major part of life in Melbourne and an exciting program will be developed to give delegates and their companions an opportunity to enjoy this wonderful city and surrounding area.

Social Program

A busy and exciting social program will be developed to give delegates and their companions an opportunity to take advantage of the unique and varied attractions available in this beautiful city. We suggest that delegates plan to stay a few extra days in Australia be-



Uluru (Ayers Rock), located in Central Australia is the world's largest natural monolith.



fore or after the Conference to enable them to get to know this magnificent country.

Trade Exhibition and Sponsorship

A comprehensive trade exhibition will be held in conjunction with the Conference. The exhibition will cover a wide range of products and services in the field of Geochemistry. Any companies wishing to participate as a sponsor or promote their products/services within the trade exhibition, are encouraged to contact the Conference Managers for details at goldschmidt2006@tourhosts.com.au.

Left: Proposed exhibition and poster display floor plan.

16th Annual V.M. Goldschmidt Conference Managers

c/o Tour Hosts Conference & Exhibition Organisers

GPO Box 128 Sydney NSW 2001 Australia

Tel: + 61 2 9265 0700

Fax: + 61 2 9267 5443

Email: goldschmidt2006@tourhosts.com.au

Don't forget to visit our website at

www.goldschmidt2006.org

Background: The Great Barrier Reef is undisputed as one of the world's most important natural assets, stretching more than 2,300km along the northeast coast of Australia.

Lifetime Predictions of Toxic and Radioactive Waste Disposal and Remediation Schemes

David J. Wesolowski¹, Rodney C. Ewing² and Jordi Bruno³

¹Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6110, USA

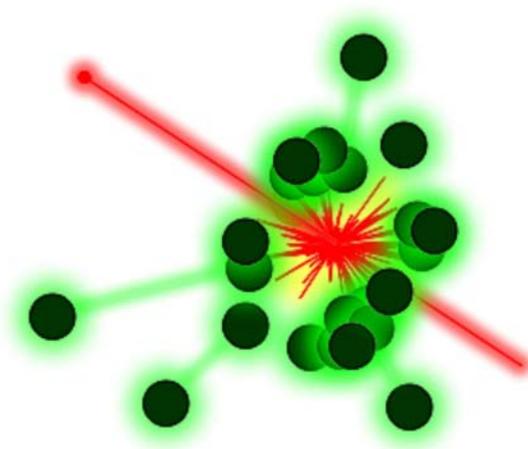
²Department of Geological Sciences, University of Michigan, 425 E University Ave., Ann Arbor, MI 48109, USA

³Sustainability and Waste Management, Universitat Politècnica Catalunya, 08034, Barcelona, Spain

Over the past few centuries, technological and societal advances have resulted in explosive growth of a human population with increasing material appetites, creating a world in which resources are clearly limited, energy and materials utilization have global environmental and political impacts, and geohazards (earthquakes, volcanic eruptions, tsunamis, landslides, etc.) affect ever-growing numbers of people. One of the Grand Challenges for



Dr. Zhongbu Yu, professor of hydrogeology at the University of Nevada, Las Vegas, describes the regional geology and hydrology of the Las Vegas and Yucca Mountain region, while electrochemist Don Gervasio (Arizona State University) looks on. Don wore his jacket during the entire field trip, in >90° F weather, apparently cool by Tempe standards!



geochemists in the 21st Century will be to contribute to the transformation of geoscience from a largely observational and explanatory science, into a science that is capable of making reliable predictions at levels of accuracy and over time scales that are useful in formulating public policy and even personal decisions, such as where to live, how to avoid calamity, and how to accommodate the limitations of a finite Earth. Designing safe disposal and remediation strategies for wastes from mining and energy production is clearly an arena in which geochemical experiments, theories and models will play a pivotal role.

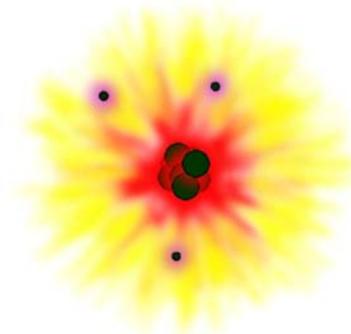
Toward that end, the authors organized what turned out to be a highly successful and well-attended symposium, with the same title as this article, at this year's 15th V.M. Goldschmidt Conference, May 20-25, in Moscow, Idaho (GCA, v.69, no.10S, p. A408-

430, 2005). Forty six presenters from countries throughout the world participated in the two-day event, which featured three keynote and sixteen invited talks and posters, including six student presentations. Participation was greatly aided by the generous sponsorship of: the U.S. Department of Energy's Office of Civilian Radioactive Waste Management - Science, Technology and International (OST&I) program; The Electric Power Research Institute's High Level Waste Repository Issue Resolution program; and UT-Battelle, LLC. Their sponsorship also subsidized a pre-conference field trip (Figures 1-6) to the Yucca Mountain High Level Nuclear Waste Repository Site (May 18,19, 2005), lead by Wesolowski, Zhongbo Yu (University of Nevada, Las Vegas), Abe Van Luik (U.S. DOE) and John Stuckless (U.S. Geological Survey).

Nuclear power production epitomizes the need for predictive geoscience (Ewing, 2004). Current global carbon emissions of ~7 Gt/y, largely from fossil fuel consumption, are expected to grow and result in a variety of global effects, including acid rain, toxic smog, and *hypothetically*, sea level rise and increased frequency and severity of adverse weather conditions. One of the most reliable and sufficiently large alternative sources of energy is nuclear power, which currently provides about 17% of the world's electricity,



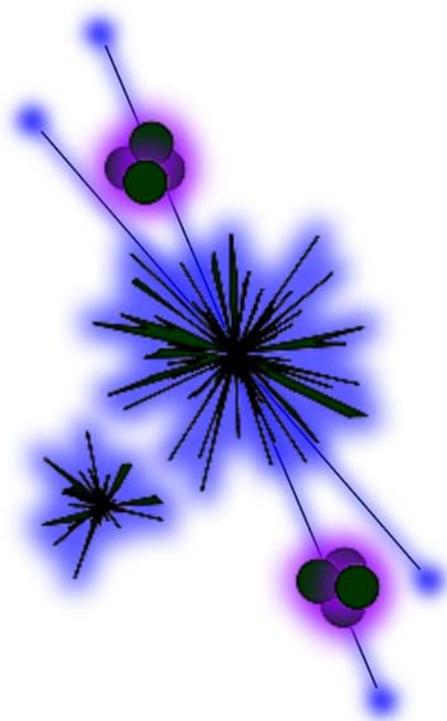
Pristine oases like Crystal Springs (above) and nearby Devil's Hole in Ash Meadows are home to several species of endangered pupfish. These fault-controlled discharges are surface manifestations of groundwater flow from the high ranges 50-60 miles to the northeast and southeast of Yucca Mountain, which itself lies about 10 miles north of Ash Meadows. The final destination of these groundwaters is nearby Death Valley, 280 feet below sea level.



equivalent to a reduction in carbon emissions of ~0.5 Gt/y. The U.S. currently consumes ~40% of the world's fossil fuel production, but generates only about 20% of its own electricity from nuclear plants. Many view the lack of a licensed repository for spent nuclear fuel as an impediment to increased power production from this source in the U.S., and Yucca Mountain is the only site being considered at this time.

The licensing issue hinges on DOE's ability to present a credible case before the Nuclear Regulatory Commission that releases of radionuclides from the repository will not pose a threat to the accessible environment. This case is being built by using a performance assessment model that incorporates a thermochemical reaction-

transport code (EQ3/6) containing experimental and theoretical developments in aqueous geochemistry and fluid rock interactions, hydrogeological models that combine both the chemical and physical aspects of fluid and heat transport through porous and fractured media, geohazard and climate change models, and information gleaned



John Stuckless (USGS) lectures to the crew at the top of Yucca Mountain, including the venerable Hu Barnes (Penn State, right). John and Abe Van Luik (DOE, Yucca Mountain Program Office) proved to be literally inexhaustible sources of information about Yucca Mountain and the greater-Las Vegas region.



Mike Cosca (University of Lausanne) all suited-up and going underground aboard a diesel train. The 8 km long main drift (Exploratory Studies Facility) was made by a tunnel borer and is 25 feet in diameter throughout.

from natural analogs. The previous regulatory period of 10,000 years was set aside by a federal court in July 2004, and the EPA must now establish a revised standard, including a regulatory period that, if it were to follow the recommendation of the National Academy of Sciences, could extend out to "peak dose", which might be several hundred-thousand years in the future.

