

*Best wishes, Gunter*

# Newsletter

of the

**International Association of Geochemistry and  
Cosmochemistry**

**Number 32, March 1999**

**Gunter Faure, Newsletter Editor**

The International Association of Geochemistry and  
Cosmochemistry is a Nonprofit Organization





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## News from the Association

The content of this Newsletter provides evidence that the IAGC is on the move and is supporting research and teaching in Geochemistry and Cosmochemistry on a global scale. The activities of the Association take place through the initiatives of our eight Working Groups and by the rapidly rising importance of our journal APPLIED GEOCHEMISTRY. In addition, the Council of the IAGC has been meeting annually since 1996 and has been a forum for productive discussions leading to forward-looking decisions. For these reasons, the information contained in this Newsletter is presented under the general headings of: News from the Association, Working Groups of the IAGC, and APPLIED GEOCHEMISTRY.

### A Message from the President

Dear Colleague:

As President of the IAGC and newly appointed Newsletter Editor, I am pleased to present to you the current issue of our Newsletter. The information contained on its pages reflects the wide scope of our activities that range from the effect of global warming on food production in developing countries on Earth to proposals for the future utilization of the Moon.

I draw your attention especially to the upcoming activities of some of our Working Groups, including symposia on the thermal histories of meteorites in Johannesburg, South Africa, from July 11 to 16; on the geochemistry of the Earth's surface in Reykjavik, Iceland, from August 12 to 20; on applied isotope geochemistry in Orléans, France, from September 21 to 25; and a special session on the sources, fate, and toxicology of trace metals in the environment which will be held during the Annual Meeting of the GSA between October 26 and 29 in Denver, Colorado.

Each of these gatherings will provide stimulating discussions of geochemistry and cosmochemistry accompanied by fieldtrips to interesting places led by expert guides. In addition, this Newsletter lists many other coming events, such as the Goldschmidt Conference at Harvard University in Cambridge, Massachusetts, from August 22 to 27. The main event in the year 2000 will be the 31st International Geological Congress, August 6 to 17, in Rio de Janeiro.

I also draw your attention to the application for membership that is enclosed with your copy of the Newsletter, and I make this request: Please use it to invite a colleague or graduate student to join the IAGC and to subscribe to APPLIED GEOCHEMISTRY. Our Working Groups and our journal have much to offer geochemists regardless of whether they work in industry, for government agencies, at academic institutions, or are self-employed. In addition, we welcome geochemists

regardless of whether they study terrestrial or extraterrestrial rocks, fossil fuels, soil or water, ore deposits or the environmental impacts of mining. Everybody is welcome and should be able to find like-minded individuals at the symposia organized by our Working Groups. In fact, we welcome proposals for the establishment of new Working Groups such as in Organic Geochemistry, Igneous and Metamorphic Petrology, and Paleoclimatology.

Please feel free to communicate with me via e-mail at: < heath.18@osu.edu >. I would like to hear from you.

Sincerely,  
Gunter Faure  
President

### IAGC Secretariat

In 1998 the Officers of the IAGC considered the possibility of establishing a Secretariat as a permanent administrative center for the Association. The outcome of these discussions was a decision, arrived at by mutual agreement, that the expenses incurred by the operation of a Secretariat cannot be justified at the present time.

Instead, the Council approved the appointment of Gunter Faure to be the Newsletter Editor, thereby reducing the workload of the Secretary who had been assembling and mailing the Newsletter in addition to his other responsibilities.

Henceforth, our Secretary Mel Gascoyne will be responsible primarily for interacting with our Individual and National Members and for maintaining the archives of the IAGC. He can be reached at <gascoyne@granite.mb.ca >.

### Symposia Supported by IAGC in 1998

The IAGC provided financial support to six symposia and conferences even though some were not directly related to our Working Groups. All applications for financial support are presented to the Council of the IAGC for a vote via e-mail. Although Working Groups have priority, Council has approved \$2,000 grants for certain other symposia on topics that coincide with the objectives of the IAGC.

The symposia that received financial support or were sponsored by the IAGC in 1998 are as follows:

1. Water-Rock Interaction Symposium (WR-9)  
March 30 to April 3, Taupo, New Zealand.
2. International Kimberlite Conference (IKC-7)  
April 13 to 17, Cape Town, South Africa.
3. International Mineralogical Association (IMA-17) August 9-16, Toronto, Canada.
4. International Conference on Geochronology, Cosmochronology, and Isotope Geology (ICOG-9) August 20 to 26, Beijing, China.
5. International Conference on the Exploration and Utilization of the Moon (ICEUM-3) October 11-14, Moscow, Russia (sponsored only).

*didn't receive \$*

6. Theme Session on the Sources, Transport, Fate, and Toxicology of Trace Metals in the Environment (dedicated to the memory of Helen L. Cannon) at the Annual Meeting of the Geological Society of America, October 28, Denver, Colorado, USA.

### Theme Session at the GSA Meeting in Toronto

The IAGC sponsored a Theme Session on October 28, 1998, at the Annual Meeting of the Geological Society in Toronto, Canada. The topic of this session was: "Sources, Transport, Fate, and Toxicology of Trace Elements in the Environment." The session was dedicated to the memory of Helen L. Cannon who, as a member of the U.S. Geological Survey, made important contributions to the study of certain trace elements in soils and plants of the southwestern USA (See below).

The Theme Session at the Annual GSA Meeting in Toronto was the second such session organized by David Long (Michigan State University) and Gunter Faure (Ohio State University). The first session of this continuing series took place in 1997 at the GSA Meeting in Salt Lake City and was dedicated to Ernest Angino (University of Kansas) (See Newsletter #30, December, 1997).

These theme sessions are intended to provide a forum for research concerning trace elements in the environment and their potentially toxic effects on all parts of the biosphere, including humans. The IAGC encourages students to participate in these sessions by offering a \$100 prize and a certificate to the best student paper (See below).

The third Theme Session in this series is scheduled to be held at the next GSA Meeting which will take place in late October of this year in Denver. It will be dedicated to Jerome Nriagu who will present an address at the start of the session. All members of the IAGC and their friends are cordially invited to attend. Specific details concerning this Theme

Session will be published in GSA TODAY or can be obtained by contacting the GSA at 303-447-2020 (telephone), 303-447-1133 (fax), < member@geosociety.org > or < http://www.geosociety.org >.

### Papers Presented, IAGC Theme Session

Nordstrom, D.K., C.N. Alpers, H.E. Taylor, J.W. Ball, B. McCleskey, and S. Ogle: Chemistry and toxicity of pore water from metal-rich sediments precipitated by mixing of Iron Mountain acid mine water with Keswick Reservoir, California.

Alpers, C.N., H.E. Taylor, R. Antweiler, D.K. Nordstrom, J.L. Domagalski, P.D. Dileanis, D.J. Cain, and D.M. Unruh: Transport, fate and bioaccumulation of trace metals from a mineralized source area in the Sacramento River basin, California.

Verplanck, P.L., D.K. Nordstrom, H.E. Taylor: Partitioning of rare earth elements between colloids and acid waters.

White, R.A., N.J.G. Pearce, and R. Fuge: Behavior of rare earth elements and other metals in synthetic and natural acid mine drainage; a laboratory study.

Sullivan, A.B., and J. I. Drever: Characterization of suspended particles in a mine-affected stream, Peru Creek, Summit County, Colorado.

Keith, D.C., and D.D. Runnells: Chemistry, mineralogy, and effects of efflorescent sulfate salts in acid mine drainage areas.

Perkins, S.M., C.L. Souch, and G.M. Filipelli: Trace metal pollution of wetland sediments in and around the Indiana Dunes National Lakeshore, Indiana: implication for wetland restoration.

Graney, J.R., A. E. Gildemeister, and G.J. Keeler: Temporal and spatial relations between trace metal concentrations in dry and wet deposition and runoff from impervious surfaces in the Detroit, Michigan area.

Finkelman, R.B. and C.L. French: Is coal an important source of trace elements in the environment?

Jones, T., W.B. Lyons, E.Y. Graham, and B.C. Astor: The role of coal and coal mining on the source and transport of trace elements in the Black Warrior River, Alabama.

Stillings, L.L. and J.I. Drever: Adsorption of As (III) and As (V) on selected soils and soil fractions.

Icopini, G.A., D.T. Long, C. Merlin, and L.J. Forney: Assessment of chromium mobility using intact soil core microcosms.

Pichler, T., J. Veizer, and G.E.M. Hall: Hydrothermal input of arsenic into a coral reef ecosystem: its source, impact, and fate.

Sherman, C.Q., K. Frye, D. Coleman, and S.A. Bowring: Tracking depleted uranium: an unnatural tracer experiment.

