Newsletter

of the

International Association of GeoChemistry

Number 58, June 2013

*** Issue Highlights ***

- New IAGC Vice President Ian Cartwright
- New Council Members
- PhD Student Awards for 2013
- Report from Editor, Applied Geochemistry
- News from Elsevier
- Charitable Giving to IAGC
- Water-Rock Interaction 14
- GSA 2013

Number 58, June 2013

* * * * * *

LETTER FROM THE PRESIDENT

As I write this message, there are a number of meetings sponsored by IAGC on the horizon. I, for one, am preparing my talk for the upcoming 14th International Symposium on Water-rock Interaction in June in Avignon, France. Forty years ago, WRI-1 convened in Prague, so the 14th meeting represents an important anniversary. There are a number of IAGC members who have attended all the WRI congresses. My first WRI was in 1992 for WRI-7 in Park City, Utah, USA, and I've only missed one since then. As with all the Working Groups, WRI has become a sort of family for me, and I always look forward to seeing long-time colleagues and catching up on their work. My best advice to student and young professional members is to attend as many of the working group meetings as may be practical for your interests and expertise, and stay active in them. The relatively small size (usually 500 people or less) always facilitates excellent interactions among colleagues.

Also this year, the 10th Applied Isotope Geochemistry working group meeting will convene in Budapest in September. Budapest is one of the most beautiful cities in Europe, and I am sure this meeting will be a fantastic success.

Other meeting news - the Geological Society of America will convene its 125th Annual meeting this October in my hometown of Denver Colorado. IAGC is an affiliated society of GSA, and we are co-sponsoring a number of technical sessions in that meeting- those are listed elsewhere in this newsletter.

Numerous international projects have been spawned at the working group meetings, and I hope all of you are as fortunate as I have been to be involved in those kinds of projects. International scientific collaboration has immense value for us as individuals, but also for our continuing advancements in geochemistry. As geochemists, the world

is our laboratory, but as citizens of different countries and products of diverse cultures, we bring different perspectives and approaches to research, and we all have much to learn from each other.

I hope to see many of you at the working group meetings or at GSA.

Rich

rwanty@usgs.gov

* * * * * *

ASSOCIATION NEWS

\+ + + + +

New IAGC Vice - President Ian Cartwright

Ian Cartwright is a professor of geology at Monash University in Melbourne Australia. He completed his PhD is Geology in 1986 at the University of Wales, UK under the supervision of IAGC member Ron Fuge. He then spent a postdoctoral fellowship at Madison-Wisconsin, USA, before moving to Monash in 1990. Although his early research was in geology, for much of the last 15 years he has be mainly involved in applying geochemical tracers, especially stable and radiogenic isotopes, to understanding hydrogeological and other environmental processes. Ian's current research involves understanding groundwater-surface water interaction, groundwater residence times, dryland salinity, sustainable use of water resources, and changes in hydrological systems with climate change. Most of Ian's studies are in based in Australia but have also extended to other regions, particularly northern China. He is part of the Australian Research Council's National Centre for Groundwater Research and Training and regularly collaborates with scientists from government agencies, academia, and industry. Ian has published over 120 peer-reviewed papers and over 200 abstracts and is a regular invited presenter at conferences.

* * * * * *

New Council Leadership

Beginning in 2013, we're happy to welcome our working group chairs as voting IAGC council members. These new council members include Halldor Armannsson (Water - Rock Interaction), Steven Banwart (Geochemistry of the Earth's Surface), Neus Otero (Applied Isotope Geochemistry), and Martin Novak (Biogeochemistry). This brings the total number of voting council members to 9, plus a replacement for new Vice-President Ian Cartwright yet to be named. See the end of this newsletter for a complete list of IAGC officers, council members, and working group leaders.

* * * * * *

Halldor Armannsson
Iceland Geological Survey
(Water-Rock Interaction Working Group)

Halldór Ármannsson is an environmental scientist and is Chief Geochemist of the Iceland Geologic Survey. Halldór has long been involved in geochemistry of geothermal systems through reconnaissance and exploration studies in Iceland, Burundi, Kenya, and Uganda; the management of geochemical and environmental studies at Krafla, Theistareykir, Námafjall, Reykjanes and Grændalurin in Iceland; and in production problems at Krafla, Reykjanes, and Leirá in Iceland; Assal in Djibouti; Milos and Nisyros, in Greece; and Kizildere in Turkey.

He worked in the United Nations University Geothermal Programme from 1983-1985 and again in 1988 and participated in International Atomic Energy Agency missions and courses in Uganda, Indonesia, Panama, Mexico, Kenya and Tanzania from 2001-2011. Halldor holds a BSc from the University of Wales and a PhD from University, Southampton 1978. He is an Adjunct Professor at the University of Iceland, has been an Associate Editor Applied Geochemistry since 1992, and been a member of the Executive Committee of the IAGC Water-Rock Interaction Working Group since 1986.

+ + + + +

Steven Banwart
University of Sheffield
(Geochemistry of the Earth's Surface Working Group)

Prof Steven Banwart is an international leader in the study of reactive processes in soil and groundwater. He leads the Sheffield University Cell-Mineral Research Centre across 6 departments, leads the SCOPE international Rapid Assessment Process project on Benefits of Soil Carbon, is Principal Investigator of the European Commission FP7 Large Integrating Project Soil Transformations in European Catchments, is co-PI on the UK Engineering and Physical Sciences Research Council (EPSRC) Programme Grant on Mineral-Bio Interfaces, and led the recently completed UK Natural Environment Research Council (NERC) Large Grant on Biological Weathering from Nanometre to Soil Profile Scale. He chairs the steering committee of the NERC Facility for Environmental Nanomaterials Analysis and Characterisation.

+ + + + +

Neus Otero
University of Barcelona
(Applied Isotopic Geochemistry)

Neus is an Associate Professor in the Department of Cristallografia, Mineralogia i Dipòsits Minerals, of the Universitat de Barcelona and coordinator of the environmental projects of the Mineralogia Aplicada i Medi Ambient Research Group. She received a PhD from the University of Barcelona in 2004. Her research interests are focused on the use of isotopic tools to evaluate the fate of contaminants in the environment, with a special focus on natural and induced attenuation of groundwater pollution.

+ + + + +

Martin Novak
Czech Geological Survey
(Biogeochemistry)

Martin Novak is an isotope biogeochemist, who uses traditional and non-traditional isotopes in environmental studies. Martin studies linkages between carbon, nitrogen and sulfur cycling in the soils of forest-decline areas, and the dispersion of lead and arsenic in ecosystems. He looks into the effect of climate warming on carbon storage in wetlands. His research interests include the use of vertical peat profiles and tree rings as archives of past changes in pollution. He uses natural-abundance, man-made, and cosmogenic isotopes in his studies.