Yucca Mountain has a statutory capacity that only marginally exceeds the current U.S. inventory of commercial spent fuel, stored on site at power plants throughout the country. Some analysts suggest that, in order to have a significant impact on global carbon emissions, worldwide nuclear and other carbon-neutral energy sources would have to increase tenfold by 2050. If this increase came entirely from electrical power plants using the once-through nuclear fuel cycle, about 3,500 new 1-GW plants would be needed, which would generate enough spent fuel to fill a Yucca Mountain-sized repository every year. Though this extreme scenario is not likely to unfold, it seems inevitable that we need to further develop this source of energy. However, the public must be assured that the operation of new nuclear power plants and the management of the wastes generated from their operation can be made acceptably safe.

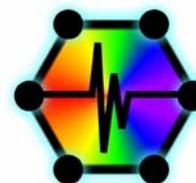
The Yucca Mountain field trip provided an excellent opportunity for a diverse cross section of engineers and geoscientists to gain a clearer perspective on the nature of issues related to this particular type of repository. The Goldschmidt symposium not only brought together a similarly broad cross section of scientists and engineers, but provided a forum for comparing and contrasting different repository designs being considered throughout the world, different methods of assessing their performance characteristics, and the surprisingly broad array of geochemical inputs needed in order to succeed in this Grand Challenge.

Monique Hobbs (Ontario Hydro) and Jim Wesolowski (University of Tennessee) enjoy the magnificent view toward the distant Sierra's from a vantage point approximately 300 meters above the repository horizon that runs beneath the valley floor below.



Reference Cited:

R.C. Ewing, Environmental Impact of the Nuclear Fuel Cycle", in (R. Giere and P. Stille, Eds.) *Energy, Waste and the Environment: a Geochemical Perspective*, The Geological Society of London, London, pp. 7-23 (2004).



Minutes: Geochemical Society Board of Directors Meeting May 20, 2005; Moscow, ID

Present - Board of Directors: Sue Brantley, Peggy Delaney, Patricia Dove, Tim Drever, Jeremy Fein, Johnson Haas, Gil Hanson, Carla Koretsky, Frank Podosek, Vincent Salters, Michael Whiticar, Scott Wood, Youxue Zhang

Visitors: Enriqueta Barrera, Seth Davis, Rhiannon George, Mike Hochella, Borge Svane Nielsen, Eric Oelkers, Baerbel Sarbas, Susan Stipp, Simon Turner, Dominique Weis, Bruce Yardley

The meeting was called to order at 8:45 am

1) Summary of Written Geochemical Society Internal Reports: (see appendix to read these reports): A brief summary of written reports was given by the society president, vice-president, secretary, treasurer, business office manager, GCA editor, special publications editor, and GN editors.

Discussion Points:

- The board discussed ways to improve the society's website. Dove suggested using a professional webpage designer. Podosek thought that Bob Nicols, the current webmaster, could design the webpage if given specific guidelines. An ad hoc committee was formed to look into improvement options. Members of the committee include: Patricia Dove (chair), Frank Podosek, Youxue Zhang, Seth Davis, and Johnson Haas.
- There was a general discussion of the pros and cons of maintaining ties with Elsevier. General consensus to maintain current relationship, but to revisit issue regularly in the future.
- General discussion of how the GS can use Geochemical News as a recruitment tool for society membership.

2) Discussion on Increasing Community Pressure for Geochemistry Research: led by Enriqueta Barrera, Program Director for Geobiology and Environmental Geochemistry at the National Science Foundation: Barrera presented a summary of NSF programs that fund geochemical research and led a discussion of what NSF and the GS can do to educate decision-makers about the role and use of geochemistry research in general. There was discussion of specific ways that the GS can organize pressure to increase funding for geochemistry from a range of funding agencies.

Motion: The Geochemical Society Board of Directors should create a committee to interface with funding agencies, investigating ways that the society can help increase funding to the geochemical community in general. (Motion made by Hanson, seconded by Wood). Passed unanimously. Members of the committee will include: Sue Brantley (chair), Jeremy Fein, and Carla Koretsky.

3) Overview of Society Finances – Youxue Zhang presented a general status report of the financial status of the Geochemical Society. The financial health of the society is strong. Zhang was asked to prepare a short report to the Board that details the historical growth and origin of current financial reserves.

4) Treibs Award Timing – There is not a clearly defined policy concerning where and when the Treibs medal is awarded each year. This year, the award will be presented at the International Meeting of Organic Geochemists (IMOG). The Treibs Award Committee of the Organic Geochemistry Division of the GS needs to be more pro-active in working with the award recipient to determine the award location and timing each year.

5) Award Committees Procedures – The Board discussed an inconsistency that exists between Society by-laws, which state that award committees should nominate two candidates for each award with the Board making the final choice between them, and committee practice, which has been to nominate one person only for approval by the Board. The Board also discussed involvement of the European Association of Geochemistry in the award selection process, and they discussed whether committee members are permitted to submit award nominations or write support letters for nominees. On the latter point, the GS Handbook states that award committee members should not nominate or write letters of support, but rather should solicit both, and there was general agreement on the Board that a more active role would represent too much of a conflict of interest by the committee member. There was also general agreement to use Elements to solicit a wider range of nominations for all awards. The Board also discussed whether to make Clarke and Patterson award winners GS/EAG Fellows automatically as is done with Goldschmidt Award members who are not GS/EAG Fellows. There was general consensus that Fellows status is awarded for sustained career effort, so this should not be automatically awarded to Clarke award winners.

These discussions led to several motions:

Motion: The By-Laws of the Geochemical Society should be changed to request that each award committee nominate only one person. (Motion made by Dove, seconded by Brantley). Passed unanimously.

Motion: An officer of the European Association of Geochemistry should serve as a voting member of the three Geochemical Society medals committees (Patterson, Goldschmidt, Clarke). (Motion made by Hanson, seconded by Wood). Motion passes - For: 6; Against: 5.

Motion: Future Patterson awardees should become GS/EAG Fellows automatically if they are not already Fellows. (Motion made by Salters, seconded by Zhang). Passed unanimously.

6) Geochemical Society Development Plan. The Board created an ad hoc Membership Development Committee to attract and retain members. The committee will include Seth Davis, Tim Drever, a student member, and others to be named later. The Board also discussed resetting GCA subscription rates for Senior GS members, leading to the following motion:

Motion: The GS Board will ask Elsevier to consider lowering its subscription price for GCA for seniors to be equal to the student rate. If Elsevier does not agree to this, then the GS Board should authorize that the senior price for GCA be the same as the professional rate; the senior GS membership rate would remain unchanged and equal to the student rate. (Motion made by Wood, seconded by Hanson). Passed unanimously.

The Board also authorized Frank Podosek to investigate the possibility of Elsevier offering electronic-only subscriptions to GCA as a choice for GS members.

7) Goldschmidt Conference 'Ownership' Issues. The Board discussed 'ownership' of Goldschmidt conferences and what 'sponsorship' entails. The Board also discussed a proposal by Bruce Yardley to hire a permanent Goldschmidt Conference Coordinator who would work for both societies (GS and EAG) in order to provide corporate memory for conference planning, and who would interface between the GS and EAG Boards and local conference organizers. The Coordinator position could be financed through a modest tax on Goldschmidt attendees. Members of the Goldschmidt Forum, along with a few previous conference organizers, will move these issues ahead.

8) Elements Update: provided by Mike Hochella. Current status of the magazine *Elements* was discussed, including publication and circulation statistics, sponsoring societies, terms of editors, and membership fees and finances in general.