McMillan, S.C., D.D. Hickmott, B.D. Newman, B.L. Kelly, and V.J. Rodriguez: The mineralogic speciation of barium in Cannon de Valle at LANL: sediments and plant material.

### **Best Student-Paper Award**

The criteria for evaluating research papers presented by students at the Theme Sessions sponsored by the IAGC are:

1. The student must present the paper but need not be the sole author.
2. The research must be innovative and of high quality as judged by the design of experiments or sampling strategies and it must be well executed.
3. The presentation must be well illustrated and effectively delivered.

Based on these criteria, the Executive Committee of the IAGC selected:

**Richard A. White**, University of Wales, UK, for his paper: "Behaviour of rare earth elements and other metals in synthetic and natural acid mine drainage, a laboratory study." We congratulate the winner and wish him continued success in his professional life as a geochemist.

### **Memorial to Helen L. Cannon**

by Gunter Faure

We have dedicated today's Theme Session (at the GSA Meeting in Toronto, see above) to the memory of Helen L. Cannon because she was a pioneer in the study of environmental geochemistry and its effects on human health.

Helen Cannon was born in 1911 in Wilkinsburg, Pennsylvania, where she developed a life-long interest in the plants that inhabited the rural landscape where she grew up (McCarthy, 1997). She pursued her interest in botany as an undergraduate at Cornell University and received the Bachelor's degree in 1932. Subsequently, she did postgraduate work at Northwestern University and at the University of Pittsburgh where she earned a Master of Science degree in Geology in 1934.

After another year of postgraduate work at the University of Oklahoma, she joined the staff of the Gulf Oil Co. in Saginaw, Michigan. Three years later,

she moved to Washington, D.C. to become a member of the U.S. Geological Survey. She stayed with the USGS until 1979 when she retired from the Denver Office after more than 40 years of service.

Helen Cannon's scientific career passed a milestone in 1946 when she proposed that the presence of certain metals in plants may indicate the occurrence of mineral deposits below the surface. This idea was supported by Herbert Hawks and Lyman Huff with whom she formed the first geochemical exploration unit in the United States. In 1952 she demonstrated that uranium and vanadium are assimilated by plants and thereby she helped to establish the foundation for geobotanical exploration. This technique later resulted in the discovery of several deposits in Colorado, New Mexico, and Utah during the uranium-boom in the 1950s and 1960s.

Another significant discovery by Helen Cannon was that the plant *Astrogallus pattersoni* requires trace amounts of selenium, and that selenium tends to be associated with uranium deposits. The association of certain plants with certain kinds of mineral deposits subsequently led to the identification of indicator plants for different metals and made Helen Cannon one of the foremost experts on geobotanical exploration in the world.

Her third major contribution came in the 1960s when she began a study of the relations between the presence of trace elements in soil, in edible plants, and disease in humans. The results of this study

demonstrated a relation between diet and cancer in humans. In 1968, she collaborated with Howard C. Hopps (a medical doctor) to organize a symposium on Environmental Geochemistry in Health and Disease at the Annual Meeting of the AAAS in Dallas, Texas. This symposium brought together scientists from many disciplines ranging from geochemistry to soil science, epidemiology, pathology, nutrition, dentistry, and more. The purpose of this symposium was, and here I quote: "to show that the chemistry of rocks, soil, plants, and water in a particular geographic environment may be causally related, either directly or indirectly, to the occurrence of animal and human diseases." The papers presented at this important symposium were published in 1971 by the Geological Society of America as Memoir 123.

Helen Cannon's tireless efforts in her research were recognized by the Meritorious Service Award of the Department of the Interior in 1970 and the Distinguished Service Award (the highest honor) in 1975. In addition, Helen Cannon was a Member of the Council of the GSA and Chaired its Committee on Geology and Public Policy. She also served on the Council of AAAS and chaired the Subcommittee on the Geochemistry of the Environment in Relation to Health and Disease of the National Research Council.

Helen Cannon died in her home in Santa Fe, New Mexico, on October 20, 1996. She is fondly remembered by her colleagues as an unassuming and gracious lady who worked tirelessly to study the



migration of certain trace elements in the natural environment.

McCarthy, H., 1997. Memorial to Helen L. Cannon. Geol. Soc. Amer., Memorials, 28:53-55.

### Selected Publications of Helen L. Cannon

- Cannon, H.L., 1952. The effect of uranium-vanadium deposits on the vegetation of the Colorado Plateau. *Amer. J. Sci.*, 250:735-770.
- Cannon, H.L. and D.F. Davidson, eds., 1967. Relation of Geology and Trace Elements to Nutrition. *Geol. Soc. Amer.*, Special Paper 90.
- Cannon, H.L., H.T. Shacklette, and H. Bastron, 1968. Metal absorption by Equisetum (horsetail) U.S. Geol. Surv. Bull. 1278-A (Contributions to Geochemical Prospecting for Minerals), 21 p.
- Cannon, H.L., 1971. The use of plant indicators in ground-water surveys, geologic mapping, and mineral prospecting. *Taxon*, 20(2/3):227-256.
- Cannon, H.L. and H.C. Hopps, eds., 1974. Geochemistry and the Environment: Asilomar Conference on Geochemical Environment in Relation to Health and Disease. *Nat. Acad. Sci.*, Washington D.C., 113p.
- Cannon, H.L. and V.E. Swanson, 1979. Contributions of major and minor elements to soils and vegetation by the coal-fired Four Corners power plant, San Juan County, New Mexico. Shorter Contributions to Geochemistry. U.S. Geol. Surv. Prof. Paper 1129B, 13 p.

### Increase of Member Dues is Postponed

The Council of the IAGC at its Meeting in Toronto on October 25, 1998, approved an increase of the dues for Individual Members from \$10.00 to \$15.00 US. The increase in dues is needed to enable the IAGC to provide more tangible benefits to its Members than has been possible in the past. The additional funds will be used to increase the scope of the Newsletter and to publish two issues per year instead of just one. Henceforth, the Newsletter will contain not only news of the Association and of its Working Groups, but it will also carry news about geochemistry and cosmochemistry.

The increase in dues was to take effect in 1999, but will be postponed until 2000 because the Fulfillment Department of Elsevier failed to include the increase in the invoices it sent to our Members. Elsevier Science has agreed to reimburse the Association for the loss of revenue in 1999. Therefore, there will be a second Newsletter to be published in October of 1999.

### Reminder

**Plan to attend the IAGC Theme Session: Sources, Transport, Fate, and Toxicology of Trace Metals in the Environment. October 25-29, 1999, in Denver, Colorado during the Annual Meeting of the GSA.**

### Reminder

**Plan to attend the Fifth International Symposium on the Geochemistry of the Earth's Surface: August 12-20, 1999, in Reykjavik, Iceland. Convener: Dr. S.R. Gislason, e-mail: <ges5@raunvis.hi.is >.**

## International Ingerson Lecture

The IAGC sponsors the International Ingerson Lecture with financial support from a bequest by the late Professor Earl Ingerson. Lecturers are selected on the basis of their outstanding contributions to geochemistry or cosmochemistry in different regions of the world coincident with scientific meetings that attract large international audiences. The lecturer receives an honorarium from the Association and limited funds for necessary travel expenses.

The most recent International Ingerson lecturers of the IAGC have been:

Professor K.H. Wedepohl, 1994, Edinburgh

Professor A. Masuda, 1996, Beijing

Professor D.M. Shaw, 1998, Toronto

The next International Ingerson Lecturer will be Professor Umberto Cordani of the University of Sao Paulo who will speak during the 31st International Geological Congress in Rio de Janeiro, Brazil, August 6-17, 2000.

### Reminder

Plan to participate in the Third International Symposium on Applied Isotope Geochemistry: September 21-25, 1999, in Orléans, France. Convener: Dr. J.-P. Girard, e-mail: <aig3@brgm.fr >.

## Introduction of Professor Denis M. Shaw

### International Ingerson Lecturer August 12, 1998

17th General Meeting of the  
International Mineralogical Association in Toronto  
from August 9-14, 1998

by Gunter Faure

Professor Denis M. Shaw of McMaster University in Hamilton, Ontario is widely known for his pioneering studies of trace elements in igneous and metamorphic rocks and is presently concentrating his research on the geochemistry of lithium and boron in terrestrial and extraterrestrial rocks.

In addition to his ongoing and distinguished research career, Professor Shaw has devoted his time to administration and public service:

1. He served as Chair of the Geology Department of McMaster University from 1953 to 1966;
2. He was the Dean of the Graduate School from 1978 to 1984;
3. He was the Executive Editor of *Geochimica et Cosmochimica Acta* for 18 years from 1971 to 1989;
4. And he is presently organizing the Annual Meeting of the Geological Society of America which will take place in October right here in Toronto.