Martin is the Head of the Department of Environmental Geochemistry and Biogeochemistry of the Czech Geological Survey in Prague.

* * * * * *

PhD Student Research Grant Winners Announced

IAGC is pleased to announce the recipients of the 2013 IAGC-Elsevier Student Research Grants. This year we

had, as usual, many strong research proposals from 24 students from around the world. Thanks to Ian Cartwright and the Awards Committee, the proposals were ranked and four were chosen for funding. This is a particularly difficult decision to make, but IAGC is happy to help these four excellent students, and grateful to Elsevier for providing much of the funding used to make the awards. Congratulations to our grantees! We wish all the students the best of luck as they complete their studies, and look forward to welcoming all of you into the research community!

This year's recipients are:

Mark Torres *(University of Southern California, USA)*

Mark will receive $2000 for his research project "Identifying the Mechanisms and Limitations to the Microbial Enhancement of Olivine Dissolution".

Mark Torres received his bachelor's degree in Geology from the Claremont Colleges in 2010. Currently, he is a PhD candidate in Geochemistry at the University of Southern California working with Dr. Joshua West. Broadly, Mark's research focuses on the kinetics of mineral dissolution reactions and their impacts on global biogeochemical cycles. Of particular interest to Mark is how different microbial metabolisms affect the rates of silicate mineral dissolution and sulfide mineral oxidation in both natural and engineered settings. To address these sorts of questions across a range of spatial and temporal scales, he utilizes both traditional and novel geochemical tools in laboratory, field, and modeling studies.

+ + + + +

William Haskell *(University of Southern California, USA)*

William will receive $1500 for his research project entitled "Use of Triple Oxygen Isotopes and O_2/Ar to constrain Net / Gross Oxygen Production During Coastal Upwelling".

William completed a B.S. degree in Marine Science and Chemistry from the University of Miami (RSMAS) in 2009. He began his geochemical career making high-resolution measurements of radon gas in a groundwater well in Iceland to understand the relationship between strain in the earth's crust and groundwater/rock interaction. He completed a M.S. under Doug Hammond at the University of Southern California in 2011, studying the export of organic carbon from the surface ocean ecosystem to the deep sea in the Eastern Tropical South Pacific. His current interests center around the biogeochemical cycling of nutrients through surface ocean ecosystems. His PhD project aims to test whether the timing or magnitude of nutrient input from upwelling events affect the efficiency of the surface ocean ecosystem in the Southern California Bight to export organic nutrients to the sea floor.

+ + + + +

Chiara Borelli *(Rensselaer Polytechnic Institute, USA)*

Chiara will recieve $1500 for her research project entitled “B/Ca as an Ocean pH Proxy: A new calibration study using cultured benthic foraminifera and synthetic calcite”.

Chiara earned her B.S. and M.S. in Marine Biology at the Polytechnic University of Marche (Ancona, Italy), where she studied foraminifera from a biological point of view. As a PhD student at RPI, she has had the chance to broaden her approach to foraminifera into a geological point of view. For the first two years, she worked on ODP samples generating stable isotope records using fossil benthic foraminifera to reconstruct the ocean circulation during the middle and late Eocene greenhouse--icehouse transition. For the last project of her PhD, she is working to the calibration of B/Ca as proxy to reconstruct past ocean chemistry. To calibrate B/Ca, she is culturing benthic foraminifera and growing inorganic calcite in the laboratory to study boron uptake as function of pH, temperature, and water chemistry.

\+ + + + +

Pieter Aukes *(University of Waterloo, Canada)*

Pieter will receive $1000 for his research project entitled: “Use of LC-OCD Analysis to Characterize Dissolved Organic Matter Released from Permafrost and its Effect upon Water Quality”.

Pieter studied hydrogeology and geochemistry during his undergraduate studies in Environmental Sciences at the University of Calgary, where his honours project focused upon alpine hydrology. He recently completed his MSc in aqueous geochemistry at the University of Waterloo, which examined the characterization of dissolved organic matter (DOM) among different surface and ground water environments in order to better understand differences in DOM quality and lability. Pieter is continuing with his PhD at the University of Waterloo with Dr. Sherry Schiff and the Environmental Geochemistry Research Group. He hopes to better understand the biogeochemical response of DOM to climate change in northern areas, with a focus on drinking water quality for northern communities. Outside of academics, Pieter also has a strong passion for the environment and mountaineering.

* * * * * *

SCIENTIFIC NEWS

DUKE UNIVERSITY NEWS
Duke University Office of News & Communications

http://www.dukenews.duke.edu

+ + + + +

FOR IMMEDIATE RELEASE:

May 15, 2013

NO EVIDENCE OF GROUNDWATER CONTAMINATION FOUND FROM SHALE GAS PRODUCTION IN ARKANSAS

"Geochemical and Isotopic Variations in Shallow Groundwater in Areas of the Fayetteville Shale Development, North-Central Arkansas"

Authors: Nathaniel R. Warner, Timothy M. Kresse, Phillip D. Hays, Adrian Down, Jonathan D. Karr, Robert B. Jackson, Avner Vengosh

Published: May 15, 2013, in *Applied Geochemistry*

Hydrofracking drilling site in Arkansas

DURHAM, NC – A new study by scientists at Duke University and the U.S. Geological Survey (USGS) finds no evidence of groundwater contamination from shale gas production in Arkansas.

"Our results show no discernible impairment of groundwater quality in areas associated with natural gas drilling and hydraulic fracturing in this region," said Avner Vengosh, professor of geochemistry and water quality at Duke's Nicholas School of the Environment.

The scientists sampled 127 shallow drinking water wells in areas overlying Fayetteville Shale gas production in north-central Arkansas. They analyzed the samples for major and trace elements and hydrocarbons, and used isotopic tracers to identify the sources of possible contaminants. They then compared the chemical composition of the contaminants to those found in water and gas samples from nearby shale gas drilling sites.

"Only a fraction of the groundwater samples we collected contained dissolved methane, mostly in low concentrations, and the isotopic fingerprint of the carbon in the methane in our samples was different from the carbon in deep shale gas in all but two cases," Vengosh said. This indicates that the methane was produced primarily by biological activity in the region's shallow aquifers and not from shale gas contamination, he explained.

"These findings demonstrate that shale gas development, at least in this area, has been done without negatively impacting drinking water resources," said Nathaniel R. Warner, a PhD student at Duke who was lead author of the study.

Robert Jackson, a professor of environmental sciences at Duke, added, "Overall, homeowners typically had good

water quality, regardless of whether they were near shale gas development."

Vengosh, Warner, Jackson and their colleagues published their peer-reviewed findings today in the online edition of the journal *Applied Geochemistry*.

