

Newsletter

of the

International Association of GeoChemistry

Number 70, July 2019

In This Issue

From the President	1
2020 Award Nominations.....	3
2020 PhD Student Research Grant applications	3
2019 Award Winners	4
2019 Elsevier PhD Student Research Grant Winners	6
Catching up with a previous Student Research Grant Winner	9
Letter from the Editor	10
Charitable Giving.....	11
2019 Meetings	12
Governance	13

*Chris Gardner, Newsletter Editor
BusinessOffice@IAGC-Society.org*

FROM THE PRESIDENT

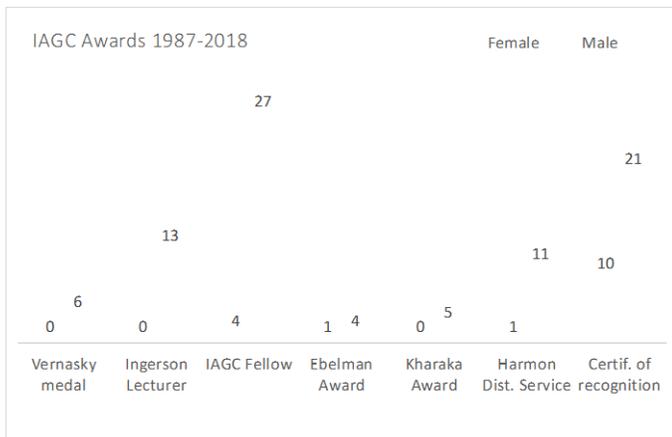
As I'm beginning my term as President, Jodie Miller has started as Vice-President. Having Jodie on board in the executive committee is fantastic and the IAGC will benefit from her involvement. At the same time Philippe



Négrel has transitioned from President to Past-President, and I look forward to continuing working together and learning from his experience. Ian Cartwright is transitioning out of the Past President position, and it has been a pleasure teaming up with him.

One of the most rewarding tasks up to now has been to chair the IAGC Students Grants, although it has been also a challenge, especially in 2018, with an overwhelming number of applications (108). The implication of the full Council and Officers in the evaluation procedure was extraordinary, and so was the quality of the proposals, which is an excellent sign of the good health of the association. The 2019 IAGC Students Grants are announced in this newsletter, and I would like to congratulate not only those who earned the grants, but all the candidates, since again the quality of the proposals made the decision difficult.

Another rewarding task has been to participate in the Awards Committee in the last three years. Some of the 2018 awardees will be presented in the upcoming conferences. The 2019 awards are announced in this newsletter. With regards to the awards I would like to make a call to all of you, to participate in the Call for nominations. In 2018 we received a fair amount of nominations, but for the 2019 awards it was quite limited. I think that the association would benefit from a more active participation from the members in the call for nominations. Another thing that surprised me, was that we did not receive a single nomination of a female scientist in the last 3 years. So, with a scientific spirit I've analyzed the historical information published on the IAGC website and summarized the information in a figure (on that note, it is just great to be able to dig in the historical information on the website, you can even check the newsletters of the IAGC back to 1971!). Numbers are self-explanatory, so we all should consider the gender perspective in future calls.



An important ongoing task, is the nomination of new Council Members, chaired by Philippe Négrel. The IAGC will have 5 new Council members the present year that will be profiled in the next Newsletter. Thanks to the outgoing members Patrice de Caritat, Stephen Grasby, Romain Millot, Sophie Opfergelt, and Avner Vengosh.

Just in less than one month the first IAGC International Conference will take place in Tomsk, Russia. The joint meeting with WRI-16 and AIG-13 has been possible thanks to the continuous work of former IAGC Presidents Rich Wanty and Russell Harmon, together with Yousif Kharaka, and the heads of the working groups that joined this first consolidated meeting: Thomas Kretzschmar (Water Rock Interaction) and again Rich Wanty with the support of Romáin Millot (Applied Isotope Geochemistry). Consolidating the IAGC International Conference will be an important challenge for the Association in the future years. We still have work to do in refining future meetings, since the different working groups have slightly different ways of organizing themselves, and I would like to thank again Rich Wanty and Russell Harmon for their continuous initiatives to consolidate the meeting. I would like to highlight that during the IAGC International Conference in Tomsk, Prof. François Chabaux will deliver the 2019 the Ingerson lecture, the 2018 IAGC Fellow will be awarded to Prof. Kirk Nodstrom, and the 2018 Kharaka Award will be presented to Jiubin Chen. We will also have a session dedicated to Tom Bullen and a session dedicated to Stepan I. Shvartsev. I hope to see you there.