In his illustrious career, Professor Shaw has so far published more than 130 papers in refereed

journals and conference proceedings, not to mention one book and four book chapters. His latest paper in LITHOS, 1997, is entitled: Behavior of boron in the formation of an anatectic complex: the Peña Negra complex, central Spain (with M.D. Pereira Gómez).

The outstanding accomplishments of Professor Shaw have been recognized by the many honors he has received, among them:

1. Fellow of the Royal Society of Canada, 1961;
2. President of the Mineralogical Association of Canada, 1964-65;
3. W.G. Miller Medalist, Royal Society of Canada;
4. Fellow of the Geochemical Society and of the European Association for Geochemistry, 1997.

It is therefore my pleasure to introduce my friend and mentor Professor Denis M. Shaw who will present the International Ingerson Lecture of the IAGC under the title:

### **Trace Element Fractionation Processes.**

#### **Selected Publications of Professor D.M. Shaw Since 1991**

- Shaw D.M. and P.L.C. Smith, 1991. Concentrations of B, Sm, Gd and H in 24 Reference Materials. *Geostandards Newsletter*, XV, 59-83.
- Shaw D.M. and N.C. Sturchio, 1992. Boron-lithium relationships in rhyolites and associated thermal waters of young silicic calderas. *Geochimica et Cosmochimica Acta* 56, 3723-3731.

Shaw D.M., A.P. Dickin, H. Li, R. H. McNutt, H.P. Schwarcz and M.G. Truscott, 1994. Crustal geochemistry in the Wawa-Foley region, Ontario. *Canadian Journal of Earth Sciences* 31, 1104-1121.

Zhai M. and D.M. Shaw, 1994. Boron cosmochemistry Part I: Boron in meteorites. *Meteoritics* 29, 607-615.

Shaw D.M., 1995. Lunar behaviour of boron contrasted with the terrestrial boron cycle. *Meteoritics* 30, 199-208.

Moss W.E., L.A. Haskin, R.F. Dymek and D.M. Shaw, 1995. Redetermination and reevaluation of compositional variations in metamorphosed sediments of the Little Formation, New Hampshire. *American Journal of Science* 295 No. 8, 988-1019.

Shaw D.M., 1996. Similarities and contrasts in extra terrestrial and terrestrial boron geochemistry in Boron: Mineralogy, Petrology and Geochemistry in the Earth's Crust. Editors E.S. Grew and L.M. Anovitz, *Reviews in Mineralogy, Mineralogical Society of America* 33; 745-769.

Pereira M.D. and D.M. Shaw, 1996. Distribution of B and Li using alpha-track images: some constraints. *American Mineralogist* 81, 141-145.

Zhai M., E. Nakamura, D.M. Shaw and T. Hakano, 1996. Boron isotope ratios in meteorites and lunar rocks. *Geochimica et Cosmochimica Acta* 60; 4877-4881.

Pereira Gómez M.D. and D.M. Shaw, 1997. Behaviour of boron in the generation of an anatectic complex: the Peña Negra complex, Central Spain. *Lithos* 40; 179-188.

### **Reminder**

**Plan to attend the Fifth International Symposium on the Geochemistry of the Earth's Surface: August 12-20, 1999, in Reykjavik, Iceland. Convener: Dr. S.R. Gislason, e-mail: < ges5@raunvis.hi.is >.**

## Working Groups of the IAGC

The IAGC supports eight Working Groups whose activities make a major contribution to the advancement of geochemistry and cosmochemistry. News of these activities will be a regular feature of the Newsletter because all geochemists in the world are invited to participate in the scientific symposia, conferences, and workshops organized annually by the Working Groups of the IAGC. Participants in these activities are NOT required to be dues-paying members of the IAGC. However, all are cordially invited to join and thereby to become qualified to subscribe to APPLIED GEOCHEMISTRY at half price (\$46.00 for 1999).

### Listing of the Working Groups

#### 1. Thermodynamics of Natural Processes

**Chairperson:**

Professor Dr. German Kolonin (Russia)

**Advisory Committee Members:**

Professor Dr. A. Kalinichev  
Professor Dr. V. Tauson

**Address:**

Professor Dr. German Kolonin  
Russian Academy of Sciences  
Institute of Mineralogy and Petrography  
Siberian Branch  
Universitetsky Prospect 3  
630090 Novosibirsk, Russia  
Tel: 3832-353-655  
3832-352-692  
E-mail: kolon@uiggm.nsc.ru

**Last Meeting:**

Fifth International Symposium on Hydrothermal Reactions, July 20-24, 1997, in Gatlinburg, Tennessee, USA

**Next Meeting:**

Genesis of PGS-bearing Sulfide Deposits in the Light of New Geochemical and Physical-Chemical Data, March 30-April 3, 1999 in Strasbourg, France (During the EUG Meeting).

#### 2. <sup>Applied</sup> Environmental Isotope Geochemistry

**Chairperson:**

Dr. Arne Raheim (Norway)

**Members of the Advisory Committee:**

Dr. Max Coleman (England)  
Dr. Peter Fritz (Germany)  
Dr. Brian Gulson (Australia)

**Address:**

Dr. Arne Raheim  
Institutt for energietechnik  
Instituttveien 18  
P.O. Box 40  
N-2007 Kjeller, Norway  
Tel: 47-63-80-60-00  
Fax: 47-63-81-11-68

**Last Meeting:**

AIG-2, Sept. 30 to Oct. 4, 1997,  
Lake Louise, Alberta, Canada

**Next Meeting:**

AIG-3, Sept. 21-25, 1999, Orléans, France

**Organizer:**

Dr. Jean-Pierre Girard  
BRGM  
BP6009-Avenue C. Guillemin  
45060 Orleans Cedex 2, France  
E-Mail: girard@exchange.brgm.fr

### 3. Geochemistry of the Earth's Surface

**Chairperson:**

Dr. Blair Jones (USA)

**Members of the Advisory Committee:**

**Address:**

Dr. Blair Jones  
US Geological Survey  
MS 956  
National Center  
12201 Sunrise Valley Drive  
Reston, VA 20192  
E-Mail: bjones@usgs.gov

**Last Meeting:**

Ilkley, Yorkshire, England, 1996

**Next Meeting:**

Fifth International Symposium on the  
Geochemistry of the Earth's Surface, August  
12-20, 1999. Reykjavik, Iceland

**Organizer:**

Dr. S. R. Gislason  
Science Institute  
University of Iceland  
Dunhagi 3  
107 Reykjavik, Iceland  
Tel: 354-525-4800  
Fax: 354-552-8911  
E-Mail: ges5@raunvis.hi.is

### 4. Meteoritics and Cosmochemistry

**Chairperson:**

Professor Dr. Herbert Palme (Germany)

**Members of the Advisory Committee:**

Professor Dr. Gero Kurat (Austria)  
Professor Dr. J. Ganguly (USA)

**Address:**

Professor Dr. Herbert Palme  
Universität zu Köln  
Institute für Mineralogie u. Geochemie  
Zülpicher st 49b  
D-50674 Köln, Germany

**Next Meeting:**

Thermal History of Meteorites, Meteoritical  
Society Meeting, July 11-16, 1999,  
Johannesburg, South Africa

### 5. Geochemistry of Health and Disease

**Chairperson:**

Dr. Robert B. Finkelman (USA)

**Members of the Advisory Committee:**  
(to be appointed)

**Address:**

U.S. Geological Survey  
MS 956, National Center  
12201 Sunrise Valley Drive  
Reston, Virginia 20192  
Tel: 703-648-6412  
Fax: 703-648-6419  
E-Mail: rbf@usgs.gov

**Next Meeting:**

Sixth International Symposium on Metal Ions in  
Biology and Medicine, May 7-10, 2000, Caribe  
Hilton, San Juan, Puerto Rico, USA

### 6. Water-Rock Interaction

**Chairperson:**

Dr. W. M. Edmunds (UK)

**Members of the Advisory Committee:**

**Address:**

Dr. W. M. Edmunds  
 Hydrogeology Group  
 British Geological Survey  
 Crowmarsh Gifford  
 Wallingford, OX10 8BB, UK  
 Tel: +44(0)-1-491-692296  
 Fax: +44(0)-1-491-692345  
 E-Mail: wme@bgs.ac.uk

**Last Meeting:**

WRI-9, March 30-April 3, 1998,  
 Taupo, New Zealand

**Next Meeting:**

WRI-10, Cagliari, Italy, 2001

**7. Global Geochemical Baselines****Chairpersons:**

Dr. J. A. Plant (UK) and  
 Dr. D. Smith (USA)

**Members of the Advisory Committee:****Address:**

Dr. J. A. Plant  
 British Geological Survey  
 Kingsley Dunham Centre  
 Keyworth  
 Nottingham, UK  
 NG 12 5GG  
 Tel: 44(0)115 936  
 Fax: 44(0)115 936 3200  
 E-Mail: JAPL@wpo.nerc.ac.uk