9) Goldschmidt Reports: The Board heard progress reports from the following Goldschmidt conference organizers:

- 1) Melbourne 2006. Aug. 27 – Sept. 1, 2006. Scientific Program – organization well underway. Chair and co-chairs signed up, with international program committee for each and topics identified. The meeting will take place at a convention center in downtown Melbourne: all sessions in one venue and under one roof; posters displayed for the duration of the conference; wireless access for all. Breakeven point is 1200 delegates. Likely fees: \$676USD for a GS member; \$769 for a non-member; student fee will be \$463 for members; student non-member will pay \$514 (No meals included in these approximate costs – but housing and meal costs are lower than in most places). Extensive field trip options getting set up.
- 2) Cologne 2007. Aug. 19-24, 2007. Regional organizing committee set up. Held at University of Cologne – can handle 2000 or more delegates. German scientific societies have offered support. Scientific program still broad, but getting set up. By end of 2005, the IPC will be established to suggest session topics within themes. Potential field trips being set up. Prices are being kept down as much as possible.
- 3) Vancouver 2008. July 13-18, 2008. Regional organizing committee getting set up. Held on UBC campus. Actively working to keep prices down. Working with Tourism Vancouver. IPC will be set up. Some sponsors signed up. Lots of possibilities for field trips.
- 4) Copenhagen 2004 Final Report. Had to split sessions because of so many participants and desire to keep expenses low. Loans from societies repaid. Membership fees paid in full to GS and EAG. All bills paid. Resolution of financial issues should come within a few months. Looks like break-even or a very small profit. Member fees of \$460 USD, students \$215. Used professional conference organizer to handle registration, hotel booking, food, web page management. Didn't use Cambridge Publications in order to keep costs down. Over 1500 participants (600 posters; 1000 talks). Suggest archive available after conference for: abstracts, program, participant list with addresses, job pages, photos, etc.
- 5) Idaho 2005. Accepted 1713 abstracts. 1534 registered (including 34 accompanying persons). 36 exhibitors (10 are societies with free booths) – successful due to strong marketing efforts. 5 Field trips before or after, 2 during. Projection: a net profit likely, the exact amount depending on final registration and meal numbers.

10) Varia: The Board discussed various issues, such as the procedure for choosing GS officers, and the possibility of direct election of officers. The Board also continued its discussion of new ideas for the GS logo, and the Board discussed a proposal by Bruce Yardley, the President of the EAG to merge the EAG with the GS.

The meeting was adjourned at 5:00 pm.
Respectfully submitted on 31 May 2005 by,

Jeremy Fein
Secretary, The Geochemical Society

PRESIDENT'S REPORT

Tim Drever

The Geochemical Society is in good shape in its 50th year. Our membership (currently at about 2,300) has been increasing slightly. The Goldschmidt Conference in Copenhagen was a great success, with approximately 1500 attendees. The Moscow Goldschmidt, with over 1600 abstracts submitted, promises to be the largest by far in North America. The past year saw the launch of *Elements*, which promises to be a great vehicle for promoting interaction among the various geochemical and mineralogical societies. *Geochimica et Cosmochimica Acta* continues to be the premier journal in geochemistry under the excellent leadership of Frank Podosek. More than 5,200 pages were published in 2004 and even more are anticipated for 2005. Plans are well underway for the next three Goldschmidts, in Melbourne, Cologne, and Vancouver.

We have expanded our interactions with the Geological Society of America, with a good number of GS sponsored sessions at their annual meetings. I believe it is valuable for the GS to have a forum where we can meet in the fall (late October or Early November), particularly when the Goldschmidt is early or in a relatively distant/expensive location. We have also increased our interactions with AGU. The joint AGU-GS Advisory Committee for Geochemistry, Geophysics, Geosystems (G-cubed or G³) has been revived and we look forward to having input on this journal. AGU has invited us to propose sessions and participate in planning for their spring—but not their fall—meeting. They feel that the fall meeting is already oversubscribed and they are not interested in doing anything that might expand it. We continue to have excellent working relationships with the European Association for Geochemistry. We also continue to have a great corps of volunteers who serve on our various committees and make the Society function.

We do have a number of issues to address at this Board of Directors meeting, particularly with regard to some of our internal procedures and questions of the meaning of "sponsorship" of a Goldschmidt conference. My main message, though, is that we are in great shape for a 50-year old.

SECRETARY'S REPORT

The following report summarizes the actions that were taken by the GS Board since the last Secretary's Report was submitted:

- 1) Approved the slate of nominees put forward by Sue Brantley to fill openings on Geochemical Society committees (8/04).
- 2) Approved a new RIMG volume on sulfides to be edited by D. Vaughn (8/04).
- 3) Approved the following changes to the Geochemical Society's By-Laws (8/04):

- i) changed the definition of a quorum for BoD meetings to be a majority of the 17 Directors.
 - ii) created a new Director position for the Editor of the *Geochemical News*.
 - iii) created wording to clarify how Goldschmidt conferences that take place outside of Europe or North America are considered in the NA-Europe rotation. Specifically, these meetings will be considered as 'insertions', rather than substitutions for NA or Europe.
 - iv) eliminated the position of Vice-Chair on the Joint Publications Committee.
- 4) Approved the 'Goldschmidt-to-Goldschmidt' period for GS members signed up as delegates at a Goldschmidt conference (10/04).
 - 5) Approved the nomination of Gunter Faure for the 2005 Distinguished Service Award (9/04).
 - 6) Approved the nomination of Bruce Watson for the 2005 Goldschmidt Medal (12/04).
 - 7) Approved the nomination of James A. Van Orman for the 2005 Clarke Medal (12/04).
 - 8) Approved the nomination of Kenneth Bruland for the 2005 Patterson Medal (12/04).
 - 9) Approved the nomination of Nicholas Arndt, Stein Jacobsen, Stuart Wakeham, and Lynn Walter to be named as Geochemistry Fellows at the 2005 Goldschmidt Conference (12/04).
 - 10) Approved the nomination of Jaap S. Sinninghe Damste for the 2005 Treibs Medal (2/05).
 - 11) Approved the choice of Eric Oelkers as the 2005 Gast Lecturer (2/05).
 - 12) Approved the increase in society contributions to Elements from \$10/member to \$12/member for the 2006 contribution to Elements (2/05).

FINANCIAL ASSESSMENT FROM THE TREASURER (PREPARED BY BECKY LANGE)

The following is a summary assessment that accompanied a detailed written financial statement submitted to the Board for approval: The numbers look great this year (the GS brought in \$60 K more than it paid out), and this appears to be a result of two factors. First, Elsevier paid the GS an extra \$36 K this year for back payments, and the GS was only invoiced by Elsevier for \$78.5 K this year (instead of ~\$112 K last year). Youxue Zhang and Seth Davis will confirm with Elsevier that the GS is fully paid up for 2004. Otherwise, the financial outlook is very good.

Key moves for 2005: At the end of June 2005, the two Washington Mutual C.D. accounts will mature. These two C.D. accounts will be liquidated and the funds sent to the Solomon Smith Barney Long Term Investment Account, which is what the Board agreed to do last year at the Copenhagen meeting. I strongly endorse this transfer of funds, as the Long Term Investment Account is conservatively invested by professionals and is very likely to do far better than these C.D. accounts. Also, the National City Bank in Ohio account will be closed out in June 2005, because Seth Davis no longer uses it for deposits.

GEOCHEMICAL NEWS 2004-2005 REPORT

Four printed issues of the *Geochemical News* were produced in 2004 (Jan, Apr, Jul, Oct), at a total cost of \$30,116.81. This total broke down as: \$10,336.67 (printing), \$9766.31 (mailing), \$9255.00 (honoraria), \$758.83 (misc). We received \$1500 in advertising revenue (\$750 from Elsevier; \$750 from RockWare). With the launching of *Elements* in January 2005, the *Geochemical News* will move from four printed issues annually to one printed edition and three all-electronic issues. This should represent a considerable savings in printing/mailing costs. The initial electronic version of *G.N.* was completed in January 2005 at a cost of \$2960. We anticipate advertising revenues of \$900 for 2005 (again from Elsevier & RockWare). The April issue of *G.N.* will be available in print for members attending the Goldschmidt conference, and will be posted on the Geochemical Society website for all other members.

Content of the *Geochemical News* continues to be somewhat distinct from that of *Elements*, with a focus on society news, interviews with prominent geochemists, book reviews and articles describing major geochemical research facilities (e.g. US National Laboratory Series begun in January 2005), for example. The new electronic version has the advantage of allowing full color pictures to be included with articles, and allows us to increase the length/content of issues without incurring additional cost. We have not yet received any feedback from the membership regarding ease of downloading and whether they are less likely to read an electronic vs. printed newsletter.

It is our intention to initiate one issue per year that will focus entirely on the Goldschmidt Conferences. This year, such an issue will be produced in July. We are soliciting input from symposia and field trip organizers participating in the Moscow meeting. Additionally, we will include information on logistics, site and scientific content of the upcoming 2006 meeting in Australia.

SPECIAL PUBLICATIONS EDITOR'S REPORT

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 is considered to be GS Spec. Pub. No. 8. The GS logo **does** appear on the volume.
 - Was available at Kurashiki Goldschmidt.
 - Total volumes sold as of 4/1/2005: 424
 - Net income = \$14,235.43; GS share = \$7,117.71
- 2) Special Publication 9 (Kaplan Volume): *Geochemical Investigations in Earth and Space Science: A Tribute to Isaac R. Kaplan*.
 - Published by Elsevier, and was available shortly after Goldschmidt in Copenhagen
 - A total of 269 copies sold in 2004.