The IAGC will be also present at the Goldschmidt 2019 conference, which will take place in Barcelona this August. During the conference the 2018 Vernadsky medal will be awarded to Prof. Jacques Schott, the 2018 Ebelmen Award will be awarded to Julien Bouchez, and the 2018 IAGC Fellow will be awarded to Prof. Jochen Hoefs. I would like to welcome you to my hometown.

Please do not hesitate to contact me or any other council member if you have comments, suggestions, and/or new ideas to implement and we will bring those to the IAGC board.

-Neus Otero (notero@ub.edu)
University of Barcelona, Spain

Association News

2020 Award Nominations

Please nominate colleagues who made significant contributions to the advancement of geochemistry for one or more of the numerous IAGC awards. A complete list of IAGC Awards and nomination instructions can be found in the IAGC website:

<http://www.iagc-society.org/awards.html>.

The IAGC will be accepting award nominations for 2020 for the following awards **through December 31, 2019**. This year we will be accepting nominations for the following awards:

The Vernadsky Medal - awarded for a distinguished record of scientific accomplishment in geochemistry over the course of a career:

<http://www.iagc-society.org/vernadsky.html>

Ebelmen Award – bestowed to a geochemist of particular merit and outstanding promise less than 35 years old at the time of nomination.

<http://www.iagc-society.org/ebelmen.html>

The Kharaka Award - bestowed to up to two deserving scientists (which may include senior graduate students) from developing countries. The award consists of a framed certificate plus an IAGC membership and *Applied Geochemistry* subscription for a term of three years.

http://www.iagc-society.org/kharaka_award.html

The Harmon Distinguished Service Award - bestowed on a deserving candidate to recognize outstanding service by an IAGC member to the Association or to the geochemical community that greatly exceeds the normal expectations of voluntary service:

http://www.iagc-society.org/distinguished_service.html

IAGC Fellow - bestowed to a scientist who has made significant contributions to the field of geochemistry:

http://www.iagc-society.org/iagc_fellows.html

Certificate of Recognition - awarded to IAGC Members for outstanding scientific accomplishment in a particular area of geochemistry, for excellence in teaching or public service, or for meritorious service to the Association or the international geochemistry community:

http://www.iagc-society.org/certificate_recognition.html

Hitchon Award – Awarded to authors of the most highly-cited paper in *Applied Geochemistry* 5 years earlier, according to SCOPUS. This award consists of a framed certificate to the lead author and a complementary 1-year membership to IAGC for all authors for the year following receipt of the award, if not already an IAGC member. The award recipients will be cited in the IAGC Newsletter and website.

<http://www.iagc-society.org/hitchon.html>

2020 PhD Student Research Grant Applications

We will post instructions for applying for the PhD Student Research Grant program on 1 October, 2019. Applications will be due on 1 December. Keep an eye on our website and Facebook page for the announcement:

www.iagc-society.org/phd_grants.html

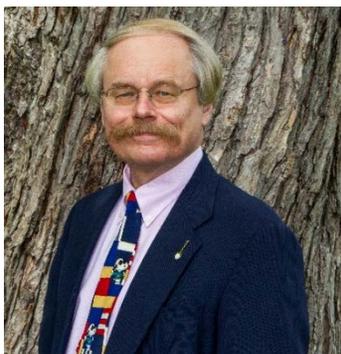
www.facebook.com/IAGCSociety/

2019 IAGC Awards

We are pleased to announce our Society Awards for 2019. Congratulations to the recipients, and thank you for your service to the IAGC and the geochemical community!

IAGC Fellows

David T. Long is in the Department of Earth and Environmental Sciences at Michigan State University (MSU), USA. He has degrees in Geology (B.A. Monmouth College);



Hydrogeochemistry (University of Illinois – Chicago); and Aqueous Geochemistry (Ph.D. University of Kansas) and focuses his research and teaching in the areas of Aqueous and Environmental Geochemistry. He also has MSU appointments in Civil and Environmental Engineering, Institute for Global Health, and the Center for Environmental Toxicology. His work focuses on 1) biogeochemical cycles and interactions of elements (including trace and heavy metals) and dissolved organic compounds in surface environments (e.g., wetlands, rivers, lakes, groundwater), 2) understanding both the natural and human induced changes in water chemistry as it moves through the water cycle using stable isotopes, multivariate statistics, and geochemical modelling, 3) quantifying the influences of human activities on environmental systems using sediment chronologies, and 4) relating knowledge learned from the above studies to evaluate the influences of the environment on human health through exposure analysis. International experiences include teaching and research activities in Australia, Bulgaria, Croatia, Israel, Kenya, Malawi, Mexico