Hydraulic fracturing, also called hydrofracking or fracking, involves pumping water, sand and chemicals deep underground into horizontal gas wells at high pressure to crack open hydrocarbon-rich shale and extract natural gas. Accelerated shale gas drilling and hydrofracking in recent years has fueled concerns about water contamination by methane, fracking fluids and wastewater from the operations.

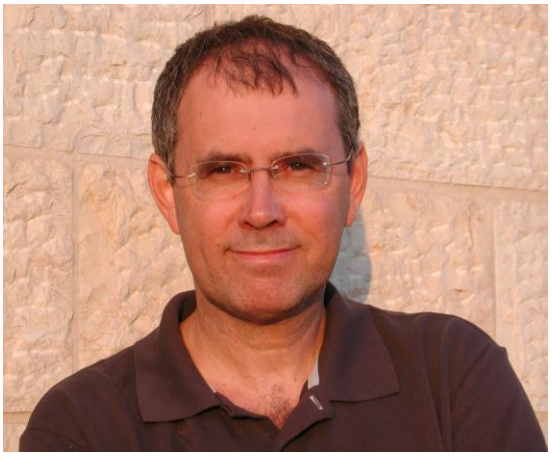
Previous peer-reviewed studies by Duke scientists found direct evidence of methane contamination in drinking water wells near shale-gas drilling sites in the Marcellus Shale basin of northeastern Pennsylvania, as well as possible connectivity between deep brines and shallow aquifers, but no evidence of contamination from fracking fluids.

"The hydrogeology of Arkansas's Fayetteville Shale basin is very different from Pennsylvania's Marcellus Shale," Vengosh noted. Far from contradicting the earlier studies, the Arkansas study "suggests that variations in local and regional geology play major roles in determining the possible risk of groundwater impacts from shale gas development. As such, they must be taken into consideration before drilling begins."

Human factors – such as the drilling techniques used and the integrity of the wellbores – also likely play a role in preventing, or allowing, gas leakage from drilling sites to shallow aquifers, Vengosh noted.

"The take-home message is that regardless of the location, systematic monitoring of geochemical and isotopic tracers is necessary for assessing possible groundwater contamination," he stressed. "Our findings in Arkansas are important, but we are still only beginning to evaluate and understand the environmental risks of shale gas development. Much more research is needed."

Vengosh, Warner and Jackson's coauthors on the new study were Timothy M. Kresse and Phillip D. Hays of the USGS, and Adrian Down and Jonathan D. Karr of Duke.



Avner Vengosh, Duke University

Funding for the study was provided by Duke's Nicholas School of the Environment and the Duke Center on Global Change. Field sampling activities were funded by Shirley Community Development Corporation; Faulkner County, Arkansas; the University of Arkansas; the Arkansas Water Resource Center; and the USGS Arkansas Water Science Center.

* * * * * *

NEWS FROM ELSEVIER

Applied Geochemistry News

In this spring edition of the IAGC Newsletter, we would like to share with you the latest tools and initiatives we are implementing at *Applied Geochemistry* with a focus on authors.

I have picked out 3 areas to showcase here, namely:

- how we are making it easier for authors to obtain and visualise key Journal metrics;
- the new innovations we are introducing to help authors to present themselves and their work more professionally and in all its richness and complexity; and
- the Open Access options that are available with *Applied Geochemistry*

I would also like to inform you that as Publisher for *Applied Geochemistry* I will be in attendance at WRI-14, Avignon, from Tuesday 11 June onwards and I am looking forward to seeing as many of you as possible there. I will be on hand to listen to your feedback about the journal (and this news update), answer any questions you may have, as well as hear your ideas for further developing the journal. In addition, I will be hosting a workshop for early-career authors on writing a scientific paper and getting it successfully published in a top journal such as *Applied Geochemistry*. This will take place from 1-2pm Thursday 13 June, so if you are a Masters/PhD student, or early post-Doc either considering, or in the process of, writing one of your first few papers, and are available at this time, please email me (k.eve@elsevier.com) to register interest in attending.

I hope you enjoy reading about these latest developments and please don't hesitate to get in touch with any questions or feedback you may have.

\+ + + + +

Journal Insights – A new tool visualising metrics for *Applied Geochemistry*

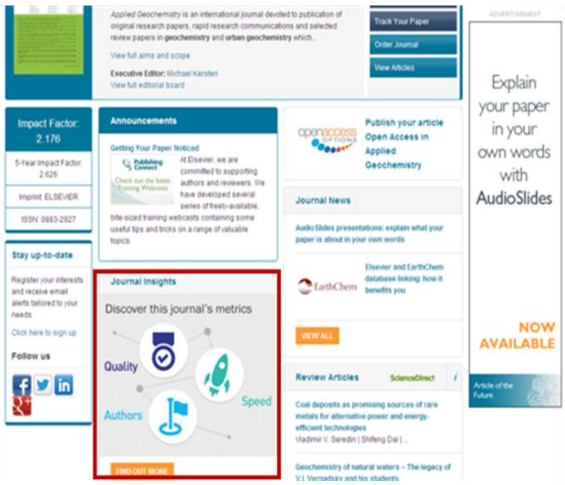
We know that authors can struggle to find the best home for their research and that they desire more clarity around journal performance. We have therefore developed the Journal Insights tool* which the eagle eyed amongst you may have already noticed displayed as a new pod on the *Applied Geochemistry* homepage. This tool aims to provide authors with more insight and transparency.

Authors viewing the tool are presented with data visualizations covering three key groups of metrics: quality, speed and authors.

Please see Issue 38 of the Editor's Update, March 2013 for more information. As you will read, this is being piloted on a small selection of journals and *Applied Geochemistr**y*** is the first journal in the Earth Sciences group to roll this out – we are therefore extremely grateful for any feedback you may have.

* For best functionality view in IE9 browsers and above, Mozilla Firefox or Chrome.

Building on our content innovation at Applied Geochemistry – introducing AudioSlides



+ + + + +

In previous editions we have spoken to you about our content innovation developments in Earth Sciences, and in particular for *Applied Geochemistry* which form part of our Article of the Future project. These include support for multimedia (audio, video, movie) content, reciprocal database linking agreements with databases such as EarthChem and PANGAEA, and domain specific applications such as interactive GoogleMaps (see an example here) . Now we would like to introduce a new initiative: AudioSlides, which are short, webcast-style presentations that are displayed next to the online article on ScienceDirect. The AudioSlides functionality enables authors to add a personal message to their paper and explain their research in their own words thereby making it easier for readers to understand what a paper is about, and to appreciate why it may be relevant for their own research.

To help authors create AudioSlides presentations, Elsevier has developed an easy-to-use, web-based tool. Authors can log in at any time to upload slides, and record a voice-over per slide. The tool works with all modern browsers, so only a computer, internet connection, and a microphone are required. AudioSlides is offered as a complimentary service for authors and the presentations are made freely available on ScienceDirect.