Although I do not have the data for all GS Special Publications, it is my impression based primarily on the Crerar volume (SP 7), that the sales of the Giggenbach and Kaplan volumes have been better (but not by orders of magnitude) than our other volumes over similar time scales. For example, in the first four months after it became available, 155 copies of the Crerar volume were sold. This indicates that collaboration with SEG and Elsevier has increased to some extent the ability to sell these volumes.

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 currently in the pipeline. I have not been very active in soliciting new proposals owing to the distraction of organizing the 2005 Goldschmidt meeting.

GCA – EXECUTIVE EDITOR'S REPORT

1. Publisher's Meeting

The Publisher's Meeting is the occasion at which representatives of the publisher, the sponsoring societies and the editorial staff get together to discuss the state and future of the journal. The last Publisher's Meeting was held at the Elsevier offices in New York on February 5, 2005. Participants were GS President Tim Drever, MS publications committee member Greg Herzog, JPC chair Nathaniel Ostrom, Publishing Editor Friso Veenstra, Issue Manager John Fotia, Elsevier Assistant Manager Greg Domke, Editorial Manager Linda Trower and me.

My report at the Publisher's Meeting is provided as an Appendix. That report is divided into three sections: (1) Statistics of manuscript activity; (2) Editorial policies; and (3) Production issues. Since much of the material in that report is still current, the sections below focus on the highlights, referring to the Publisher's Meeting report for details as appropriate.

2. Manuscript Statistics

The rate of manuscript submissions fluctuates significantly on a short-term (monthly or quarterly) basis. On a longer term (annual) basis the submission rate continues to grow slowly, from about 500 per year in 1999 to about 700 per year at present. Most of the submissions (more than 90%) are Articles; the rest are Comments, Responses, Book Reviews, Errata, etc. In five years we have received submissions from 55 different countries, although from many of them it has been only one or two manuscripts. The US accounts for 41% of submissions; Europe accounts for another 34%. Over the long term the acceptance rate is 58%, with no evident secular trend.

At present, we accept Articles for publication at a rate of around 360 per year. At 15 pages per Article, and allowing for other types of publication items, this translates to approximately 5600 pages per year.

The average time from submission to the "AE Report", i.e. when we first report the results of review, is below 90 days. The average "sub-pub" (submission to publication) time is 14 months. Part of this interval, the production time, constitutes a problem which is described in a separate section below.

Additional details regarding manuscript statistics can be found in the Appendix.

3. Editorial Issues

In the past year or so, a few issues requiring development of editorial policies have come up. These are discussed briefly below and in more detail in the Appendix.

We had one case of alleged "plagiarism". This was not really plagiarism but rather inadequate citation of prior work. Basically, the editorial office acted as an intermediary between "plaintiff" and "defendant", who agreed on a set of changes in the text of the Article in question before it went to press, so this affair was resolved peacefully and to joint satisfaction.

A Comment was submitted on a paper previously published in GCA. The Comment was accepted and the targeted authors invited to submit a Response in the usual fashion. The latter authors did submit a Response, but it was deemed scientifically unsatisfactory, and in subsequent iterations these authors were considered unresponsive to AE and EE advice concerning revision. On the one hand, standards for Responses are relatively lax, on the principle that authors who have been criticized deserve an opportunity to respond to criticism, and we have not previously rejected a Response. On the other hand, even after two rounds of revision the Response was considered unsuitable for publication, and the authors unwilling to make appropriate changes. The matter was brought before the JPC and the consensus that emerged was that we could indeed reject a Response on scientific grounds. We did, and the Comment is now in press, with no accompanying Response.

Circumstances surrounding two other papers have resulted in an expansion of the range of material that may be included in an electronic annex. Although electronic annexes were initially perceived essentially as appendices to a paper, publishing extensive material beyond what we would normally agree to print and/or material not suited to the printed page. In the two papers in question, however, electronic annexes are used to convey correspondence documenting the pedigree of relevant data and public but unrefereed correspondence originally cited as an internet location.

4. Annexes, Errata and Reprints

In cases in which published papers incorporate a mistake (either the authors' or the publisher's), it is understood that the printed journal cannot be changed, but authors frequently ask that the files for their manuscripts posted on Science Direct be corrected. For a variety of reasons, this is not possible.

We have, however, implemented a new policy that should go a long way to addressing this problem. The traditional way to announce corrections to mistakes is an Erratum. The new policy is that when we publish an Erratum the compositor will (in most cases) create a corrected (pdf) version of the entire paper and the corrected file will be posted as an electronic annex to the Erratum. This will at least enable the authors to download the corrected files for their papers, print them if desired, and distribute reprints, electronic or hardcopy, in which the errors have been fixed,

5. The Pipeline Problem

As noted above, the average sub-pub time is 14 months, which is too long. We think that the less-than-three-months interval to initial results of review is reasonably short, and in any case it would be very difficult to shorten it without resorting to measures that would compromise the quality of review and evaluation. The average time between the AE report (initial results of review) and transmittal for production is some four to five months, most of which is waiting on authors to prepare a revised version. This is also rather long, but again it would be difficult to shorten substantially without resorting to draconian measures, and at least authors cannot complain about it since they are themselves responsible for it.

The other major interval is production time, i.e. the time between editorial office transmittal for production and actual publication. This time has been growing, and in the past year exceeded six months on average, and was considerably longer in some instances. Time to publication is more important to some authors than to others, and some have expressed considerable dissatisfaction at this delay. We agree that such authors have a case, and that production time *must* be shortened or we will lose some of our best authors.

The problem is not that it takes that long to prepare a manuscript for print; this is reported to be around three months. It is a pipeline problem: Manuscripts were not being printed as fast as they were being transmitted to production, so that manuscripts spent a significant time just awaiting their turn for processing. The magnitude of the problem can be gauged by noting that at the end of 2003 the production pipeline contained enough papers to publish seven months of GCA (at 14 papers per issue).

This problem was identified at the December, 2003, Publisher's Meeting (in St. Louis), and it was subsequently agreed that the page budget would be increased by at least 50 pages/issue to shorten the pipeline. For a few months in 2004 this worked, but in the second half of the year the number of pages/papers printed fell short of target. Over the calendar year 2004 the pipeline actually got longer (by about a dozen papers) rather than shorter. The fundamental problem was identified as a bottleneck at the copyeditor stage: Not enough copyeditors turning out not enough papers.

The issue was raised again at the February, 2005, Publisher's Meeting (New York), and it was stressed that the present situation was unacceptable and the problem must be solved in order maintain GCA's stature in the community. Elsevier agreed to try to secure and train additional copyeditors.

Since issue 2 of this year, we have averaged 20 Articles, 5 more than the breakeven number of 15 per issue. (And we are on a pace to publish 6500 pages this year.) At this rate we should have so far reduced publication time by about a month. If Elsevier can keep up this pace, the pipeline problem should be largely solved by the end of the year.

6. Quality Control and Production Venue

In the past we had some serious complaints about the quality of manuscript and journal composition. These complaints resulted in the termination of the production contract with Cadmus/Richmond, and introduction of a new supplier, Cadmus/Ephrata. This has worked reasonably well, and complaints about composition have dropped sharply.

Still, problems persist: Despite repeated complaints, and what seemingly should be adequate time to implement appropriate new procedures, there have been chronic problems in linking electronic annexes to the html ("Full Text + Links") versions of papers on Science Direct, in producing proper headings and table-of-contents identification of items other than Articles in Science Direct, and in consistent implementation of author proof corrections. (See details in Appendix.) These errors evidently arise primarily in Elsevier's production office in New York.

Elsevier has been sympathetic to complaints about such problems. In response they have advised us that effective some time in the latter half of this year, production of GCA will be shifted from New York to another of their production facilities, in San Diego. We are optimistic that this will result in improved consistency in the production of GCA. Linda Trower and I will visit the San Diego facility sometime this Summer to meet the relevant personnel and to discuss procedures.

Business Office Report

BUSINESS OFFICE REPORT

1 MEMBERSHIP

Society membership is up significantly since 2003. This is mostly due to the automatic membership program through both the Copenhagen and Moscow Goldschmidt Conferences.

Data for 2005 is underlined to indicate that these numbers are not final. They are current as of May 14, 2005. If there are other membership demographics the Board would like to see besides those listed below, please let me know. If possible, I will add them to future reports.