(Yucatan), Serbia, and Romania. Dr. Long has been co-chairing IAGC sessions on trace metals and organics at the Geological Society of America (GSA) and Goldschmidt conferences with Gunter Faure, LeeAnn Munk, and Berry Lyons since 2000 (just recently ended) and on urban geochemistry with IAGC Treasurer Berry Lyons since about 2013.

William H. Orem, Ph.D. is currently a Supervisory Research Chemist and Principal Investigator with the U.S. Geological Survey (USGS) in Reston, Virginia, USA with 37 years of research in geochemistry with the Federal Government. Bill earned his Ph.D. in



Chemistry from the University of New Hampshire (1982; Henri Gaudette and Dennis Chasteen, Advisors), and also holds a B.S. degree in Chemistry from Lehigh University (1974), and an M.S. Degree in Oceanography from the University of Delaware (1977; Jon Sharp, Advisor). His research at the USGS focuses on organic geochemistry and biogeochemistry. He currently leads several projects investigating: 1) human and environmental health impacts of energy resources, 2) environmental controls on mercury methylation in wetlands, and 3) microbial methanogenesis and natural gas production in coal, shale, and petroleum deposits. He has authored over 150 peer reviewed papers and book chapters, and over 200 abstracts for presentations at international meetings. He manages 7 labs at the USGS in Reston, VA and supervises permanent lab staff as well as postdocs, graduate and undergraduate students who come to work with his group. Bill enjoys working with colleagues in many different fields, such as geochemistry, geology, microbiology, hydrology, toxicology, epidemiology, medicine, ecology, marine science, wildlife biology, and

more. Bill has served the USGS and the scientific community on a number of panels that provide scientific feedback, including: USGS Fundamental Science Practices Advisory Panel (present); Review Panels for EPA, the National Academy of Sciences, and the National Science Foundation; and many state and Federal review panels on wetlands and contaminants. He has organized numerous symposia at science meetings, is active in a number of scientific organizations including serving as an officer of the Geochemistry Division of the American Chemical Society. He has received a number of awards, including the Department of Interior Superior Service Award.

Hitchon Award

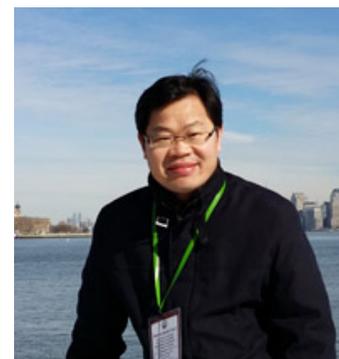
The Hitchon Award is given annually to a paper of significance published in the IAGC journal, *Applied Geochemistry*. The award is given to the *Applied Geochemistry* paper from 5 years ago (to allow for time to make an impact) that has the most citations according to SCOPUS. All authors will receive recognition here in the IAGC Newsletter and on the IAGC website, as well as a complimentary 1-year membership.

This year's recipient of the **Hitchon Award** is **Huaming Guo's** 2014 paper "A review of high arsenic groundwater in Mainland and Taiwan, China: Distribution, characteristics and geochemical processes" with 104 citations since its publication in 2014. *Full Citation:*

Guo, H., Wen, D., Liu, Z., Jia, Y., Guo, Q. A review of high arsenic groundwater in Mainland and Taiwan, China: Distribution, characteristics and geochemical processes (2014) *Applied Geochemistry*, 41, 196-217.

Cited 104 times

Dr. Huaming Guo is Professor of Hydrogeology in the School of Water Resources and the Environment at the China University of Geosciences, Beijing. He has had visiting placements at the Karlsruhe Institute of Technology, USGS Denver and Columbia University. Professor Guo was Co-Chair of the 7th International Conference on Arsenic in the Environment: Environmental Arsenic in a Changing World (As2018) in Beijing. Currently, he acts as Editor-in-Chief of *Journal of Hydrology* and Associate Editor of *Applied Geochemistry*. His research interests include: 1) Sources, fate and transport of inorganic pollutants (e.g., arsenic, fluoride, uranium, and chromium) in aquifer systems; 2) Characteristics and mechanisms of arsenic and fluoride adsorption on natural geomaterials; and 3) Biogeochemical behaviours of contaminants during mineral-water-microbe-organics interactions.