For more information, please visit the AudioSlides homepage, read this article in Editors' Update, or view this AudioSlide presentation published in the journal *Current Opinion in Environmental Sustainability*.

+ + + + +

Open Access options at *Applied Geochemistry*

With the changes in the UK whereby Research Council UK (RCUK) has mandated that all research funded by RCUK must be made available through Gold Open Access, and similar changes afoot elsewhere, we wanted to outline the range of Open Access publication options we have available for *Applied Geochemistry* authors.

Applied Geochemistry is what is known as a hybrid journal, with Open Access and subscription models working alongside each other. This means that authors of papers on *Applied Geochemistry* can choose what works best for them:

- Open Access – The author pays an Open Access Publication Charge on acceptance of their paper. Their paper is then published under the Gold Open Access model meaning their article will immediately and permanently be made freely available upon publication to both subscribers and the wider public with permitted reuse as defined by the Creative Commons license selected by the author. The Open Access Publication Charge for *Applied Geochemistry* is

currently at US$3,300. We will continue to review this price regularly and in response to customer feedback.

- Subscription – The author is not charged any fees for publication. Their article is made available to subscribers as well as developing countries and patient groups through our Research4Life access programs. Under the subscription model you still benefit from Elsevier's retained author rights and liberal copyright policies, including the right to post the Author Accepted Manuscript at preprint servers and institutional repositories.

By providing both options we hope to give all our authors flexibility to meet their own needs and to comply with any mandates imposed by their funding agencies.

Katherine Eve,
Publisher
Applied Geochemistry,
Elsevier Limited
k.eve@elsevier.com

* * * * * *

Charitable Giving to IAGC

Members can now make a charitable gift to IAGC, either for general fund support or for special initiatives during online membership renewal. You may also donate at any time online (see below).

US members may deduct their contributions to the IAGC on their federal income taxes. One IGAC initiative for which additional income is required is the **IAGC Y. K. Kharaka Award.** This award will be bestowed annually on 3 deserving scientists from developing countries and will consist of a framed certificate plus an IAGC membership and *Applied Geochemistry* subscription for a term of three years. However the IAGC Board has decided that the initiation of the award would be delayed until a fund of $5000 was raised and invested to create a sustainable situation. Thus, donations are particularly sought so that this award can be implemented without undue delay.

As the Newsletter goes to press, there is just about $2300 in the Kharaka Award Fund. This means that only another $2700 is needed. So, if 60 Members were each to make a charitable gift of $50 right now through the IAGC web site (www.iagc-society.org/donate.html) this fund raising goal will be realized.

IAGC is a 501(c)3 non-profit organization and donations to the Society are tax-deductible in the U.S. (EIN: 48-0943367).

\+ + + + +

We would like to acknowledge the following generous members who made a donation while renewing their dues for 2013:

Gwendolyn Macpherson
Stuart Simmons
Russell Harmon
Bret Leslie
Fred Mackenzie
Rich Wanty
Katherine Day
Berry Lyons
Dirk Kirste
Patrice de Caritat
Dave Long
Iñaki Vadillo-Perez
Radomir Petrovich
Anne Carey
Carl Bern
Harue Nakaya

Alan Shiller
David Naftz
Abdulqadir Abdurrahman
Colin Dunn
Teodora Szocs
Janet Herman
Rona Donahoe
Suzanne Anderson
Rafael Cavalcanti
William Walker
Tony Jong
Kirk Nordstrom
Adriana Rossi
Oluyinka Oyewumi

THANK YOU !!!

* * * * * *

MEETINGS IN 2013

\+ \+ \+ \+

Water-Rock Interaction XIV

Avignon, France
9-14 June 2013
http://www.wri14-2013.fr

A. Fundamentals of Water-Rock Interactions
- Thermodynamics and kinetics
- Migration and transport phenomena in fractured and porous rocks
- Mineral surfaces, water – mineral or glass interfacial processes
- Biogeochemical water-rock interactions
- Water-gas-rock interactions
- Developments in the measurement and application of stable and radiogenic isotopes
- Experimental design for laboratory and field investigations
- Role of water in fault behavior and deformation
- Modeling of water – mineral or rock interactions
- Aquatic chemistry of actinides and fission products

B. Specific Environments
- Water in petrogenesis and magmatic processes
- Deep fluids and geothermal systems
- Pore water chemistry in sediments and sedimentary basin evolution
- Weathering of rocks and soil formation
- Interactions in the vadose zone and soils
- High salinity continental fluids
- Ore deposits and ore forming processes
- Petroleum and oil field genesis

Volcanic fluid interaction with rocks
Water-rock interaction in arid and semi-arid climates
- Extraterrestrial water-rock interaction

C. Applications and Environmental Hazards
- Water resources and groundwater quality
- Exploration of geothermal resources
- Geological sequestration of CO2
- Oil and gas shale exploitation
- Mine tailings, acid mine drainage, remediation
- Radioactive and toxic waste: geological disposal and storage, alteration of matrices
- Risk assessment and remediation of brownfields and contaminated sites
- Transport and fate of contaminants in shallow and deep contexts
- Water rock interaction and health

\+ \+ \+ \+ \+

Applied Isotope Geochemistry-10

Budapest, Hungary
22-27 September 2013

The biennial conference of the IAGC Working Group on Applied Isotope Geochemistry will be held in Budapest, Hungary from 22-17 September 2013. The main aim of the AIG meetings is to provide a forum where a wide range of applications of isotope analyses in geosciences and related fields are presented. The techniques cover the whole range of isotope analyses from light element stable isotope ratios to dating used in paleoclimate studies. In the following the main themes are given that are traditionally included in AIG scientific programs or have been identified as hot topics of recent years. Session proposals should mainly focus on the framework of the main themes,

however, sessions dealing with additional fields are also welcome.

For more information please see:

http://www.aig10.com

+ + + + +

Goldschmidt Conference 2013

Florence, Italy

25-30 August 2013

Technical Session Themes:

- 02: Cosmochemistry & Planet Formation
- 03: Early Earth
- 04: Deep Earth
- 05: Mantle Geochemistry
- 06: Continental Crust
- 07: Subduction
- 08: Melts, glasses, magmas: From properties to processes
- 09: Evolution of Earth's Environment
- 10: Interfaces from the nano to macro scale
- 11: Volcanoes and Hazards
- 12: Earth Resources: Energy
- 13: Ores: Their Construction, Destruction and Politics
- 14: Climate Change
- 15: Atmospheric aerosol in air quality and climate: the science and solutions
- 16: Weathering, Climate, Tectonics and Surface Processes
- 17: Oceans and Atmosphere
- 18: Anthropogenic Impacts on Pollutant Dynamics
- 19: Biogeochemistry: Activities, mechanisms and cycles
- 20: Frontiers in Analytical Techniques
- 21: Frontiers in Computational Geochemistry
- 22: The Cutting Edge in Mineralogy and Mineral Physics
- 23: Hydrogeochemistry

For more information please see:
http://goldschmidt.info/2013/

+ + + + +

14th International Conference on the Chemistry and Migration Behaviour of Actinides and Fission Products in the Geosphere

September 8th -13th 2013

Brighton, UK

The Migration conferences provide an international forum for the timely exchange of scientific information on chemical processes controlling the migration behaviour of actinides and fission products in natural aquifer systems. Experimental investigations and predictive modelling of these processes are the main topics of the conferences. The information generated from the Migration conferences is the basis for the mechanistic understanding of the migration behaviour of long-lived radionuclides in the geosphere, which is essential for the long-term performance assessment of nuclear waste disposal.