Dr. D. Smith

E-Mail: dsmith@helios.cr.usgs.gov

**Website:**

< <http://www.bgs.ac.uk/bgs/w3/argg/iugs/iugshome.htm> >

**Last Meeting:**

October 1-3, 1998, Naples, Italy

**Next Meeting:**

April 1999, Vancouver, Canada

**8. Geochemical Training in Developing Countries****Chairperson:**

Dr. U. Aswathanarayana (Mozambique)

**Members:**

Dr. John Gurney (South Africa)  
 Dr. J. Kahatano (Tanzania)

**Address:**

Dr. U. Aswathanarayana  
 %Ministry for the Coordination  
 of Environmental Affairs  
 CP 1947, Maputo, Mozambique  
 Tel: 2581-429498  
 Fax: 2581-492526  
 E-Mail: environ@aswath.uem.mz  
 anarayan@zebra.uem.mz

**Next Meeting:**

Workshop in Analytical Geochemistry  
 University of Cape Town  
 to be organized by Dr. Gurney

**Coming Events Organized  
by the Working Groups**

**Symposium H3: Physical and Chemical Controls on the Formation of PGE-bearing Sulphide Deposits.** Conveners: M. Ohnensetter (Nancy) and G. Kolonin (Novosibirsk) EUG 10, March 30-April 3, 1999, Strasbourg, France.

**Symposium: The Thermal History of Meteorites.** 62nd Annual Meteoritical Society Meeting, July 11-16, 1999, Johannesburg, South Africa. Convener: Herbert Palme (IAGC), Institut für Mineralogie und Geochemie, Universität zu Köln, Zùlpicher st. 49b, 50674 Köln, Germany. Tel. 0049-221-470-31-98/56 16; Fax: 0049-221-470-51-99; E-mail: < H.Palme

@min.uni-koeln.de >. Abstract deadline: April 5 (hardcopy) April 16 (electronic). Contact the Lunar Planet. Sci. Inst., Houston, TX; E-mail: <tanner@lpi.jsc.nasa.gov >.

**Fifth International Symposium on the Geochemistry of the Earth's Surface (GES-5).** August 12-20, 1999, Reykjavik, Iceland. Convener: S.R. Gislason, GES-5 Conference Secretariat, Science Institute, University of Iceland, Dunhagi 3, 107 Reykjavik, Iceland. Tel: 354-525-4800; Fax: 354-552-8911; E-mail: <ges5@raunvis.hi.is >; Website: <http://www.raunvis.hi.is/ges5.html >. Abstracts are due in camera-ready form on March 1, 1999.

**Third International Symposium on Applied Isotope Geochemistry.** September 21-25, 1999, Orléans, France. Convener: J.-P. Girard, BRGM-SMN/ANA/ISO, PB 6009, F-45060 Orleans Cedex 02 France. Tel: 33(0)2 38 64 32 15; Fax: 33(0)2 38 64 39 25; E-mail: <aig3@brgm.fr >. Abstracts due on April 30, 1999.

**Theme Session: Sources, Transport, Fate and Toxicology of Trace Metals in the Environment.** Annual Meeting, Geol. Soc. Amer., Denver, CO, USA, October 26 to 29, 1999. Conveners: D.T. Long and G. Faure. Abstracts must be submitted to GSA on appropriate forms during the first week of July, 1999. Consult Website: <http://www.geosociety.org >.

**Sixth International Symposium on Metal Ions in Biology and Medicine.** May 7-10, 2000, Caribe Hilton, San Juan, Puerto Rico, USA. Convener (IAGC): R.B. Finkelman, MS 956, National Center, 1201 Sunrise Valley Drive, Reston, VA 20192. Tel: 703-648-6412; Fax: 703-648-6419; E-mail: <rbf@usgs.gov >; Website: <http://www.afip.org >.

**Water-Rock Interactions (WRI-10).** June 10-15, 2001. Cagliari, Sardinia, Italy. Organizer: Dr. Luca Fanfani, Università degli Studi di Cagliari Dipartimento di Scienze della Terra, Via Trentino 51, Cagliari, Italy. Tel: 39-070-675-7725; Fax: 39-070-282236; E-mail: <lfanfani@vaxcal.unica.it >.

## Other Coming Events:

**Workshop on Thermal Emission Spectroscopy and Analysis of Dust, Disks, and Regolith.** April 28-30, 1999. Lunar and Planetary Institute, Houston, Texas, 3600 Bay Area Blvd., Houston, TX, 77058-1113. Tel: 281-486-2158; Fax: 281-486-2160; E-mail: <simmons@lpi.jsc.nasa.gov >; Website: <http://cass.jsc.nasa.gov/meetings/thermal99/ >.

**Gordon Research Conference on Origins of Solar Systems.** June 13-18, 1999. Henniker, New Hampshire. Contact: Alan Boss, DTM-CIW, 5241 Broad Branch Rd. NW, Washington, DC 20015-1305. E-mail: <boss@dtm.ciw.edu >; Website: <http://www.grc.uri.edu/ >.

**111th Annual Meeting of the Astronomical Society of the Pacific.** July 1-7, 1999. Contact: Laurie Keechler, ASP Meeting Planner, 390 Ashton Ave., San Francisco, CA 94112. Website: <http://www.aspsky.org >.

**Eighth International Symposium on Antarctic Earth Sciences.** July 5-9, 1999, Wellington, New Zealand. Contact: The Secretary, ISAES, Institute of Geological and Nuclear Sciences, P.O. Box 30-368, Lower Hutt, New Zealand.

**Fifth International Conference on the Biogeochemistry of Trace Elements.** July 11-15, 1999. Technical University of Vienna, Austria. Contact: Conference Secretariat, P.O. Box 81, A-1183 Vienna, Austria. Tel: +43-1-47654-3119; Fax: +43-1-47654-3105; E-mail: <icobte@edv1.boku.ac.at >; Website: <http://www.boku.ac.at/boden/icobte/icobte.html >.

**62nd Annual Meeting of the Meteoritical Society.** July 11-16, 1999. Johannesburg, South Africa. Contact: Wolf Uwe Reimold, Dept. of Geology, Wits University, Private Bag 3, P.O. Wits 2050, Johannesburg, South Africa. Tel: +27-11-716-2946; Fax: +27-11-339-1697; E-mail: <065msoc@cosmos.wits.ac.za >; Website: <http://www.wits.ac.za/metsoc99/ >.

**Asteroids, Comets, and Meteors Conference.** July 26-30, 1999. Ithaca, New York. Contact: Beth E. Clark, ACM Conference, Space Sciences Bldg., Cornell University, Ithaca, NY 14853-6801. Tel: 607-254-8895; Fax: 607-255-9002; E-mail: < acm@scorpio.tn.cornell.edu >; Website: < http:// scorpio.tn.cornell.edu/ACM >.

**Sixth Bioastronomy Meeting: Bioastronomy 99: A New Era in Bioastronomy.** August 2-6, 1999. Kohala Coast, Hawaii. Contact: Karen Meech, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822. Tel: 808-956-6828; Fax: 808-956-6828; E-mail: < meech@ifa.hawaii.edu >; Website: < http://www.ifa.hawaii.edu/~meech/bioast/ >.

**Fifteenth INQUA Congress: The Environmental Background to Hominid Evolution in Africa.**

August 3-11, 1999, International Congress Center, Durban, South Africa. Contact: D. Margaret Avery, INQUA XV Congress, South African Museum, P. O. Box 61, Cape Town, 8000 South Africa. Tel: +27-21-243-330; Fax: +27-21-246-716; E-mail: < mavery@samuseum.ac.za >.

**The Origin of Elements in the Solar System: Implications of post-1957 Observations.** August 22-26, 1999. New Orleans, Louisiana. Contact: O.K. Manuel, Dept. of Chemistry, University of Missouri, Rolla, MO 65401. Tel: 573-341-4420; Fax: 573-341-0633; E-mail: < oess@umr.edu >.

**Ninth Annual V.M. Goldschmidt Conference.** August 22-27, 1999. Cambridge, Massachusetts. Contact: Stein B. Jacobsen, Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA 02138. Tel: 617-495-5233; Fax: 617-496-4387; E-mail: < goldschmidt@eps.harvard.edu >; Website: <http://cass.jsc.nasa.gov/meetings/gold99/> >.

**Second South American Symposium on Isotope Geology.** September 12-16, 1999. City of Villa Carlos Paz, Córdoba, Argentina. Contact: Secretary II

SSAGI, Pabellon Ingeis-Cuidad Universitaria, 1428 Buenos Aires, Argentina. E-mail: < iissagi@ingeis.uba.ar >; Fax: 54-1-783-3024. Extended abstracts must be mailed on or before March 31, 1999.