Honorable Mentions

Kossoff, D., Dubbin, W.E., Alfredsson, M., Edwards, S.J., Macklin, M.G., Hudson-Edwards, K.A. Mine tailings dams: Characteristics, failure, environmental impacts, and remediation (2014) *Applied Geochemistry*, 51, pp. 229-245.

Cited 102 times

Giffaut, E., Grivé, M., Blanc, P., Vieillard, P., Colàs, E., Gailhanou, H., Gaboreau, S., Marty, N., Madé, B., Duro, L. Andra thermodynamic database for performance assessment: ThermoChimie (2014) *Applied Geochemistry*, 49, pp. 225-236.

Cited 81 times

Sharma, A.K., Tjell, J.C., Sloth, J.J., Holm, P.E. Review of arsenic contamination, exposure through water and food and low cost mitigation options for rural areas (2014) *Applied Geochemistry*, 41, pp. 11-33.

Cited 76 times

Elsevier PhD Student Research Grant Winners

The IAGC is happy to announce the recipients of the 2019 Student Research Grants, sponsored by Elsevier and the IAGC. This has become a very competitive award, with a funding rate of 15% for 2019. This year we were able to fully support six proposals. The success of these grantees demonstrates the extremely high caliber of their research. Congratulations to our grantees!

Alida Perez-Fodich – *“A multi-scale study of weathering in the Critical Zone and its influence on hydrologic systems.”*

Alida Perez-Fodich earned her BSc and MSc degrees in Geology at the University of Chile in Santiago. She is currently conducting her PhD research at the Department of Earth and Atmospheric Sciences at Cornell University (USA). Her research is focused on understanding chemical weathering across different scales in the Critical Zone can influence elemental fluxes, hydrologic partitioning, and mineral reaction fronts, with a particular interest in weathering in the Island of Hawaii. Alida has



studied how chemical weathering plays a major role in export fluxes and long-term landscape evolution. For this purpose, she uses different geochemical tools, including reactive transport models, trace element geochemistry and synchrotron X-ray absorption near-edge structure (XANES) spectroscopy. She believes in using models coupled with geochemical data to better understand the environmental conditions and chemical mechanisms that shape the Critical Zone architecture to understand how natural systems work and their evolution in uncertain future scenarios.

Candan Desem - *“Exploring the potential of Pb-isotope analysis in the robust source attribution of environmental Pb.”*

Candan Desem graduated from the University of Melbourne (Australia) in 2014 with a BSc majoring in Geology and Environmental Science where she used Pb isotopes as tracers of contamination in groundwater surrounding the Century Mine in NW Queensland, Australia. In 2017, after 2.5 years of working in the Environmental Sector, Candan returned to the University of Melbourne to commence her PhD – a collaboration with Geoscience Australia (Australia’s federal government agency for geoscientific research). Candan’s PhD research further investigates the use of Pb isotopes as tracers for environmental contamination and mineral exploration on an Australia-wide scale, in addition to developing a fast, low-cost analytical method. The research will further encourage the use of this technique in source apportionment studies both in academia and industry. One of the



outcomes of Candan's research will be the generation of a Pb isotope regolith map of Australia. The samples used in this research were collected as part of the 2015 National Geochemical Survey of Australia (NGSA), and are used to undertake Pb isotopic analyses at the University of Melbourne Isotope Geochemistry Laboratory on a Sector-Field ICP-MS.

Kimberley Kanani Bitterwolf – “*Non-traditional stable isotope (Li, Mg, Ca, Sr, Ba) co-variation in coastal groundwater discharge and silicate vs carbonate weathering*”

Kimberley Kanani Bitterwolf earned her BSc in Global Environmental Science at the University of Hawai'i at Mānoa (USA). She is currently conducting her PhD research at the University of California, Santa Cruz (USA) in the Ocean Sciences department. The goal of her PhD research is to improve constraints on the chemistry of land-to-sea fluxes relevant for long-term paleoclimate reconstructions. More specifically, her work is focused on understanding the role that submarine groundwater discharge plays in modern marine isotope budgets (e.g. Li, Mg, Ca, Sr, and Ba) and how these isotope systems co-vary with different weathering regimes. The isotope analyses of Li, Mg, Ca, and Ba are carried out on multi-collector inductively coupled plasma mass spectrometers (MC-ICP-MS) at the Czech Geological Survey (CZR), Princeton University (USA), GEOMAR (GER), and Woods Hole Oceanographic Institution (USA), respectively. The analysis of the radiogenic and stable Sr isotope ratios are all conducted via thermal ionization mass spectrometry (TIMS) at GEOMAR (GER). Kim



believes that a better understanding of the magnitude and isotopic composition of these terrigenous fluxes to the ocean will improve long-term climate reconstructions that are based on their marine isotope budgets.