For more information please visit:
http://www.lboro.ac.uk/departments/chemistry/migrationconference2013/

+ + + + +

GSA 2013

IAGC-Sponsored Sessions at the GSA Annual Meeting

Celebrate the Geological Society of America's 125th anniversary with the IAGC by submitting an abstract to an IAGC-sponsored topical session at this year's annual meeting. The annual meeting will be held 27-30 October, 2013 in Denver, Colorado, and this year the IAGC is proud to co-sponsor 8 topical sessions across a wide variety of

disciplines. Please consider submitting an abstract to one of our sessions, and don't forget to stop by the IAGC booth in the exhibit hall. Follow this link to view all the IAGC-sponsored sessions and submit an abstract:

http://www.geosociety.org/meetings/2013/sessions/topical.asp?SponsorID=International+Association+of+GeoChemistry&submit=Go

T79. Geochemical Mapping at Regional to Continental Scales *(Co-chairs: David B. Smith, Laurel G. Woodruff)*

This session will focus on results from regional- to continental-scale geochemical mapping studies conducted for either mineral exploration or environmental management. The emphasis will be on broad-scale studies, but we also welcome presentations from more local- or site-specific investigations.

T151. Biogeochemical Processes Affecting Metal and Metalloid Isotopes *(Co-chairs: David M. Borrok, Richard B. Wanty, Lev Spivak-Birndorf)*

This session will explore biogeochemical processes that affect metal isotope ratios in field and experimental studies. Emphasis will be placed on understanding the biogeochemical processes involved and the mechanisms by which isotope fractionations are facilitated.

T152. Celebrating the Scientific Contributions of Kirk Nordstrom—Part 1: Acid to Neutral Mine Drainage, Geochemistry of Iron and Sulfur, Sulfate Minerals, Natural Background, and Geochemical Modeling *(Co-chairs: Kate M. Campbell, Philip L. Verplanck, Charles Alpers, R. Blaine McCleskey)*

This session honors the career achievements of Kirk Nordstrom, USGS hydrogeochemist, by exploring research on mine drainage and related studies including iron and sulfur geochemistry, sulfate minerals, natural background in mining environments, and geochemical modeling.

T153. Celebrating the Scientific Contributions of Kirk Nordstrom—Part 2: Geochemistry of Arsenic and Antimony, Microbial Biogeochemistry, Geothermal Systems, Radioactive Waste Disposal, and Geochemical Modeling

This session honors the career achievements of Kirk Nordstrom, USGS hydrogeochemist, by exploring research on arsenic/antimony speciation and redox transformations, microbial biogeochemistry, geothermal systems, water-rock interactions, radioactive waste disposal, and geochemical modeling.

T158. Geochemistry of Flowback and Produced Waters from Hydraulically Fractured Black Shale *(Co-chairs: Brian W. Stewart, Rosemary C. Capo, Carl S. Kirby)*

This session solicits papers focused on produced water from hydraulic fracturing of shales, including variations in water chemistry over time and space, sources of dissolved solids, geochemical fingerprinting, and produced water biogeochemistry.

T161. Hydrochemistry and Biogeochemistry of Tropical Mountainous Rivers & Estuaries *(Co-chairs: Steven T. Goldsmith, Russell Harmon, Ryan P. Moyer)*

We encourage contributions that examine the hydrochemistry of tropical mountainous rivers and/or the biogeochemical cycling and fluxes, as well as paleo-records, of material delivered by tropical mountainous rivers and associated estuarine and coastal waters.

T166. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment *(Co-chairs: David T. Long, LeeAnn Munk, W. Berry Lyons)*

Basic and applied research on trace elements and organics in the environment are encouraged. Topics include those that relate to understanding and modeling sources; transport and fate; human and ecosystem health; and environmental assessment and remediation.

T168. Urban Geochemistry *(Co-chairs: W. Berry Lyons, David T. Long)*

This session encourages presentations that qualify and quantify the geochemical and biogeochemical impacts of urbanization and urban activities on soil, water, and air resources, as well as human and ecosystem health.

* * * * * *

UPCOMING MEETINGS IN 2014

BIOGEOMON 2014
8th International Symposium on Ecosystem Behavior

July 13th -17th, 2014

University of Bayreuth, Germany

The focus of BIOGEOMON is on the biogeochemistry of forest and natural ecosystems as influenced by anthropogenic and environmental factors. Empirical and modeling studies on fluxes and processes related to the turnover of major and trace elements at the ecosystem, watershed, landscape, and global scale.

Themes:

1) Long term trends in the functioning of ecosystems
2) Environmental controls on fluxes and processes in ecosystems
3) Fluxes between the atmosphere and ecosystems
4) Below ground turnover of C and nutrients in forest soils
5) Linking biodiversity and biogeochemistry
6) Biogeochemistry of wetlands
7) Dissolved organic matter in ecosystems and at the interface to hydrosphere
8) Trace element biogeochemistry
9) Critical unknowns in the cycling of P in forest and wetland ecosystems
10) Links between the N cycle and other elements
11) Weathering and chemical processes as keys to ecosystem functioning
12) Restoration and rehabilitation of ecosystems

For more information please visit:
http://bayceer.uni-bayreuth.de/biogeomon2014/

* * * * * *

Historical Newsletters Now Online

Here's a blast from the past – we have scanned every IAGC newsletter since July, 1971 and posted them online for your enjoyment and to preserve our shared scientific heritage. Visit http://www.iagc-society.org/newsletters.html to enjoy these past issues. While you're at it, make sure you check out Issue Number 1 where Earl Ingerson, founder and first President, describes the formation of the IAGC:

http://www.iagcsociety.org/resources/newsletters/IAGC_Newsletter_01.pdf

* * * * * *

Welcome New Members

IAGC has added 23 new members since November and extends a welcome to:

Jordan Ciezobka
Abdulqadir Abdurrahman
Vigdis Hardardottir
Tianming Huang
Jinliang Wang
Amanda Brown
Arny Sveinbjörnsdottir
Ayokunle Akindutire
Mark Nelson
Jason Reynolds
Benoît Pereira
Heather Jaggard
Kristina Hansen
Moritz Graf
Cristina Domenech
Christopher Dacey
Francisco Negrao
Ryan Vannier

Melisabel Munoz
Rebecca Vanderspiegel
Iain Dalrymple
Brent Johnson
Pauline Kan

* * * * * *

Applied Geochemistry:

News from the Editor

As new Editor-in-Chief, I would like to up-date you with progress and developments in our IAGC-affiliated journal *Applied Geochemistry* (AG). 2012 was another good year for AG. The journal as a whole received about 560 manuscripts – again a record. Our rejection rate is reasonably high (>60%) and I am looking to increase this further. With start of my tenure in 2013, the journal has received 150 manuscripts to date (mid of April). There are three special issues due in 2013, (i) one related to the "Geochemical aspects of geologic carbon storage" (Volume 30, edited by our IAGC members Katherine D. Romanak, Russell S. Harmon and Yousif K. Kharaka), (ii) one dedicated to Gian-Maria Zuppi and edited by Avner Vengosh and colleagues, and (iii) another one on the 9th International Symposium on Applied Isotope Geochemistry - edited by Tom Bullen and Neus Otero.

The next JIF (the 2012 JIF) is expected to be slightly higher than the 2011 value of 2.176. We will know the result probably by June. In terms of the plans for AG to increase its JIF to >3, we welcome (i) major review papers on hot topics, and (ii) papers that might be controversial or have some interesting novel conceptual thoughts/ideas. Currently the most downloaded paper is on such a hot topic: "Geochemical evaluation of flowback brine from Marcellus gas wells in Pennsylvania, USA" published by Lara O. Haluszczak and co-workers from Penn State last year. Please consider submitting YOUR manuscripts to AG, and encourage your colleagues to submit, in particular on current hot topics like CCS and fracking. For the latter, I invited conveners of the GSA Topical Session T158 co-sponsored by IAGC on "Geochemistry of Flowback and Produced Waters from Hydraulically Fractured Black Shale" for a special issue to be published in 2014.

Over the past few months, Elsevier has launched a bunch of new initiatives in order to provide the very best service to authors. You may access them via the journal insights pod on the AG website, or when submitting a new article, and some of them are:

- The Scopus Alerts application enables institutionally-affiliated iPad users to create notifications that will keep them up-to-date, e.g., when their paper has been cited or a new paper is published in their area of specialty (not only by AG). They can also annotate and share articles with colleagues.
- Formatting references greatly adds to the authors' burden, even when reference management software is used. Therefore, Elsevier has decided to remove strict formatting and focus instead on getting accurate and consistent data critical for the link creation within ScienceDirect and to various abstracting and indexing services. The current Guide for Authors will be updated accordingly. In future, references can be in any style or format as long as the style is consistent. The correct reference style used by AG will be applied to the accepted article by Elsevier at the proof stage. Incorrect or missing data will be highlighted for the authors to correct at this stage.
- Another new complimentary service Elsevier is offering authors and readers of AG are *AudioSlides*. AudioSlides are short, webcast-style presentations that are shown next to the article on ScienceDirect. This new format provides authors with the opportunity to

explain their research in their own words, helping readers to understand what the paper is about and appreciate its relevance delivered in an easily accessible and appealing way. So when your next article with AG is accepted for publication, you will receive an invitation email to create such a presentation. This presentation may consist of slides (Powerpoint or PDF) and, in particular, of voice-over recordings. Authors may thus give a general overview of the research that has been carried out, highlight some of the paper's salient points, or explain the main novelty of the paper from their own perspective, and may last up to 5 minutes. This presentation, however, is not an integral part of the publication, and will be made available without further peer-review or editing. We would like to encourage you to explore this new feature.

- You may have encountered a change in issue numbering early this year. This is because Elsevier has introduced article-based publishing (ABP) system driven by the fact that meanwhile most researchers access articles online. Online publishing makes it possible to publish citable articles with volume, issue and page numbers as and when they're ready – even before an entire issue of the journal is finished. Therefore, ABP is publishing an article to an "issue in progress" as soon as it is finalized and not having to wait for the entire issue to appear. In order that Elsevier can continuously publish articles without delay, they need to open two issues at once – the filled issue that is being finalized and compiled, and the new issue ready to receive new papers. And in order to assign page numbers to papers in the 2nd issue right away, both issues need to start from p. 1 again and so need to be new volumes - hence the move to single volumes.
- Elsevier encourages authors to deposit raw experimental data sets underpinning their research publication in data repositories, and to enable interlinking of articles and data. AG hosted on SciVerse ScienceDirect is now bi-directionally linked to the corresponding research datasets in EarthChem (www.earthchem.org). EarthChem is a portal facilitating discovery and accessibility of a consortium of federated community databases such as: PetDB, MetPetDB, SedDB, NAVDAT, GEOROC, and others. With regard to EarthChem please note also, that the IEDA (http://www.iedadata.org/), the NSF data facility that operates EarthChem and the Marine Geoscience Data System, is currently looking to grant Data Rescue Mini-awards as part of an international Data Rescue Initiative. This initiative is intended to ensure that valuable legacy data sets that are in danger of being lost in the near future due to impending retirement or degradation of the original data source are preserved and made accessible to the community for re-use by inclusion in the IEDA data collections. Award applications are specifically encouraged from late-career and near-retirement investigators, who are in possession of significant unpublished geochemical data sets that they cannot otherwise share and preserve.
- Elsevier's Journal Marketing Communications team has been busy with a range of projects to increase the information to be provided to authors. Among them is a new feature called "Discover this journal's metrics" which I suggested also to implement on our journal's homepage. Hope you may soon find there essential information, e.g., graphics on journal quality in terms of JIF metrics publication speed development, and a world map on the geographical distribution of corresponding authors who have published in AG within the last full 5 years yet evaluated. **Figure 1** (page 20) is an unequivocal representation of the global authorship and readership of our journal. Please note, however, that to my personal experience there is still a strong bias between the geographical distribution of corresponding authors who succeeded in publishing their papers and all those who have papers submitted to *Applied Geochemistry*.

I would like to thank everyone involved for their tremendous work for our journal. In a separate note, I thank all colleagues who recently stepped down from the editorial board, and welcome our new members. It is an extremely valuable service to IAGC in particular, and the academic community as a whole. The reputation and standing of the journal are at a very good level. The about 50 Associate Editors really do a good job. I would like in particular to thank Katie Eve and her publishing team from Elsevier for their wonderful hard work. Our aim is to join the top 50% fastest journals, and I am

confident that, working together, this can be well achieved!