**Joint Sixth International Symposium on Hydrothermal Reactions and Fourth International Conference on Solvo-Thermal Reactions.** July 25-28, 2000, Kochi, Japan. Contact: K. Yanigasawa, Joint ISHR and ICSTR, Executive Committee Office, Res. Lab. Hydrothermal Chemistry, Faculty of Science, Kochi University, Kochi 780-8520, Japan. Tel: +81-888-44-8352; Fax: +81-888-44-8362; E-mail: < ishr@cc.kochi-u.ac.jp >.

**Thirty-First International Geological Congress.** August 6-17, 2000. Rio de Janeiro, Brazil. Contact: Secretariat Bureau, Av. Pasteur, 404-Casa Brazil 2000-Urca, Rio de Janeiro-RJ-Brazil, CEP 22. 290-240. Tel: 55-21-295-5847; Fax: 55-21-295-8094; E-mail: < 31igc@31igc.org >; Website: < http://www.31igc.org >.

**Sixth International Conference on Acid Rain Deposition.** December 10-16, 2000, Tsukuba, Japan. Contact: Secretariat of Acid Rain 2000, %International Communications Specialists, Inc., Sabo Kaikan-bekkan, 2-7-4 Hirakawa-cho, Chiyoduku, Tokyo 102-8646, Japan. Tel: +81-3-3263-6474; Fax: +81-3-3263-7077; E-mail: < acid2000@ics-inc.co.jp >.

**Sixth International Symposium on Environmental Geochemistry.** 2003, Edinburgh, Scotland. Co-sponsored by the International Association of Geochemistry and Cosmochemistry. Contact: John Farmer, Department of Chemistry, The University of Edinburgh, Joseph Black Bldg., King's Bldgs., West Mains Rd., Edinburgh EH9 3JJ Scotland, UK. Tel: 0131-650-1000; Fax: 0131-650-4757; E-mail: < J.G.Farmer@ed.ac.uk >.



## News from the Working Groups

On this page we record information concerning the objectives, current activities, and future plans of our Working Groups. This will be a continuing feature of the Newsletter in order to provide a channel of communication between the Working Groups and the Individual and National Members of the IAGC.

### **Proposed Workshop: "Soil Systems in the Context of Climate Change"**

September 2000, Trieste, Italy.

by Professor U. Aswathanarayana,

Working Group on Geochemical Training  
in Developing Countries.

Whatever might be the technological advances, soil will always be necessary for man to grow most of the food, fodder and fibre needed by him. About 99% of our food comes from the land. Grains alone provide at least 80% of the food worldwide. At the rate of 1 kg per capita per day, the food requirements of the projected population of 10 billion in 2050 is estimated to be 3.5 b.t. per year. A complicating factor is the change in the eating habits of the people. While the world's population has doubled in the past half century, the consumption of meat has quadrupled. For the global production of 200 million tons of meat per year, livestock are now fed about 40% of all grain that is harvested. To ensure food security to the burgeoning global population, is at once a profound challenge and a great opportunity.

The evidence that the mean global temperature has risen by 0.6° C in the last century is generally

accepted. A sustained increase in mean ambient temperatures beyond 1° C will cause significant changes in land cover, species distribution, composition, and migration patterns, and distribution of biomes. An increased rate of climate change may lead to aridity and droughts in some regions and higher precipitation, increased soil moisture, and improved plant growth in others. Wisdom therefore lies in designing strategies to mitigate the adverse consequences in one case, and take steps to benefit from the climate change in the other.

Climate change affects agricultural productivity through its direct effect on plant growth (arising from CO<sub>2</sub> fertilization, water stress, temperature, and evapotranspiration), and its indirect effects on land degradation (such as, erosion and salinisation) and soil nutrient cycling. The socio-economic factors driving agricultural landuse are even more important than the feedbacks resulting from climate change. It is therefore critically important to integrate the socio-economic and physical factors.

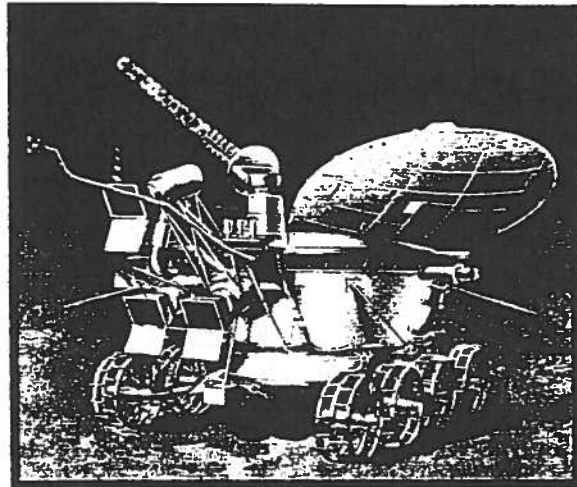
Vulnerability is an aggregate measure of human welfare that integrates environmental, social,

economic, and political exposure to a range of potentially harmful perturbations or threats. It is well known that vulnerability varies spatially and temporally for different communities, although they may face the same risk. Developing countries are more vulnerable to climate change as poverty limits their capability to adapt. Thus, any strategy to cope with climate change has to be based on understanding the structure and causes of the present-day social vulnerability.

The proposed workshop will be strongly *interdisciplinary* in its content and *interactive* in practice. It will seek to integrate the physical, biogeochemical, and social science studies to develop coping strategies.

The workshop will follow the cookery-lesson approach. The instructor will indicate the recipe (say, a cake), and the materials the participants need to bring themselves to make the cake. The instructor will show the participants how to make the cake. The participants will be helped to make their own cakes with their own materials, adapted to the tastes of their families. To extend the analogy, the instructor in the workshop will provide in advance a summary of his lectures, reference material, and software needed and will also advise the participants on what data, information, maps, etc. they should bring with them to Trieste in order to do the modelling. Thus, at the end of the workshop, the participants will not only

learn how to do the modelling, but will also have contributed to the development of coping scenarios for their country or region.



## **Declaration from the Third International Conference on the Exploration and Utilization of the Moon.**

by Eric Galimov

Vice President, IAGC

The Third International Lunar Conference was held on 11-14 October 1998 in Moscow, Russia, under the auspices of the International Lunar Exploration Working Group (ILEWG) and hosted by the Vernadsky Institute and the Russian Academy of Sciences. Director-General of the Russian Space Agency Dr. Yr. N Koptev and Vice President of the Russian Academy of Sciences N.P. Laverov recognized in their salutatory speech the scientific importance of exploration and utilization of the Moon.

The discussions and presentations by 236 scientists from 12 countries focused on the science results and the technical return to be derived from the exploration of the Moon and the utilization of lunar resources. The participants expressed their gratitude to the Organizing Committee for the opportunity during the Conference to visit industrial and scientific institutions where spacecraft and rockets are being built.

After a pause of two decades, the recent return to the Moon has been highly productive. The participants of the Third ILEWG Conference were enthusiastic about the analysis of Clementine data and the results obtained by the Lunar Prospector. New discoveries have opened additional avenues for lunar exploration such as: the existence of giant basins (e.g. South Pole-Aitken), the possible presence of water ice at the poles, and the local concentrations of radiogenic elements.

Lunar studies are essential to understanding the origin of planet Earth because the Moon and the Earth have been dynamically and chemically connected from birth. Furthermore, the Moon retains a record of the most ancient geological events in our part of the solar system. From the continuous lunar meteoroid impact history, we can better understand the bombardment history of the Earth and its key role in the origin and evolution of life.

Lunar exploration is an integral part of our long-term efforts to explore the solar system. The latest developments in technology can be tested on the Moon: 1) miniaturization and instrument technologies from orbit and in situ; 2) launching, transportation, and navigation systems; 3) new methods for data communication, teleoperations, and telepresence; 4) technologies for deployment of rovers and extended robotic activities; 5) exploitation and utilization of resources while preserving the pristine character of the lunar environment; 6) preparation for the establishment of a human outpost (life support systems, habitat, protection); and 7) scenarios for the expansion of solar system exploration for the benefit of humanity.

The participants recognized the challenging expectations for several future lunar missions. The Japanese penetrator mission (Lunar A) is to be launched in 1999, the ESA SMART-1 mission using solar electric propulsion to the Moon is scheduled to fly in 2001, the Japanese mission SELENE, to be launched in 2003, will carry an orbiter with sophisticated instruments and a lander. The dissemination and utilization of data from Clementine, Lunar Prospector, Lunar-A, SMART-1 and SELENE were discussed and led to the conclusion that world-wide participation is needed in lunar research and for the preparation of the second phase of the Lunar Initiative.

The participants valued highly the Russian Lunar Project discussed at the Conference. This project intends to obtain information on the internal structure of the Moon, which is of great importance. The Conference participants encouraged Russian scientists, engineers, and the Russian Space Agency to implement this challenging project.