Marsha Allen - “*Improving the hydrological analysis of groundwater flow paths through the integration of geochemical and physical characteristic of a highly fractured aquifer system, to create sustainable use of groundwater in a climate with projected drying trends*”

Marsha Allen is originally from the islands of Trinidad and Tobago, and is currently a doctoral candidate in Hydrogeology at the University of Massachusetts, Amherst (USA). She completed an AS in Business



Administration at Kingsborough Community College, Brooklyn (USA) in 2007, and a BA in Geology with a minor in Economics at Mount Holyoke College (USA) in 2010. After obtaining jobs as an adjunct lecturer and laboratory technician she enrolled part time in a MSc program in Earth and Environmental Science at Brooklyn College which she completed in 2016. Marsha completed undergraduate and MSc research theses focused on carbonaceous chondrites found in meteorites. Her current research focuses on the role of fractures and faults in groundwater flow in a bedrock aquifer system in the island of Tobago. It aims to decipher the flow paths and groundwater mixing time scales with the use of major and minor elements, stable isotopes and environmental tracers. She plans to create a transient water model extending to the year 2100 to examine the water storage change in the island's subsurface on a monthly basis, so as to enable the

sustainable extraction of groundwater that accounts for projected shifts in climate.

Melisa Antonia Diaz – *“Sources of sulfur and nitrogen in salts using $\delta^{34}\text{S}$ and $\delta^{15}\text{N}$ from soils along the Shackleton Glacier, Antarctica”*

Melisa Antonia Diaz graduated with a BSc in Earth and Environmental Sciences from the University of Rochester (USA) in 2014 and a MSc in Earth Sciences from The Ohio State University (USA) in 2017. She became involved in polar research after a field campaign to Summit, Greenland in 2014 and began Antarctic research during her MSc, where she studied the geochemistry of wind-blown materials in the McMurdo Dry Valleys. Melisa is now a PhD candidate at The Ohio State University studying the surface geochemistry of ice-free areas in the Transantarctic Mountains. Her dissertation research focuses on understanding patterns of biogeography and ecosystem assembly from a geochemical perspective using soil samples collected along the Shackleton Glacier, Antarctica. She is using stable isotopes of S, N, and O in sulfate and nitrate to understand the sources of salts in polar desert environments and how soil geochemistry can be used to predict suitable habitats for Antarctic organisms.



Stephan Roman Hlohowskyj – *“Molecular geochemistry of molybdenum in modern and ancient sediments”*

Stephan Roman Hlohowskyj received his BSc. in geology from the University of Las Vegas, Nevada, USA in 2005 and MSc in environmental science from the University of California, Riverside, USA



in 2008. In 2016 he began a PhD in geochemistry at Central Michigan University, USA with a focus in molecular geochemistry. The main goals of his dissertation research are to understand the behavior and geochemistry of molybdenum in sulfidic (euxinic) environments, in both recent and the ancient geologic past. Funding from IAGC will be used to analyze black shale samples with nano secondary ionization mass spectrometry (SIMS) in order to determine the isotopic signature of organic matter molybdenum associations.

Catching up with a previous Student Research Grant Winner

Masoomeh Kousehlar (Miami University, USA) received an IAGC Student Research Grant in 2018 for her proposal entitled “Sources and extent of toxic metal contamination of the atmosphere and soil in urban and industrial suburban settings.”

Masoomeh received her bachelor’s in geology and master’s in petrology from University of Tehran, Iran. She is currently a PhD student in the Department of Geology and Environmental Earth Science at Miami University, Ohio. Masoomeh is investigating the degree and sources of air pollution in urban and industrial areas using a variety of environmental samples including lichen, tree bark, tree leaves and atmospheric particulate matter (PM). She uses a combination of geochemical and microscopy techniques to characterize potential sources of atmospheric toxic metals and determine their relative contribution to the metal load. Source apportioning is essential for developing effective strategies for remediation and emission control.



collected lichen samples from the study area. Lichens are considered good indicators of air quality because they lack root systems and get all of their nutrients from the atmosphere. Moreover, she collected total suspended particulate (TSP) from potential sources to characterize the morphology and chemical composition of the particles emitted from each source.