Michael Kersten, Executive Editor
Applied Geochemistry

+ + + + +

Thank You Departing Editors of *Applied Geochemistry*

The journal *Applied Geochemistry* (AG) is a publication of Elsevier affiliated to our IAGC society. The success of our journal (IF = 2.2) relies on the loyal pool of editorial board members who play a vital role in improving the quality of individual manuscripts, and maintaining the standards of the journal as a whole. These volunteers rotate on and off the journal board for shorter or longer time periods. We are immensely grateful to all following departing editors who contributed to the success of AG over the years and would like to take this opportunity to express our sincere thanks to them for their invaluable support of our journal *Applied Geochemistry*

- **Ron Fuge** – Aberystwyth University, Aberystwyth, UK: 19 years as Executive Editor

Associate Editors:

- **Ziya S.** *Cetiner* – Canakkale Onsekiz Mart University, Canakkale, Turkey:(8 years);
- **Mel Gascoyne** – Gascoyne GeoProjects Inc, Pinawa, Canada (25 years);
- **John E. Gray** – U.S. Geological Survey, Denver, CO, USA (10 years);
- **Russell S. Harmon** – USACE Engineer Research & Development Center Edison House, Ruislip, UK (15 years)
- **Ian Hutcheon** – University of Calgary, Canada (9 years)
- **W. Berry Lyons** – Ohio State University, Columbus, OH, USA (2 years)
- **Peter B. McMahon** – U.S. Geological Survey, Lakewood, CO, USA (9 years)
- **Martin Novak -** Czech Geological Survey, Prague, Czech Republic (15 years):
- **Jean Claude Petit** – CEA/CAB AG, Centre de Saclay, Gif sur Yvette, France (21 years);
- **Ole Selinus** – Linneaus University, Kalmar, Sweden (19 years);
- **Kevin G. Taylor** – Manchester Metropolitan University, Manchester, UK (8 years)

This year AG welcomes the following newly appointed associate editors from nearly all continents, who are excited to begin their tenures providing further experience and expertise to the editorial board, hope you will join us in wishing them great success with their new roles:

- **Mats E. Åström** – Linneaus University, Kalmar, Sweden
- **Patrice de Caritat** – Geoscience Australia, Canberra, Australia
- **Sarah Fortner** – Wittenberg University, Springfield, OH, USA
- **Huaming Guo** – China University of Geosciences, Beijing, P.R. China
- **JoAnn M. Holloway** – U.S. Geological Survey, Denver, CO, USA
- **Johan Ingri** – Lulea University of Technology, Lulea, Sweden
- **Philippe Negrel** – BRGM Laboratory Division, Orléans, France
- **Julio Cesar Wasserman** – University Federal Fluminense, Niteroi, Brazil.

We welcome additional IAGC members who like to volunteer for the Associate Editorship, in particular covering the emerging research fields of environmental geochemistry studies of fracking and CCS operations. Please email me at: kersten@uni-mainz.de

With very best wishes,

Michael Kersten, Executive Editor,
Applied Geochemistry and the AG Editorial team

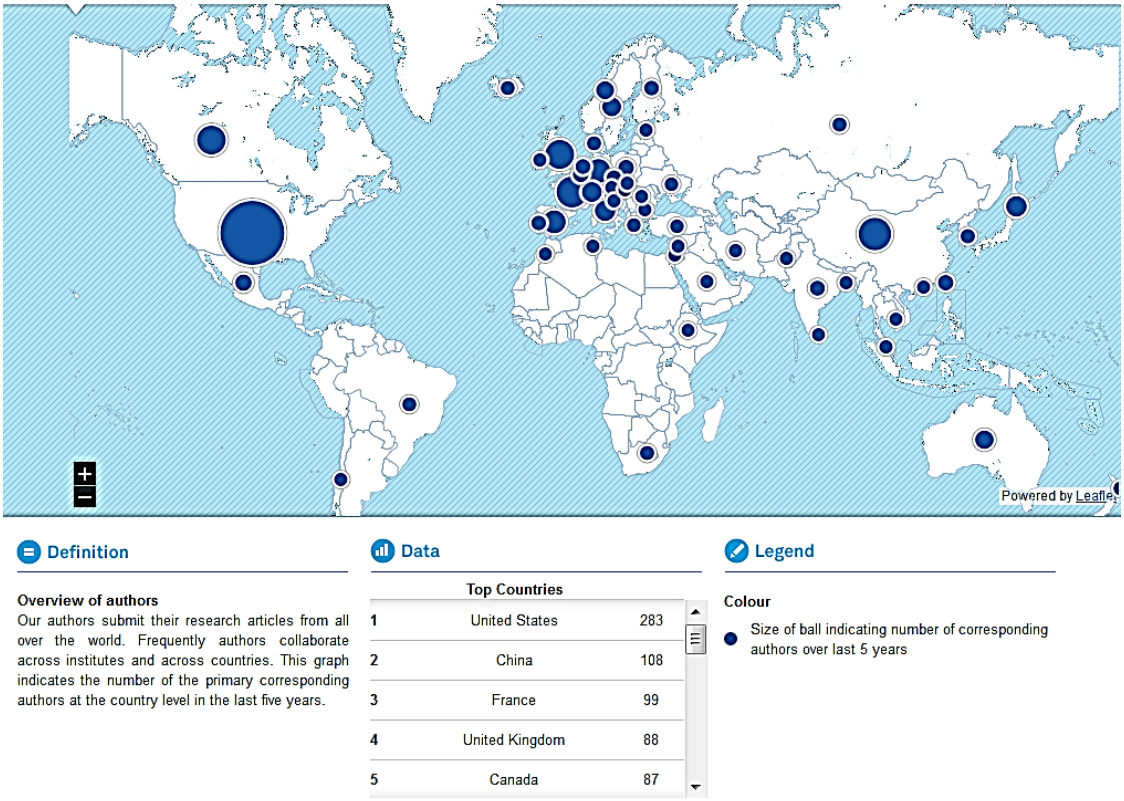


Figure 1. A journal metrics visualization of the geographical location of corresponding authors whose papers have been published by Applied Geochemistry in 2007-2011 (© Elsevier).