Exchanges of project investigators and later exchange of mission data, are strongly encouraged for all the lunar mission. The ILEWG participants recommended that the space agencies coordinate the exchange of mission information and data return using uniform standards.

The ILEWG and the world lunar research community reconfirmed their responsibility to promote the international exploration of the Moon in the next millennium by building a bridge to a promising era for humanity on and beyond the Earth.

The next ILEWG Lunar International Conference will be held in Europe in 2000. (The text was edited by Gunter Faure.)

### **Reminder**

**Plan to attend the Symposium: Thermal History of Meteorites at the 62nd Annual Meteoritical Society Meeting, July 11-16, 1999, in Johannesburg, South Africa. Convener: Dr. H. Palme, e-mail: <H.Palme@min.uni-koeln.de>.**

## **The WG on Global Geochemical Baselines, Professor Jane A. Plant and Dr. David Smith, Cochairs.**

by Gunter Faure

The Working Group on Global Geochemical Baselines is jointly sponsored by the International Union of Geological Sciences (IUGS) and by the IAGC. According to Professor Plant, the mission of this Working Group is to collect a reference set of geochemical data worldwide. This objective requires that all geochemical samples are collected and analyzed by the same methods. The Working Group has recommended the methods to be used, has set up a grid system for recording the locations of collecting sites, and has prepared a Field Manual published by the Geological Survey of Finland (Guide No. 47). The manual can also be accessed at the following websites: < <http://www.gsf.fi> > and < <http://www.bgs.ac.uk> >. A manual detailing the analytical procedures that will be used is in preparation.

Considerable progress has been made in Europe to implement this project. The collection of samples in different countries is being organized by the Forum of European Geological Surveys (FOREGS) which has established a Geochemical Working Group headed by the Geological Survey of Finland (GSF). In 1998, samples were collected in more than 20 European countries for analysis in laboratories in Slovakia, Germany, Netherlands, France, Poland, and UK.

In some countries the samples are collected by personnel of National Geological Surveys. In others, the sampling is done by faculty and graduate students in Universities. In this way, the cost of collecting the samples is borne by the institutions in each country or region. (Letter of January 28, 1999, from Professor Plant to Gunter Faure).

The importance of such standardized geochemical data can hardly be exaggerated because we urgently need to record the properties of the natural environments before they are disturbed by the growing human population.

A case in point is the radioactive fallout that resulted from the accidental explosion of a nuclear reactor in Chernobyl on April 26 of 1986. The increase in the background radioactivity in Norway could be documented precisely because Dr. Knut Heier, Director of the Geological Survey of Norway, had the foresight to carry out a survey of the radioactivity along the network of roads of that country before this unfortunate accident occurred. (Personal communication from Dr. Knut Heier to Gunter Faure).

The IAGC strongly endorses the objectives of the WG on Global Geochemical Baselines and encourages its Individual and National Members to participate in this important activity. Collecting programs in North America can be organized on a wide range of scales from Townships to Counties to entire States or Provinces. Anyone interested in

contributing to this project can do so by acquiring a copy of the Field Manual and by contacting either Professor Jane A. Plant at < JAPL@wpo.nerc.ac.uk > or David Smith at < dsmith@heolio.cr.usgs.gov >.

## **Report of Activities of the Working Group on GLOBAL GEOCHEMICAL BASELINES in 1998**

by Arthur G. Darnley

Honorary President of the Working Group

The principal activities of this Working Group during 1998 have taken place in Europe, conducted by the European participants in the project. This work has been coordinated by the FOREGS (Forum of European Geological Surveys) WG on Geochemistry, which functions as a regional committee of the global project. The joint leaders of the IUGS/IAGC Working Group are now Jane Plant (BGS, UK) and Dave Smith (USGS, USA). Reijo Salminen (GSF, Finland) is chairman of the European WG.

The scope of the work currently being undertaken is indicated by documents relating to meetings which took place in Naples, Italy, October 1-3, 1998. The work in Europe sets an example which it is hoped, upon publication in 2001, will encourage and influence similar work to be undertaken (where it has not already begun) in other regions of the world. China is the country where the work is furthest advanced. Some work continues in

South Africa. A large demonstration area has been sampled in NE Brazil, but delays are occurring with respect to the analytical work. An airborne gamma-ray spectrometry-survey of Australia conducted by AGSO is a contribution to the project and is progressing fast. Efforts are being made to commence work in Columbia and India but funding is a problem.

It should be noted that the full scope of the project (as set out in the 1995 publication, "A global geochemical database for environmental and resource management" Darnley et al., UNESCO Earth Sciences Report #19) can NOT be met in Europe, or elsewhere, unless and until substantial funding is obtained from sources still to be identified. During 1996/97 it appeared that as a result of resolution passed in 1996 by the UN Committee on Natural Resources, proposing the establishment of a Global Land Monitoring Program, the way had been opened to securing funds from a combination of sources including FAO, WHO, UNEP and UNESCO. Unfortunately, the UN Committee on Natural Resources was effectively dismantled earlier this year and the UN agencies requested by this committee to give support to the project have pleaded poverty, so lobbying has to begin again. The problems involved in funding are implicit in the minutes of the Naples meeting, and were discussed in a paper I gave at that meeting.

## **The Fifth International Symposium on the Geochemistry of the Earth's Surface**

by Sigurdur R. Gislason

The Fifth International Symposium on the Geochemistry of the Earth's Surface (GES-5) will be held in Reykjavik, Iceland, from Monday August 16 to Friday August 20. There will be a field excursion prior to the meeting from Thursday August 12 to Sunday August 15 and an afternoon excursion during the meeting. The symposium has been scheduled so that those interested can attend the Goldschmidt meeting in Boston, U.S.A (August 22-27), after GES-5 in Iceland.

Past meetings of the Working Group have been held in Granada, Spain (1986), Aix-en Provence, France (1990), University Park, Pennsylvania, USA (1993), and Ilkley, Yorkshire, England (1996).

If you are interested in receiving the Second Circular please contact: Sigurdur Reynir Gislason at < ges5@raunvis.hi.is >. Additional information is available at the Symposium Web-site: < <http://www.raunvis.hi.is/ges5.html> >. The Abstract deadline was February 15 and the deadline for early registration is May 15.

### **Symposium Themes**

1. Geochemical record of terrestrial environmental change
2. Human geochemical impact on the terrestrial environment, local to global

3. Environmental geochemistry and health
4. Chemical weathering and climate, river catchment studies
5. Global cycles
6. Organic geochemistry
7. Marine and sedimentary geochemistry
8. Chemistry, physics and mineralogy of weathering processes
9. Geochemical thermodynamics and kinetics
10. Geochemistry of crustal fluids
11. Geochemistry of catastrophic events

#### Scientific Contributions to GES-5

The main mode of contribution to the Technical Sessions will be by Posters. The Organizing Committee has invited keynote speakers on each of the themes. These contributions will act as the foci for the poster sessions which will be held in the afternoons.

The invited speakers include:

O. Arnalds (Reykjavik)  
 S. Arnorsson (Reykjavik)  
 J. F. Banfield (Madison)  
 R. A. Berner (Yale)  
 S. L. Brantley (Penn. State)  
 T. E. Cerling (Salt Lake City)  
 J. Gaillardet (Paris)  
 J. I. Hedges (Seattle)  
 B. F. Jones (Reston)  
 L. R. Kump (Penn. State)  
 F. T. Mackenzie (Hawaii)  
 D. Nahon (Aix-Marseille)  
 D.K. Nordstrom (Denver)  
 E. Oelkers (Toulouse)  
 K.V. Ragnarsdottir (Bristol)  
 R. Raiswell (Leeds)

J. Schott (Toulouse)  
 E. Shock (St. Louis)  
 G. E. Sigvaldason (Reykjavik)  
 A. E. Sveinbjornsdottir (Reykjavik)  
 A. F. White (Menlo Park)

#### Activities of the WG on Thermodynamics of Natural Processes, Professor Dr. German Kolonin, Chair.

During 1998, the Institute of Mineralogy and Petrology in Novosibirsk, Russia, sponsored several significant scientific lectures:

**Professor Zhang Ronghua**, Head of the Open Research Laboratory of Geochemical Kinetics, Chinese Academy of Geological Sciences, Beijing, China, presented two lectures on: **Kinetics of Reactions in Hydrothermal Flow Systems at Elevated Temperature and Pressure.**

**Dr. Vladimir Tauson**, Head of Experimental Geochemistry, Vinogradov Institute of Geochemistry, Siberian Branch of the Russian Academy of Sciences, Irkutsk: **Identification of Microimpurities and Limits to their Incorporation in Minerals.**

#### Reminder

**Plan to attend the Symposium: Thermal History of Meteorites at the 62nd Annual Meteoritical Society Meeting, July 11-16, 1999, in Johannesburg, South Africa. Convener: Dr. H. Palme, e-mail: <H.Palme@min.uni-koeln.de >.**

**3rd International Symposium on  
Applied Isotope Geochemistry (AIG-3)  
September 21-25, 1999, Orléans,  
France - Hosted by BRGM**

J.P. Girard, President, Organizing Committee

The 3rd International Symposium on Applied Isotope Geochemistry (AIG-3) will be held at the Domaine des Portes de Sologne, Orléans, France, September 21-25, 1999. The conference will be hosted by BRGM. The AIG symposium is intended to bring together researchers from academic institutions and from the industry, who specialize in the application of isotope geochemistry to earth sciences. The primary goal is to promote discussions and exchange of information among scientists on the newest isotope technologies used in applied research.