Table 1.1 – Total Memberships

Total Membership	2003	2004	2005
Student	174	463	<u>616</u>
Professional	1,304	1,850	<u>2,061</u>
Senior	84	100	<u>96</u>



MEETINGS CALENDAR

July 2-7, 2005: Australian Earth Sciences Convention 2006, Melbourne, Australia. E-mail: earth2006@meetingplanners.com.au; Web site: <http://www.earth2006.org.au/>

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

July 6-9, 2005: ECROFI XVIII (European Current Research On Fluid Inclusions), Centro Didattico del Laterino, Siena, Italy. E-mail: ecrofiXVIII@unisi.it; Web site: <http://www.unisi.it/eventi/ECROFI XVIII>

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

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, Mayagüez, Puerto Rico, 9017; Phone: +1 787 265 3845; E-mail: Geoconf@uprm.edu

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@livjm.ac.uk

July 24-27, 2005: Chapman Conference on the Role of Marine Organic Carbon and Calcite Fluxes in Driving Global Climate Change, Past and Future, Woods Hole, MA, USA. Contact: M. Brill, AGU. Phone: +1 202 777 7333; Fax: +1 202 328 0566; E-mail: meetinginfo@agu.org; Web site: <http://www.agu.org/meetings/cc05fcall.html>

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@geoinformex.com or christoph.heinrich@erdw.ethz.ch or cline@ccmail.nevada.edu; Web site: <http://www.segweb.org/GordonConf.pdf>

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@ulapland.fi; Web site: <http://idc5.gsf.fi/>

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@ouka.fi; Web sites: <http://www.congressoulu.fi/> and <http://platinumsymposium.oulu.fi/>

Aug 7-12, 2005: 8th International Conference on Fluvial Sedimentology, Technical University Delft conference centre, Delft, The Netherlands. Contact: Prof. Dr. S.B. Kroonenberg, Mijnbouwwstraat 120, 2628 RX Delft, The Netherlands; Phone: +3115 278 1328; Fax: +31 15 278 1189; E-mail: Organizing.committee@8thfluvconf.tudelft.nl; Web site: <http://www.8thfluvconf.tudelft.nl/>

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@sga2005.com; Web site: <http://www.sga2005.com>

Aug 21-27, 2005: 13th International Clay Conference, Claysphere: past, present and future, Waseda University, Tokyo, Japan. Contact: Prof. T. Sakamoto; Phone: +81 86 252 8922; E-mail: icc13@das.ous.ac.jp; Web site: <http://www.soc.nii.ac.jp/cssj/2131CC/>

Aug 22-26, 2005: 13th International Symposium On Placer And Weathered Rock Deposits (PWR-2005) OPlacer 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@igem.ru; Dr. Vladimir Naumov, Perm State University; E-mail naumov@psu.ru, Prof. Boris Osovetsky, Perm State University; E-mail minmuseum@psu.ru

Aug 22-26, 2005: Dynamic Planet 2005, Cairns, Australia. Contact: Secretariat, GPO Box 2609, Sydney, Australia; Phone: +61 2 9241 1478; Fax: +61 2 9241 1478; E-mail info@dynamicplanet2005.com; Web site: <http://www.dynamicplanet2005.com/>

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 23-31, 2005: XX Congress of International Union of Crystallography, Florence, Italy. Congress Secretariat, XX Congress and General Assembly of the International Union of Crystallography c/o Dipartimento di Energetica, University of Florence, via S. Marta 3, 50139 Firenze, Italy; Phone: +39-055-4796209; Fax: +39-055-4796342; E-mail: iucr@iucr2005.it; Web site: www.iucr2005.it

Aug 28-Sept 2, 2005: 10th International Symposium on the Interactions between Sediments and Water, Lake Bled, Slovenia. E-mail: ichme@cetem.gov.br; Web site: <http://www.iasws.com>

Aug 28-Sept 2, 2005: European Aerosol Conference (EAC2005), Ghent, Belgium. Web site: <http://www.eac2005.be>

Aug 28-Sept 1, 2005: 230th National Meeting ACS, Washington DC, U.S.A. Web site: <http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=meetings/future.html>

Aug 29-Sept 2, 2005: STOMP - Structure, Tectonics and Ore Mineralization Processes, Economic Geology Research Unit, James Cook University, Townsville, Australia. This includes a strongly microstructural/metamorphic oriented session. E-mail: Timothy.Baker@jcu.edu.au or Thomas.Blenkinsop@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@unito.it

Sept 4-8, 2005: WETPOL International Symposium on Wetland Pollutant Dynamics and Control, Ghent, Belgium. Web site: <http://biomath.ugent.be/wetpol>

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/>

Sept 5-9, 2005: 7th symposium on the Cretaceous, University of Neuchâtel, Neuchâtel, Switzerland. Contacts: Karl F Ilmi and Thierry Adatte, Geological Institute, University of Neuchâtel; Phone: 41-32-7182655 Fax: 42-32-7182601 E-mail: karl.foellmi@unine.ch, thierry.adatte@unine.ch Web site: <http://www.unine.ch/geologie/isc7/>

Sept 7-11, 2005: 6th International Conference on Geomorphology, with special session on evaporite karst processes and problems. Congress Hall-Auditorium of Zaragoza, Zaragoza, Spain. Contact: Organizing Secretariat Geomorfologia, Facultad de Ciencias, Universidad de Zaragoza, C/Pedro Cerbuna 12, Zaragoza 50009, Spain; Fax: +34 976 761106; E-mail: iag2005@posta.unizar.es; Web site: <http://wzar.unizar.es/actos/SEG/index.html>

Sept 8-14, 2005: 9th International Workshop on Numerical Modeling of Mantle Convection and Lithosphere Dynamics, Erice, Italy. Application closed. Web site: <http://www.ingv.it/erice2005/>

Sept 11-14, 2005: 22th Annual Meeting The Society for Organic Petrology (TSOP), Louisville, Kentucky USA. Contact: Dr. James Hower, Center for Applied Energy Research, University of Kentucky, 2540 Research Park Drive, Lexington, KY 40511-8410; Phone: +1 859 257 0261; Fax: +1 859 257 0360; E-mail: hower@caer.uky.edu; Web site: <http://igs.indiana.edu/tsop2005>

Sept 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@iccas.ac.cn

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

Sept 11-16, 2005: International Conference Uranium Mining and Hydrogeology (UMH IV), Freiberg, Germany. Fax: +49 (0)3731-392720; E-mail: UMH@geo.tu-freiberg.de; Web site: www.geo.tu-freiberg.de/umh

Sept 12-16, 2005: 3rd International Symposium on Hydrothermal Vent and Seep Biology, Scripps Institution of Oceanography, La Jolla, California. Web site: http://ridge2000.bio.psu.edu/NewR2kSite/mw/Vent_Seep_Biology/Vent_MeetingInfo.php

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

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

Sept 13-15, 2005: Water, Health and Environment 2005, Tanta, Egypt.

MEETINGS CALENDAR

E-mail: bakenaz@dec1.tanta.edu.eg; Web site: <http://www.cig.ensmp.fr/~iahs/index.html>

Sept 14-19, 2005: International Conference on Environmental (Geoecological) Problems in Karst, IAHS. Belgrade, Yugoslavia. E-mail: jemcov@ptt.yu

Sept 15-16, 2005: International Symposium: Reduction of emissions and geological storage of CO₂ - Innovation and industrial stakes, Paris, France. Web site: <http://www.ifp.fr>

Sept 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/>

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

Sept 22-25, 2005: W3M Conference for Wetlands: Monitoring, Modelling and Management, Wierzbna, Poland. Web site: <http://levis.sggw.waw.pl/wethydro/>

Sept 26-29, 2005: MRS 2005 Scientific Basis for Radioactive Waste Management XXIX, Gent, Belgium. Web site: http://www.sckcen.be/sckcen_en/activities/conf/conferences/MRS2005/

Sept 26-30, 2005: Symposium on Supercontinents and Earth Evolution, Perth, Australia. Web site: www.promaco.com.au/conference/2005/tsrc

Sept 27-30, 2005, Peridotite Workshop 2005, Brione di Val della Torre, Torino, Italy. Meeting on mantle processes organized by the Working Group on Mediterranean Ophiolites (GLOM).