Masoomeh analyzed the lichen and TSP samples for their major and trace element abundances and Pb isotopic ratios using inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), and thermal ionization mass spectrometry (TIMS), respectively. She used Scanning Electron Microscopy with Energy Dispersive X-ray Spectroscopy (SEM/EDX) to determine the morphology, size distribution, and chemical compositions of the PM emitted from each source. By analyzing these samples, Masoomeh was able to identify and characterize the sources of air pollution and the degree and nature of atmospheric metal contamination in this area.

As part of her dissertation research Masoomeh is investigating the impact of steel production on air quality in an industrial area in the mid-western US. Steel production results in the formation of metal-bearing airborne emissions, which are inherently toxic and can cause damage to lungs, liver, and nervous system. Relatively little is known about the nature of the atmospheric particulate matter emitted from the steel plant that Masoomeh is investigating, despite it being surrounded by residential areas. To assess the air quality, and to determine the main sources and relative contributions of toxic metals, Masoomeh

Letter from Editor-in-Chief of *Applied Geochemistry*

Just a few journal updates. First the bad news, we have failed to keep the IF up to above 3 - it is now 2.9. However, all geosciences journals have had to face this



decrease from 2017 to 2018 and, therefore, we are still slightly above average (see the Figure below). Another piece of news is that we have to face a major restructuring of the journal again. From Volume 107 onwards, our journal will move to using article numbers as opposed to page numbers. As explained by our current Elsevier publisher contact, Tessa de Roo, this will not impact the look of the journal nor the way that readers can access articles in the journal. It reflects rather the fact that the vast majority of people who read and cite articles in the journal access these online instead by reading hard prints in libraries. Unique article numbers are claimed as an easy and efficient way to cite journal articles and has already been successfully rolled out to Elsevier's open access journals. These article numbers are an abbreviated form of the article's DOI - digital object identifier. Citing an article with an article number is very simple: the article number is used instead of the page range in the citation. While journal volumes and issue numbers will remain in place, the introduction of article numbers makes page numbers redundant, opening up a number of benefits for readers and editors:

- **Faster publication:** With article numbers, the version of record of the article is online and citable as soon as the proof corrections have been incorporated, ensuring readers have

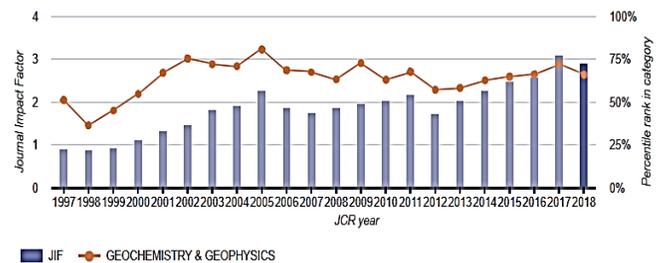
access to the latest research faster. There will be no more a two stage publication process, online first and then final print with page numbers.

- **More flexibility:** PDFs can now be generated in any font size and articles can be any length. This allows online platforms to tailor the content, for example resize it based on the device used to access it.
- **Increased content options:** In collections (e.g. Virtual Special Issues), articles can now be placed in any order editors may wish without time-consuming communication with journal production team.

2018 Journal Impact Factor & percentile rank in category for: APPLIED GEOCHEMISTRY

2.894

2018 Journal Impact Factor



Elsevier believes the introduction of article numbering will encourage readers to browse and help them quickly identify the papers most relevant to their research interests. Well, to imagine the worst scenario, this could ease a transition towards a full open access journal. We hope that's not the intention behind the change, as most IAGC officers voted against such a direction in a discussion held a couple of years ago.

Our Editorial Board and publisher team is grateful for your interest and support of this journal and our related vibrant association.

Thank you all – take care!