Participants may submit papers in all aspects of applied isotope geochemistry, including methods, instrumental developments, and applications. The final program will reflect the variety of topics covered by submissions and suggestions from contributors. Contributions in the field of water resources and environmental issues are particularly encouraged and will constitute the general theme of the symposium. The official language of the conference is English. Both oral (15-20 minutes) and poster (0.9 x 2.4 m) presentations will be possible. Poster sessions will not overlap with oral sessions, and to avoid concurrent sessions, the number of oral presentations will be limited.

Tentative Topics:

1. Advances in analytical methods and instrumentation
2. Climate, atmospheric processes, global change
3. Hydrology and hydro-geochemistry
4. Tracing pollutants in the environment
5. Storage of radioactive waste
6. Soils and weathering processes
7. Agriculture and forestry
8. Hydrocarbons, brines and reservoirs
9. Isotope thermometry
10. Isotopic dating

The deadline for abstract submission is APRIL 30, 1999. Include the following information with your abstract: Name, address, and phone/fax numbers of corresponding author. Presentation preference (oral, poster, no preference).

The meeting will be held at :

Domaine des Portes de Sologne  
(Hotel Anchorage)  
Parc de Limère, 45160 Ardon  
ph. : 33 (0)2 38 49 99 99  
fax : 33 (0)2 38 49 99 00

A half-day excursion will include visits of the famous Châteaux of Chambord and Cheverny, located 45-60 minutes South of Orléans. The banquet will take place at the Château of Cheverny in the historical room "Salle de l'Orangerie".

Contact Dr. J.P. Girard at < aig3@brgm.fr > to receive a copy of the Second Circular.



## APPLIED GEOCHEMISTRY

The International Association of Geochemistry and Cosmochemistry sponsors APPLIED GEOCHEMISTRY (AG) and receives an annual royalty payment from Elsevier Science Ltd. based on the income from institutional subscribers. The subscription rate for Individual Members of the IAGC is determined from the actual cost of printing and distributing copies to Members and is negotiated in three-year increments by the Chair of the Publications Committee (See below). The Council of the IAGC, meeting on 8/28/1994 in Edinburgh, adopted the goal of making APPLIED GEOCHEMISTRY the leading journal in Environmental Geochemistry in the broadest sense of that term.

Accordingly, the aims and scope of AG are stated as follows: APPLIED GEOCHEMISTRY is an international journal devoted to the publication of original research papers, rapid research communications, and selected review papers in geochemistry and cosmochemistry which have some practical application to an aspect of human endeavor, such as the preservation of the environment, environmental monitoring, agriculture, health, waste disposal, and the search for resources. Papers in inorganic, organic, and isotope geochemistry are therefore welcome provided they meet the main criterion.

The contents of current and future issues of AG can be viewed on the web at < <http://www.elsevier.nl/locate/apgeochem> >. In addition, AG is featured in "The Earth and Planetary Science Express" issued bimonthly by Elsevier Science Ltd. free of charge to qualified scientists. Anyone who does not receive EPSE, and would like to be included in its distribution, is invited to submit an application to Elsevier Science Ltd. using a special form available from Gunter Faure at < [heath.18@osu.edu](mailto:heath.18@osu.edu) >.

Authors are requested to submit two copies of their manuscripts and figures to the Executive Editor: Dr. Ron Fuge, Institute of Geography and Earth Sciences, University of Wales, Aberystwyth, Ceredigion, Wales SY23 3DB, UK. Publication is contingent upon the recommendation of expert referees. Papers must be written in English.

### Report of the Executive Editor

#### Ron Fuge, Executive Editor

Volume 13 (1998) contains 80 papers of which 65 can be classified as being in the general field of environmental geochemistry. It is pleasing to note that a large percentage of the manuscripts being received are in this field. Indeed, since the editorial in issue 13-1 publicizing the fact that *Applied Geochemistry* should be regarded as a good vehicle of the publication of papers in environmental

geochemistry, several authors have commented that this has encouraged them to submit their manuscripts.

Up to October 21, 1998, 138 manuscripts were received which is more than were submitted during the whole of last year (133). In addition, the manuscripts received this year are all normal journal papers and none have been for special issues or conference proceedings. This represents a very significant increase over all previous years. In addition, I am glad to report that the manuscripts

being received are of good quality and that the rejection rate remains at about 40%. In view of the high flow of manuscripts, the page budget has been increased to 1100 pages for volume 14 (1999).

The flow of revised and approved manuscripts to the printers is excellent and I can report that issue 7 has been printed and that issue 8 with all indexes is ready for the printers. This final issue for the year should be produced by the end of November. There are also enough papers "in house" for the first 6 issues of 1999.

The increased flow of manuscripts has necessitated additions to the Editorial Board with 5 new Associate Editors being appointed this year: Professor Randy Bassett, Dr. Russell Harmon, Dr. Martin Novak, Dr. Clemens Reimann, and Dr. Doug Sheppard. Unfortunately, during the year Dr. Tony Appelo resigned as an Associate Editor, due to a change of job. In addition, Dr. Richard Davy and Dr. Yves Tardy have announced their intention of stepping down as Associate Editors at the end of the year, because both find that their changed circumstances make it difficult to effectively carry out their duties as Associate Editors.

Sadly one of our longest serving Associate Editors, Professor Valentine K. Lukashev passed away on June 8, 1998. Professor Lukashev was an Associate Editor of *Applied Geochemistry* since 1986, the year the journal was first published. In addition, he was a member of the publications committee of the

International Association of Geochemistry and Cosmochemistry since 1991. He was a strong supporter of both the journal and the Association and will be greatly missed.

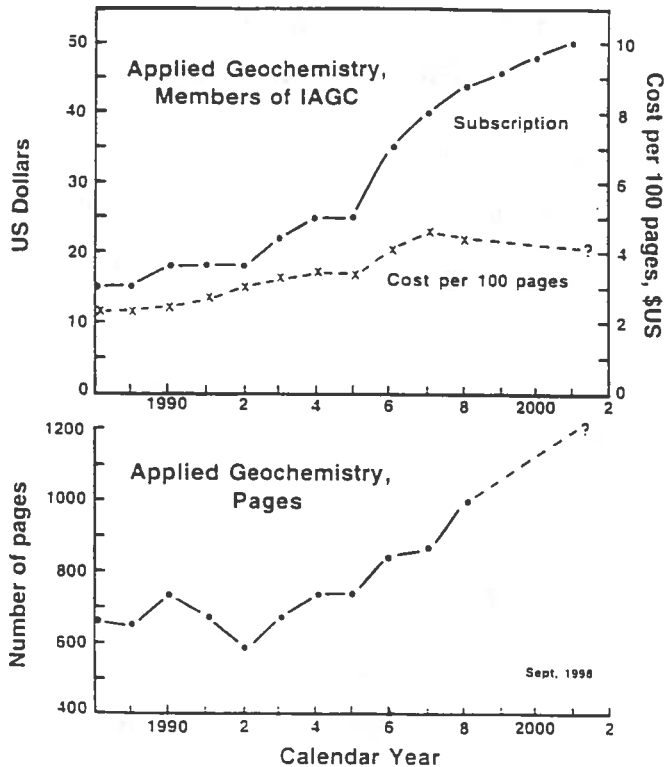
The production of *Applied Geochemistry* has improved in that I have had the same production editor for a year, which is significant development. I also acknowledge that the production editor, Ms. Karen Coldwell, has done very well and is making my job considerably easier.

## **Future Subscription Rates to Members**

### **Gunter Faure**

The Council of IAGC, at its meeting on 10/25/1998 in Toronto, accepted new Member subscription rates for AG as follows: \$46.00 in 1999, \$48.00 in 2000, and \$50.00 in 2001. Students enrolled in degree-granting universities will continue to receive a 25% discount. In addition, Elsevier Science Ltd. has agreed to increase the page budget as necessary to accommodate the growing number of submitted manuscript.