Sept 29-Oct 1, 2005: VII. Alpine Workshop, Opatija, Croatia. This Workshop is organized as a joint meeting together with the 3rd Croatian Geological Congress. Contact: E-mail: alshop@gfz.hr; Web site: <http://alshop.gfz.hr/form2.txt>

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

Oct 1-4, 2005: Sheared magmas in nature and experiment: bridging the brittle and ductile fields (an international conference in honor of Ron H. Vernon), Kloster Seeon, Munich, Bavaria, Germany. Contact: J m H. Kruhl, Tectonics & Material Fabrics Section, Technische Universität München, Arcisstr.21, D-80290 München, Germany; Fax: +49 892892 5852; E-mail: kruhl@tum.de; Web site: <http://elite.geophysik.uni-muenchen.de>

Oct 7-13, 2005: Geological Society of America - Penrose Field Forum on: Rethinking the Assembly and Evolution of Plutons: Field Tests and Perspectives. A field excursion across the Mesozoic Cordilleran batholith from Yosemite to the White Mountains, California. Contact: John M. Bartley, Department of Geology and Geophysics, University of Utah, Salt Lake City, Utah 84112-0111, USA; Phone: +1 801 5851670; E-mail: bartley@mines.utah.edu

Oct 9-13, 2005: 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community, Bonn, Germany. Contact: L. Mullin, IHDP, Bonn, Germany; E-mail: mullin.ihdp@uni-bonn.de.

Oct 9-14, 2005: 42nd Annual AIPG Meeting, "Geologic Information: Racing into the Digital Age", Radisson Plaza Hotel, Lexington, Kentucky, USA. Organized by the American Institute of Professional Geologists. Contact: Tom Spalding; Phone: +1 502 458 1209; E-mail: AIPG2005@yahoo.com

Oct 14-15, 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. Web site: http://www.minsocam.org/MSA/SC/ThermChrnlg_SC_descrptn.html

Oct 15-21, 2005: Workshop on Caldera Volcanism: Analysis, Modeling and Response, Tenerife, Spain. Contact: Joachim Gottsmann and Joan Martí, Institute of Earth Sciences "Jaume Almera", Department of Natural Hazards, CSIC, Lluís Sol i Sabar's s/n, 08028 Barcelona, Spain; Phone: +34 93 409 54 10; Fax: +34 93 411 00 12; E-mail: jgottsm@ija.csic.es

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@waseda.jp

Oct 19-20, 2005: Compressional Deformation within Passive Margins, Burlington House, The Geological Society of London. Contact: Lydia Dumont, The Geological Society, Burlington House, Piccadilly, London, W1J 0BG; Phone: +44 20 7434 9944; Fax: +44 20

7494 0579; E-mail: lydia.dumont@geolsoc.org.uk; Web site: http://www.geolsoc.org.uk/template.cfm?name=Passive_Margins

Oct 21-26, 2005: International Conference of Computational Methods in Sciences and Engineering 2005 (ICCMSE 2005), Loutraki, Korinthos, Greece. Web site: <http://www.uop.gr/~iccmse/>

Oct 25-29, 2005: Seventh International Conference on the Mediterranean Coastal Environment MEDCOAST 05, Kusadasi, Turkey. Web site: www.medcoast.org.tr

Oct 25-Nov 11, 2005: 10th Brazilian Geochemical Congress and 2nd Geochemical Symposium of the Mercosul Countries. Porto de Galinhas, Recife, Brazil. Contact: Phone/ Fax: +55 81 2126 8242; E-mail valderez@ufpe.br; Web site: <http://www.ufpe.br/xcbgq>

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

Nov 7-11, 2005: Calabar Geology 2005 - an international geological field conference, Calabar, Nigeria. Theme: The geology, structure, geochronology and mineralization of Oban - Obudu Massif, southeastern Nigeria. Contact: Prof. Barth N. Ekwueme, Department of Geology, University of Calabar, P. O. Box 3651 Unical P. O. Calabar, CRS, 54004, Nigeria; Phone: 08033380719; E-mail: bachudo@yahoo.com

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@wmce2005.com; Web site: <http://www.20wmce2005.com/index.php?page=home>

Nov 8, 2005: 1st conference of the new NERC-funded Natural Aquatic Colloids network (Aquanet). University of Birmingham Conference Park, U.K. Web site: <http://www.gees.bham.ac.uk/research/aquanet/>

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

Nov 16-20, 2005: Chapman Conference on the Effects of Basement, Structure, and Stratigraphic Heritages on Volcano Behaviour, Taal Volcano, Tagaytay City, Philippines. Conveners: Alessandro Tibaldi, Alfredo Mahar, Francisco A. Lagmay and Vera Ponomareva. Web site: <http://www.agu.org/meetings/cc05hcall.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 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@agu.org; meetinginfo@agu.org; Web site: www.agu.org/meetings

Dec 3-4, 2005: Short Course Molecular Geomicrobiology: From genes to geochemical cycles, Berkeley, CA, USA. Organizers: Jill Banfield, University of California - Berkeley, CA; Javiera Cervini-Silva, University of California - Berkeley, CA and Ken Nealson, Jet Propulsion Laboratory, Pasadena, CA. Sponsors: Mineralogical Society of America and The Geochemical Society. Web site: <http://www.minsocam.org/MSA/SC/index.html#Geomicrobiology>

Dec 6-10, 2005: 6th European Meeting on Environmental Chemistry, Belgrade, Serbia and Montenegro. Contact: Dr. Branimir Jovancicevic, Department of Chemistry, University of Belgrade, Akademski trg 12-16, POB 158, 11001 Beograd, Serbia and Montenegro; E-mail: bjovanci@chem.bg.ac.yu; Web site: <http://helix.chem.bg.ac.yu/emec6/>

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@hotmail.com; Web site: <http://gsaf.narss.org/>

Dec 24-26, 2005: 2nd International Congress of Chemistry and Environment, Indore, Madhya Pradesh, India; Contact: Dr. S.L. Gargh; E-mail: sgargh@gmail.com; Web site: <http://www.chemenviro.org>

Jan 4-6, 2006: IGC 2006 International Groundwater Conference on Sustainable Development and Management of Groundwater Resources in Arid and Semi-Arid Regions with Special Reference to Hard Rocks. Dindigul, Tamilnadu, India. Contact: Dr. K. Thyagarajah, PSNA College of Engineering & Technology, Kothandram, Nagar, Palani Road, Dindigul-624 622 (Tamilnadu), India; Phone: +91 451 2554032 or 2554262; Fax: +91 451 2554249; E-mail principal@psnacet.org

Jan 9-12, 2006: 27th Nordic Geological Winter Meeting. Oulu, Finland. Contact: Prof. Kauko Laajoki; Phone: +358 8 5531433; E-mail: kauko.laajoki@oulu.fi; Web site: <http://wintermeeting.oulu.fi/index.html>

MEETINGS CALENDAR

Jan 13-18, 2006: Depositional Systems and Stratigraphic Development, International Conference on Deltas. University Brunei Darussalam, Brunei. Joint meeting of 3rd Annual Meeting of IGCP-475 'Deltas in the Monsoon Asia-Pacific Region (DeltaMAP)' and 2nd Meeting of CCOP DelSEA project. Contact: Yoshiki Saito; E-mail: yoshiki.saito@aist.go.jp; Web site: <http://unit.aist.go.jp/igg/rg/coast-rg/ADP.html>

Feb 13, 2006: GAW8 - 8th International Conference On The Geology Of The ARAB World, Cairo, Egypt. Web site: <http://salty2k.com/gaw8/>

Feb 20-24, 2006: AGU Ocean Sciences Meeting, Honolulu, Hawaii. A joint meeting of ASLO, TOS and AGU. Web site: <http://www.agu.org/meetings/os06/>

March 19-24, 2006: InterRad XI: Radiolarians in Stratigraphy & Paleoceanography (11th Meeting of the International Association of Radiolarian Paleontologists & Circum-Pacific Triassic Stratigraphy & Correlation; symposium hosted by IGCP 467 and the Subcommission on Triassic Stratigraphy). Wellington, New Zealand. Contact: E-mail: c.hollis@gns.cri.nz or h.campbell@gns.cri.nz or janet.simes@conferences.co.nz

March 20-23, 2006: 6th International Conference on the Geology of the Middle East, Al Ain, United Arab Emirates. Contact: Contact name: Dr. Fares M. Howari; E-mail: fhowari@uaeu.ac.ae; Web site: <http://www.fsc.uaeu.ac.ae/Geology/c/me.htm>

March 26-29, 2006: 18th Industrial Minerals International Congress. San Francisco, USA. Contact: Fax: +22 20 7827 5292; E-mail: conferences@indmin.com; Web site: www.indmin.com