Best Regards,
Michael Kersten (kersten@uni-mainz.de)
Editor-in-Chief, *Applied Geochemistry*

Silvia Irene Carrasquero

Charitable Giving

Members can make a charitable gift to the IAGC, either for general fund support or for special initiatives during online membership renewal. You may donate at any time online, either during your membership renewal or separately. Please donate right now through the IAGC web site (www.iagc-society.org/donate.html)

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

The following members donated while renewing their membership dues for 2019. Thanks for your generosity and for supporting the IAGC and our mission!

Stuart Simmons

Gwendolyn L Macpherson

Marilena Stimpfl

Dirk Kirste

Rich Wanty

Eric Hall

Berry Lyons

Robert Zielinski

Radomir Petrovich

Patrice de Caritat

Bret Leslie

Miriam Kastner

Jodie Miller

Harold Hofmann

Teodora Szocs

Carl Palmer

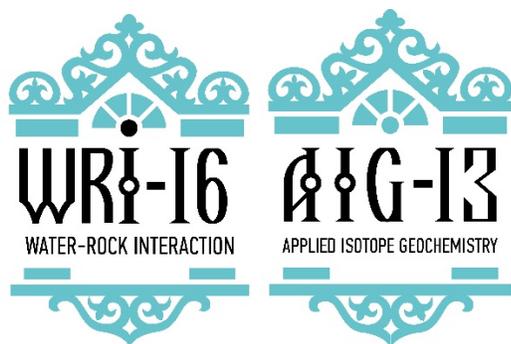
Robert Langford

Bernhard Mayer

2019 Meetings

WRI-16 & AIG-13: The 1st IAGC International Conference

21-26 July, 2019 in Tomsk, Russia



<http://wri16.com/>

Goldschmidt 2019

18-23 August, 2019 in Barcelona, Spain



<https://goldschmidt.info/2019/>

IAGC-Sponsored session: *13k Advances in Isotopic Approaches to Understand the Sources and Fates of Environmental Pollutants*

EGU Galileo Conference – Mass Extinctions, Recovery and Resilience

28-31 August, 2019 in Utrecht, Netherlands



(IAGC-Sponsored)

<https://www.egu-galileo.eu/gc5-mass/>

This meeting will examine all aspects of mass extinctions from deep time to the present day. Earth faces unprecedented challenges from anthropogenically-induced environmental change and there are growing concerns that we are now living through Earth's sixth mass extinction. Understanding the cause(s) of the previous five mass extinctions and other biotic crises, and the nature of ecosystem recovery and resilience to change, has never been more timely. The current debate on the Anthropocene has intensified research on the most severe threats to biodiversity: climate change, ocean acidification, marine oxygen depletion and environmental pollution. These threats are as pertinent today as they were during the past catastrophes and much of what we know of the current Earth system behaviour derives from our study of extreme environments during past crises. The fossil record provides an invaluable wealth of information for studying the onset and dynamics of mass extinctions, and may be key to understanding the nature, scale and likely course of the problem facing ecologists and conservationists today.

IAGC Executive Officers

PRESIDENT (2019-2020)

Neus Otero
University of Barcelona
SPAIN
Email: notero@ub.edu

PAST-PRESIDENT (2019-2020)

Philippe Négrel
French Geological Survey (BRGM)
FRANCE
Email: p.negrel@brgm.fr

VICE-PRESIDENT (2015-2017)

Jodie Miller
Stellenbosch University
SOUTH AFRICA
Email: jmiller@sun.ac.za

TREASURER (2008-2020)

W. Berry Lyons
School of Earth Sciences
The Ohio State University
USA
Email: lyons.142@osu.edu

SECRETARY (2014-2020)

Orfan Shouakar-Stash
Dept of Earth and Environmental
Sciences University of Waterloo
CANADA
Email: orfan@uwaterloo.ca

JOURNAL EDITOR

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

BUSINESS OFFICE MANAGER

Chris Gardner
School of Earth Sciences
The Ohio State University
USA
Email: BusinessOffice@IAGC-Society.org

Council Members

Thomas Kretzschmar
(Water-Rock Interaction Chair)
CICESE
MEXICO
mtkretzsc@cicese.mx

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

Rich Wanty
(Applied Isotope Geochemistry
Chair)
US Geological Survey
USA
demeny@geochem.hu

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

(Council is currently in transition)

Other Working Group Chairs (non-council)

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

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

Ron Fuge
(Environmental Geochemistry Chair)
Aberystwyth University
UNITED KINGDOM
rf@aber.ac.uk

Olle Selinus
(Environmental Geochemistry Chair)
Linneaus University
SWEDEN
olle.selinus@gmail.com