The diagrams below record the recent changes in the Member subscription rate and the concurrent expansion of the page budget of AG. The relation of the subscription rate to the page budget in the next three-year period will cause the cost per 100 pages to stabilize at about \$4.00. In view of the present growth of AG and its increasing importance to the scientific community, a subscription to AG is indeed a "good deal."



## New Leadership for the Publication Committee

After negotiating the AG subscription rate for the present three-year period (1999-2001), Gunter Faure resigned his position as Chair of the Publications Committee and recommended to Council at the meeting on October 25, 1998, that Dr. Russell S. Harmon be appointed to replace him. The Council accepted the nomination and confirmed the appointment of Dr. Harmon to be Chair of the Publications Committee.

Dr. Harmon, acting as the newly appointed Chair of the Publications Committee, nominated Jochen Hoefs and Gunter Faure to be members of the Committee. Therefore, pending confirmation by the

Council of IAGC, the Publications Committee will be constituted as follows:

R.S. Harmon, Chair; G. Åberg, G. Faure, and J. Hoefs, Members; R. Fuge, ex-officio Member.

### Reminder

Plan to attend the IAGC Theme Session: Sources, Transport, Fate, and Toxicology of Trace Metals in the Environment. October 25-29, 1999, in Denver, Colorado during the Annual Meeting of the GSA.

## Gratis Subscriptions to AG for Qualifying Developing Countries.

The IAGC in cooperation with Elsevier Science Ltd. is offering ten free subscriptions to AG for developing countries that meet the following qualifications:

1. The IAGC will purchase a Member subscription to AG for a designated individual in a developing nation.
2. The designated individual will be a person who occupies an important position such as: a Professor of Geology at a university, the Chief Geologist of the Geological Survey, The Director of a Geochemical Research Institute, etc.
3. The copies of AG received by the designated individual are to be shelved in an institutional library where other geochemists in the nation have access to them.

4. The subscription will be reviewed by the Council of IAGC after three years and may be renewed for another three-year term for a total of six years.
5. The subscription to AG will be canceled after six years, unless the institutional library enters its own subscription at the institutional rate applicable at that time.
6. The total number of gratis subscriptions of this kind is limited to ten at any given time.
7. Nations that are not members of the IAGC, or have not paid their dues to the IAGC, or are not deemed to be "developing" by the Council of the IAGC are not eligible to participate in this program.

Individuals in developing nations that are members of the IAGC should contact Gunter Faure to apply for participation in this program (e-mail: < heath.18@osu.edu >). He will consult with the Officers of the IAGC and will arrange for each case to be evaluated. Once the program is set up, Dr. Mel Gascoyne will transfer the necessary funds to Elsevier on an annual basis and will supervise the continued implementation of this project.

### Reminder

Plan to attend the Ninth Annual Goldschmidt Conference, August 22-27, 1999 at Harvard University, Cambridge, Massachusetts. Convener: Dr. S.B. Jacobsen, e-mail: < goldschmidt@eps.harvard.edu >.

## Gratis Subscription to AG for Individual Members

An Individual Member of the IAGC who convinces an institutional library to start a new subscription to AG (\$584.00 US per year) will receive a free Member subscription to AG for one year. Please contact Gunter Faure to initiate the process (e-mail: < heath.18@osu.edu >).

### Invoicing by Elsevier

The Fulfillment Department of Elsevier routinely sends out three or more invoices to our Members without waiting to find out who has already paid. Therefore, please do not be alarmed that perhaps your payment was not received. In North America, the payments are collected by an agency in Philadelphia which transfers the accumulated funds to the Elsevier office in Oxford, UK. Therefore, the Fulfillment Department does not know until later in the year who has paid IAGC dues and renewed the subscription to AG. In case of trouble, please contact Mel Gascoyne at < gascoyne@granite.mb.ca >.

### Reminder

Plan to participate in the Third International Symposium on Applied Isotope Geochemistry: September 21-25, 1999, in Orléans, France. Convener: Dr. J.-P. Girard, e-mail: < aig3@brgm.fr >.

## Officers of the IAGC

### President, Gunter Faure

Department of Geological Sciences  
The Ohio State University  
125 South Oval Mall  
Columbus, Ohio USA 43210  
Tel: 1-614-292-3454  
Fax: 1-614-292-7688  
e-mail: heath.18@osu.edu

### Vice President, Eric M. Galimov

Director, Vernadsky Institute of  
Geochemistry and Analytical Chemistry  
Russian Academy of Sciences  
Kosygin st 19  
Moscow 117975, GSP-1  
Fax: 7-095-9382054  
e-mail: galimov@geokhi.msk.su

### Secretary, Mel Gascoyne

Gascoyne GeoProjects Inc.  
6 Tupper Place, Box 141  
Pinawa, Manitoba  
Canada ROE 1LO  
Tel: 1-204-753-8879  
Fax: 1-204-753-2292  
e-mail: gascoyne@granite.mb.ca

### Treasurer, David T. Long

Department of Geological Sciences  
Michigan State University  
East Lansing, Michigan, USA 48824  
Fax: 1-517-353-8787  
e-mail: long@pilot.msu.edu

### Past President, Hitoshi Sakai

1-4-7-1508, Seishin-Cho  
Edogawa-Ku  
Tokyo 131, Japan  
Fax: 81-3-5676-8183  
e-mail: fb8h-ski@asahi-net.or.jp

### Executive Editor of Applied Geochemistry,

#### Ron Fuge

Institute of Earth Studies  
University of Wales

Aberystwyth SY23 3DB  
Wales, U.K.

Tel: 44(0)1970 622642  
Fax: 44(0)1970 622659  
e-mail: rrf@aber.ac.uk

### Chair, Publications Committee, Russell S. Harmon

Engineering Sciences Directorate  
Engineering and Environmental Sciences Division  
U.S. Army Research Office  
P.O. Box 12211  
Research Triangle Park, North Carolina  
USA 27709-2211  
Tel: 1-929-549-4326  
Fax: 1-919-549-4310  
e-mail: harmon@aro-emh1.army.mil

### Newsletter Editor, Gunter Faure

Department of Geological Sciences  
The Ohio State University  
125 South Oval Mall  
Columbus, Ohio USA 43210  
Tel: 1-614-292-3454  
Fax: 1-614-292-7866  
e-mail: heath.18@osu.edu

## Council of the I A G C

### John J. Gurney

University of Cape Town  
Private Bag  
Rondebosch  
7700 Cape Town  
South Africa  
Fax: 27-21-531-9887  
e-mail: john.gurney@minserv.co.za

### Russell S. Harmon

U.S. Army Research office  
P.O. Box 11221  
Research Triangle Park  
North Carolina, USA 27709  
Fax: 1-919-549-4310  
e-mail: harmon@aro-emh1.army.mil

**Jochen Hoefs**

Geochemisches Institut der Universitaet  
Goettingen  
Goldschmidtstrasse 1  
D-37077 Goettingen  
Fax: 49-551-39-3982  
e-mail: jhoefs@popper.gwdg.de

**Petr Jakes**

Department of Economic Geology  
Charles University  
Albertov 6  
128 43 Prague 2, Czechoslovakia  
Fax: 42-2-296084  
e-mail: jakes@prfdec.natur.cuni.cz

**Gero Kurat**

Mineralogisch-Petrographische Abteilung  
Naturhistorisches Museum  
Burgring 7  
A - 1014 Wien  
Austria  
Fax: 43-1-52177264  
e-mail: gero.kurat@univie.ac.at

**Marc Javoy**

Institut de Physique du Globe  
Universite Paris 7  
Laboratoire de Geochimie des Isotopes  
Stables  
Tour 54-64, IEG Etage  
2, Place Jussieu  
F-75251 Paris Cedex 05  
France  
Fax: 33-1-44272830  
e-mail: mja@ccr.jussieu.fr

**Malcolm McCulloch**

The Australian National University  
Research School of Earth Sciences  
GPO Box 4  
Canberra, ACT 2601, Australia  
Fax: 61-62-490738  
e-mail: malcolm.mcculloch@anu.edu.au

**N.V. Sobolev**

United institute of Geology,  
Geophysics and Mineralogy

## Russian Academy of Sciences

Siberian Branch  
630090 Novosibirsk  
Russia  
Fax: 7-3832-352692  
e-mail: sobolev@uiggm.nsc.ru

**K.V. Subbarao**

Department of Earth Sciences  
Indian Institute of Technology  
Powai, Mumbai 400 076  
India  
Fax: 91-22-578-3480  
e-mail: subbu@zircon.geos.iith.ernet.in

**Yishan Zeng**

Department of Geology  
Peking University  
Beijing 100871  
The People's Republic of China  
Fax: 86-010-62564095  
e-mail: gwang@geoms.geo.pku.edu.cn

**Ron Fuge**

Executive Editor  
Applied Geochemistry is a voting member  
of the Council