March 26-30, 2006: 231st National Meeting ACS, Atlanta, GA, U.S.A. Web site: <http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=meetings/future.html>

Apr 2-7, 2006: European Geosciences Union (EGU), General Assembly, Vienna, Austria. Contact: EGU Office, Max-Planck-Str. 13, 37191 Katlenburg-Lindau, Germany; Phone: +49 5556 1440; Fax: +49 5556 4709; E-mail: egu@copernicus.org; Web site: www.copernicus.org/EGU/egu_info/prevga.html

Apr 3-7, 2006: Backbone of the Americas - Patagonia to Alaska, International Conference. Convened by the Geological Society of America and the Asociación Geológica Argentina. Mendoza, Argentina. Contact: GSA Meetings Dept., P.O. Box 9140, Boulder, CO 80301-9140, USA; Phone: +1 303 447 2020; Fax: +1 303 447 1133; E-mail: meetings@geosociety.org; Web site: www.geosociety.org/meetings/06boa/index.htm

Apr 9-12, 2006: American Association of Petroleum Geologists and Society for Sedimentary Geology (SEPM), "Perfecting the Search," Joint Annual Meeting. Houston, TX, USA. Contact: AAPG Conventions Department, PO Box 979, 1444 S. Boulder Ave., Tulsa, OK 74101-0979, USA; Phone: +1 918 560 2679; Fax: +1 918 560 2684; E-mail: convene@aapg.org

Apr 24-28, 2006: AQUAinMED, International Congress "Ground Water in Mediterranean Countries". Malaga, Spain. Contact: Direccion de Hidrogeología y Aguas Subterráneas, Instituto Geológico y Minero de España, Ríos Rosas, 23, 28003 Madrid, Spain; E-mail: aquainmed@igme.es; Web site: <http://www.igme.es>

May 14-18, 2006: IAVCEI 2006 China, Continental Basalt Volcanism, China. E-mail: xlhuang@gig.ac.cn

June 3-7, 2006: Joint 43rd Annual Meeting of The Clay Minerals Society and Annual Meeting of the Groupe Français des Argiles (French Clay Group), Oleron Island, France. Contact: Sabine Petit, Université de Poitiers, CNRS HydrASA, 40 Av. du Recteur Pineau, 86022 Poitiers Cedex, France; Phone: +33 5 49 45 37 56; E-mail: sabine.petit@hydrasa.univ-poitiers.fr; Web site: <http://www.clays.org>

June 20-26, 2006: As 2006: Natural Arsenic in Groundwaters of Latin America - Occurrence, Health Impact, Remediation, Management, Mexico City, Mexico. Contact: J. Bundschuh; Fax: +011 46 8 411 0775; E-mail: jochenbundschuh@yahoo.com; Web site: http://www.lwr.kth.se/Personal/personer/bhattacharya_prosun/As-2006.htm

July 2-7, 2006: The Australian Earth Sciences Convention 2006; ASEG, in collaboration with GSA; ASEG's 18th International Conference and Exhibition, and GSA's 18th Australian Geological Convention. Melbourne, Australia. Web sites: www.earth2006.org.au

July 3-5, 2006: Colloquium for African Geology, Maputo. Contact: AGMM c/o Lopo Vasconcelos; E-mail: CAG21@uninet.co.mz or lopo@uninet.co.mz; Web site: <http://www.geoscience.org.za/>

July 9-15, 2006: 18th World Congress of Soil Science. Philadelphia, Pennsylvania, USA. Web site: www.18wccs.org

July 13-26, 2006: 12th IMCG Congress 2006 - Finland, land of mires; Field Symposium and General Assembly. Finland. Web site: <http://www.imcg.net/>

July 16-23, 2006: 7th International Conference on the Occurrence, Properties, and Utilization of Natural Zeolites (Zeolite 006), Socorro, New Mexico, USA. Contact: Dr. Bowman; E-mail bowman@nmt.edu

July 23-28, 2006: 19th General Meeting of the International Mineralogical Association, Kobe, Japan. Contact: Prof. T. Yamanaka, E-mail b61400@center.osaka-u.ac.jp; Web site: http://www.congre.co.jp/ima2006/index_e.html

Aug 6-11, 2006: 8th International Conference on Mercury as a Global Pollutant, Madison, Wisconsin USA. Contact: James Hurley; E-mail: hurley@aquawisc.edu; Web site: <http://www.mercury2006.org/>

Aug 26-27, 2006: GIA Gemological Research Conference in conjunction with its 4th International Gemological Symposium, Manchester Grand Hyatt, San Diego, California. Contact: Dr. James E. Shigley, Phone: +1-760-603-4019; E-mail: gemconference@gia.edu; Web site: http://www.gia.edu/newsroom/608/21821/news_release_details.cfm

Aug 27-Sept 1, 2006: 16th Annual V.M. Goldschmidt Conference. Melbourne, Australia. E-mail: goldschmidt2006@tourhosts.com.au; Web site: <http://www.goldschmidt2006.org>

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

Aug 27-Sept 1, 2006: 17th International Sedimentological Congress, Fukuoka, Japan. Contact: Ryo Matsumoto, Department of Earth & Planetary Sciences, University of Tokyo Hongo, Tokyo 113, Japan; E-mail: ryo@eps.s.u-tokyo.ac.jp; Web site: <http://www.isc2006.com/>

Aug 27-Sept 19, 2006: 16th Annual V.M. Goldschmidt Conference, Melbourne, Australia. E-mail goldschmidt2006@tourhosts.com.au; Web site: <http://www.goldschmidt2006.org>

Sept 3-8, 2006: Gordon Research Conference on Rock Deformation: Processes & Patterns, Big Sky, Montana, USA. Organizers: Mark Jessell, Laboratoire des Mécanismes et Transferts en Géologie, Université Paul Sabatier, 31400, Toulouse, France; E-mail: mjessell@lmtg.obs-mip.fr; Greg Hirth, WHOI, Department of Geology & Geophysics, Woods Hole, MA 02543, USA; E-mail: ghirth@whoi.edu; Web site: <http://www.lmtg.obs-mip.fr/grc2006>

Sept 10-14, 2006: 232th National Meeting ACS, San Francisco, CA, U.S.A. Web site: <http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=meetings/future.html>

Sept 12-17, 2005: Structural Geology School "G. Piali", Perugia, Italy. The topic of this course will be "Introduction to finite element modelling and applications to structural geology" and the teacher will be Dr. Guy Simpson (ETH, Zürich). Web site: http://users.unimi.it/rockdef/scpiali/2005_course.htm

Sept 14-17, 2006: 10th International Congress of the International Association of Engineering Geology and the Environment. Engineering geology for tomorrow's cities, Nottingham, UK. E-mail: info@iaeg2006.com; Web site: www.iaeg2006.com

Sept 22-25, 2006: International Geoscience Education Organisation, 5th International Conference, Bayreuth, Germany. Contact: Hans-Albert Dahlheim, GEO-Zentrum a.d.KTB, Am Bohrturm 2, D-92670, Windischeschenbach, Germany; Phone: +49-9681-91275; Fax: +49-9681-91274; E-mail: hadah@gfz-potsdam.de

Oct 1-4, 2006: Short course Water in Nominally Anhydrous Minerals, Verbania, Italy. Organizers: Hans Keppler, University of Tuebingen, Tuebingen, Germany. Sponsors: Mineralogical Society of America and The Geochemical Society. Web site: <http://www.minsocam.org/MSA/SC/#anhydrous>

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

Dec, 2006 - 7th European Meeting on Environmental Chemistry, Brno, Czech Republic. Contact: Dr. Josef Caslavsky, Institute of Analytical Chemistry, Czech Academy of Science, Veveří 97, 61142 Brno, Czech Republic; E-mail: caslav@iach.cz; Web site: <http://www.science.plym.ac.uk/ace/Meetings.html>

Dec 11-15, 2006: 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@agu.org; meetinginfo@agu.org; Web site: www.agu.org/meetings

July 2007: IUGG General Assembly, Perugia, Italy. Web site: www.iugg.org

July 2007: Rock Mechanics: 11th Congress of the International Society of Rock Mechanics. Lisbon, Portugal. Contact: Sociedade Portuguesa de Geotecnia, LNEC, Av. do Brasil, 101, 1700-066 Lisboa, Portugal; Phone: +351 218443321; Fax: +351 2184443021; E-mail: spg@lnec.pt; Web site: <http://www.isrm2007.org>

July 2-13, 2007: XXIVth The International Union of Geodesy and Geophysics (IUGG),