IAGC Executive Officers

PRESIDENT
Richard Wanty
US Geological Survey
MS 964d Denver Federal Center
Denver, CO 80225
USA
Email: rwanty@usgs.gov

PAST-PRESIDENT
Clemens Reimann
Dept. of Geochemistry
Norwegian Geological Survey
Trondheim N-7491
NORWAY
Email: clemens.reimann@ngu.no

VICE-PRESIDENT
Ian Cartwright
Monash University
School of Geosciences
Clayton, VIC 3800
AUSTRALIA
Email: ian.cartwright@monash.edu

TREASURER
W. Berry Lyons
Department of Geological Sciences
The Ohio State University
Columbus, OH 43210-1398,
USA
Email: lyons.142@osu.edu

SECRETARY
Thomas D. Bullen
Water Resources Division
U.S. Geological Survey
MS 420, 345 Middlefield Road
Menlo Park, CA 94025
USA
Email: tdbullen@usgs.gov

Council Members

Martine Savard
NRC/GSC
CANADA
Email: msavard@nrcan.gc.ca

Philippe Negrel
BRGM
FRANCE
p.negrel@brgm.fr

Janet Herman
Department of Environmental Sciences
USA
Email: jherman@virginia.edu

Teodóra Szőcs
Geological Institute of Hungary
HUNGARY
szocst@mafi.hu

Thomas Kretzschmar
Geology Department CICESE
MEXICO
Email: tkretzsc@cicese.mx

Halldor Armannsson
(Water-Rock Interaction Chair)
Iceland Geosurvey
ICELAND
Halldor.Armannsson@isor.is

Steven Banwart
(Geochemistry of the Earth's Surface Chair)
The University of Sheffield
UNITED KINGDOM
s.a.banwart@sheffield.ac.uk

Neus Otero
(Applied Isotope Geochemistry Chair)
Universitat deBarcelona
SPAIN
notero@ub.edu

Martin Novak
(Biogeochemistry Chair)
Czech Geological Survey
CZECH REPUBLIC
martin.novak@geology.cz

Working Group Chairs

David B. Smith
(Global Geochemical Baselines)
U.S. Geological Survey
USA
Email: dsmith@usgs.gov

David Long
(Urban Geochemistry)
Michigan State University
USA
Email: long.msu.edu

JOURNAL EDITOR

Michael Kersten
Johannes-Gutenberg-Universität Mainz
GERMANY
Email: kersten@uni-mainz.de

BUSINESS OFFICE MANAGER

Chris Gardner
275 Mendenhall Laboratory
125 South Oval Mall
Columbus, OH 43210
USA
Ph: +1-614- 688-7400
Fax: +1-614-292-7688
Email: iageochemistry@gmail.com

International Association of GeoChemistry (IAGC)

2013 Membership Form (For Payment by Check)

iageochemistry@gmail.com | www.iagc-society.org

1. Membership

☐ I'm a New Member -or- ☐ I'm a Renewing Member. email:_____

Membership	Cost (USD)
IAGC Membership – 1 or 2 years	☐ 1yr-$25 ☐ 2yr-$50

1. Sub Total **$_____**

2. Charitable Giving

I would like to make a tax-deductible donation in the following amount (in USD)*:

A. Ebelmen Award $_____ **C.** Kharaka Award $_____

B. Distinguished Service Award $_____ **D.** Where most needed $_____

2. Sub Total **$_____**

3. Journal Subscription

Applied Geochemistry is now **online-only** at the following cost (USD):

A. Full Member - $76.00 **B.** Student Member - $57.00

3. Sub Total **$_____**

4. Contact Information *(all fields required)*

Title: _____

First Name: _____

Middle Name: _____

Last Name: _____

Institution: _____

Department: _____

Address 1: _____

Address 2: _____

City:_____State/Prov._____

Postal Code:_____Country:_____

Phone: _____

Email: _____

5. Demographic Information

Please help us better understand our membership. This information will help us better allocate resources and improve communication with our members.

How do you prefer to receive IAGC communication?
☐ Email ☐ Snail Mail ☐ Social Network (*Facebook, Linkedin*) ☐ Other: _____

Profession:
☐ Student ☐ Faculty ☐ Post-doc
☐ Gov't Sector ☐ Private Sector ☐ Other_____

In what year were you born? _____

Please list Working Group meetings you've attended:

_____

_____

What is your sub-discipline/personal interest in geochemistry?

_____

6. Grand Total

Sum of Sections 1, 2, and 3 **$_____**

7. Payment by Check

☐ Check *(payable to International Assoc. of Geochemistry)*

Instructions for Payment by Check

Mail this completed form along with your check to the IAGC Business Office (address below)

If you would like to pay by credit card, please visit our website and click on "Society," then "Membership." We are unable to process credit cards outside of the website.

www.iagc-society.org

*Tax-Deduction valid for US Members Only

IAGC Business Office
Attn: Chris Gardner
275 Mendenhall Laboratory
125 South Oval Mall
Columbus, OH 43210 USA
Ph +1 614 688 7400
Fax +1 614 292 7688

www.iagc-society.org

Bayceer
Bayreuth Center of Ecology and Environmental Research

First Announcement:

BIOGEOMON 2014

8th International Symposium on Ecosystem Behavior

July 13th-17th, 2014

University of Bayreuth, Germany

The focus of BIOGEOMON is on the biogeochemistry of forest and natural ecosystems as influenced by anthropogenic and environmental factors. We invite empirical and modeling studies on fluxes and processes related to the turnover of major and trace elements at the ecosystem, watershed, landscape, and global scale.

Themes:

1) Long term trends in the functioning of ecosystems
2) Environmental controls on fluxes and processes in ecosystems
3) Fluxes between the atmosphere and ecosystems
4) Below ground turnover of C and nutrients in forest soils
5) Linking biodiversity and biogeochemistry
6) Biogeochemistry of wetlands
7) Dissolved organic matter in ecosystems and at the interface to hydrosphere
8) Trace element biogeochemistry
9) Critical unknowns in the cycling of P in forest and wetland ecosystems
10) Links between the N cycle and other elements
11) Weathering and chemical processes as keys to ecosystem functioning
12) Restoration and rehabilitation of ecosystems

Schedule:

Su 13th July	Mo 14thJuly	Tu 15th July	We 16th July	Th 17th July	Fr 18th July
Arrival and Welcome Reception	Opening Ceremony Keynote Talks Oral Sessions Poster Session 1	Keynote Talks Oral Sessions Poster Session 2 Conference Dinner	All Day Excursions	Keynote Talks Oral Sessions Closing Ceremony	Departure

Local Scientific Committee:

Egbert Matzner, Gerhard Gebauer, Stefan Peiffer, Werner Borken, Klaus-Holger Knorr, Birgit Thies

External Scientific Committee:

Claus Beier (DK)	Bridget Emmett (UK)	Ivan Fernandez (USA)
Martin Forsius (SF)	Karsten Kalbitz (NL)	Kate Laijtha (USA)
Steve Norton (USA)	Martin Novak (CS)	Michael Starr (SF)
Liisa Ukonmaanaho (SF)	Melanie Vile (USA)	Kelman Wieder (USA)

The conference is hosted by the Bayreuth Center of Ecology and Environmental Research (BayCEER).

Information on BIOGEOMON 2014: **www.bayceer.uni-bayreuth.de/biogeomon2014**