MEETINGS CALENDAR

General Assembly. Perugia, Italy. Contact: Prof. Lucio Ubertini; E-mail: lucio.ubertini@uniroma1.it or secretary@iugg2007perugia.it; Web site: <http://www.iugg2007perugia.it/>

July 29-Aug 6, 2007: INQUA Congress; 17th International, of the International Union for Quaternary Research. Cairns, Australia. Contact: Prof. John Dodson; E-mail: johnd@geog.uwa.edu.au

Aug 2007: International Congress ICAM V 2007: International Council for Applied Mineralogy; Geological Society of Norway. Tromsø, Norway. Web site: www.geologi.no or www.icamv.org

Sept 2007: International Congress ICAM V 2007, Tromsø, Norway. Organized by International Council for Applied Mineralogy and Geological Society of Norway. Web sites: <http://www.geologi.no/cgi-bin/geologi/imaker?id=1909> or <http://www.icamv.org>

Sept 23-28, 2007: Society of Exploration Geophysicists (SEG) International Exposition & 77th Annual Meeting. San Antonio, Texas, USA. Contact: E-mail: meetings@seg.org; Web site: meeting.seg.org

Oct 28-31, 2007: GSA 2007 Annual Meeting & Exposition - with Mineralogical Society of America, Denver, Colorado. Web site: <http://www.geosociety.org/>

Dec 10-14, 2007: AGU Fall Meeting 2007, San Francisco, CA, U.S.A.

Dec 2006: Short Course Medical Mineralogy and Geochemistry, at AGU Fall meeting, San Francisco, California. Sponsors: Mineralogical Society of America and The Geochemical Society. Organizers: Nita Sahai, University of Wisconsin, Madison, WI and Martin A. Schoonen, State University of New York - Stony Brook, Stony Brook, NY. Web site: <http://www.minsocam.org/MSA/SC/#medical>

Dec 2006: Short Course Neutron Scattering applied to Earth Sciences, at AGU Fall meeting, San Francisco, California. Sponsors: Mineralogical Society of America and The Geochemical Society. Organizers: Rudy Wenk, University of California - Berkeley, CA and Nancy L. Ross, Virginia Polytechnic Institute and State University, Blacksburg, VA. Web site: <http://www.minsocam.org/MSA/SC/#neutron>

Dec 2006: 7th European Meeting on Environmental Chemistry, Brno, Czech Republic. Contact: Dr. Josef Caslavsky, Institute of Analytical Chemistry, Czech Academy of Science, Veveří 97, 61142 Brno, Czech Republic; E-mail: caslav@iach.cz

June 9-15, 2008: 13th International Peat Congress: After Wise Use - The Future of Peatlands, Tullamore, Ireland. Web site: <http://www.peatsociety.fi>

Aug 5-14, 2008: 33rd International Geological Congress (IGC 2008): Nordic Countries: Norway, Sweden, Denmark, Finland and Iceland, Oslo, Norway. Web site: <http://www.ngu.no/igc2008>

Oct 26-30, 2008: Annual Meeting Geological Society of America - with Mineralogical Society of America, Chicago, Illinois, U.S.A. Web site: <http://www.geosociety.org/meetings/index.htm>

Dec 15-19, 2008: AGU Fall Meeting, San Francisco, CA, USA. Web site: <http://www.agu.org/meetings>

June 6, 2012: IAVCEI 2012 Alaska, Centennial of 1912 Katmai Eruption (tentative). Contact: Steve McNutt and John Eichelberger, Alaska Volcano Observatory UAF GI P.O. Box 757320 Fairbanks, AK 99775-7320; Phone: +1 907-474-7131; Fax: +1 907-474-5618. Web site: <http://www.iavcei.org/>

Aug 5-15, 2012: 34th International Geological Congress (IGC 2012, Australia), Brisbane, Australia.



NSF Sponsored Workshop "Frontiers in Exploration of the Critical Zone"

University of Delaware
Newark, Delaware
October 24-26, 2005

A National Science Foundation (NSF) sponsored workshop dealing with frontiers in exploration of the critical zone, the "heterogeneous, near surface environment in which complex interactions involving rock, soil, water, air, and living organisms regulate the natural habitat and determine the availability of life-sustaining resources" (NRC, 2001), will be held at the University of Delaware, October 24-26, 2005 (<http://ag.udel.edu/plsc/Conference/index.htm>). Invited speakers from a range of disciplines including soil, geological, environmental and biological sciences and engineering will address grand research challenges and opportunities in critical zone science. These presentations will be followed by panel discussions and breakout sessions to provide cross-disciplinary discussion and brainstorming. A workshop report will result that will be widely disseminated to funding agencies and policymakers.

There will be an opportunity for participants to present posters during the workshop. If you would like to present a poster, please indicate your title and interest on the registration form. All interested conferees will also be invited to discuss development of a consortium of scientists to study the Critical Zone (<http://www.wssc.psu.edu>).

The workshop is limited to 100 participants.

Limited funds are available for all participants, including graduate students and post-doctoral researchers, to attend this workshop.

Workshop organizing committee: Co-Chair Don Sparks (University of Delaware), Co-Chair Sue Brantley (The Pennsylvania State University), Mary Firestone (UC, Berkeley), Jon Chorover (University of Arizona), Dan Richter (Duke University) and Art White (USGS)



Mineralogical Society of America

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___ v. 40: Sulfate Minerals (2000).....	\$32
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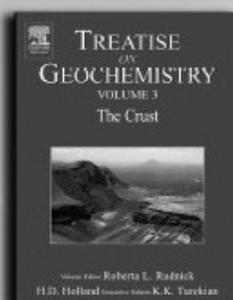
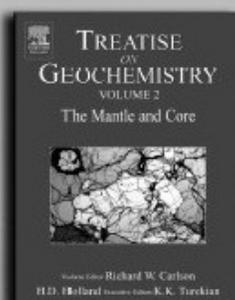
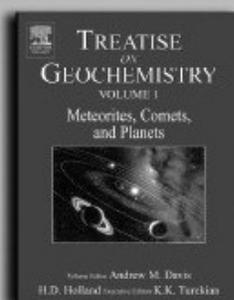
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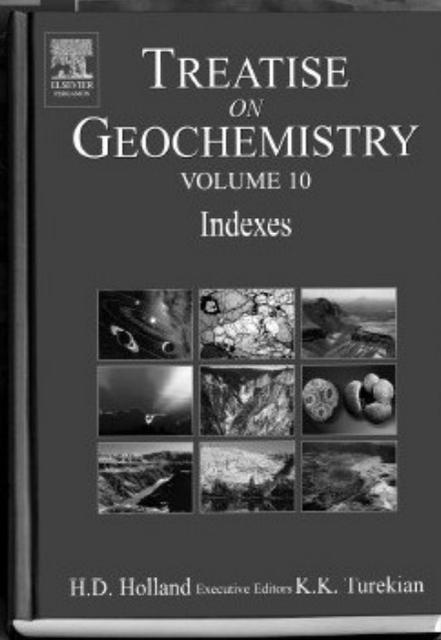
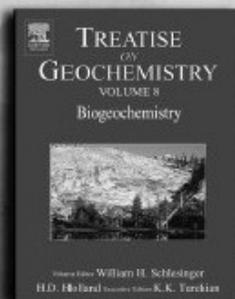
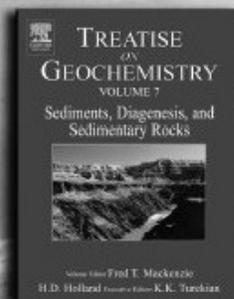
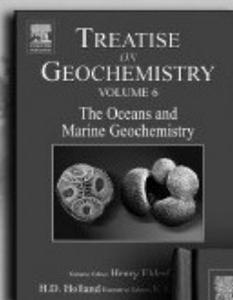
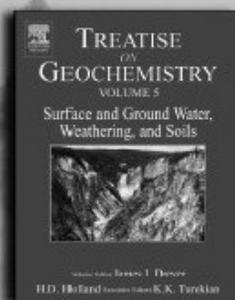
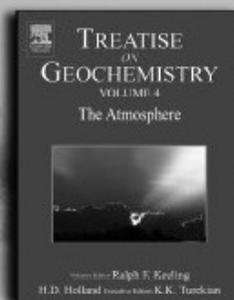
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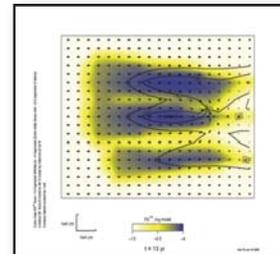
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