Association of Applied Geochemists

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AAG COUNCILLORS FOR 2021–2022

Patrice de Caritat has university training in geology, mineralogy, and geochemistry; his research interests include environmental and exploration geochemistry, hydrogeochemistry, isotope geochemistry, low-density geochemical mapping, and forensic geochemistry. Currently, he is a principal research scientist at Geoscience Australia; adjunct professor of applied geochemistry at the University of Canberra; and Visiting Fellow at the Australian National University (ANU). Patrice has led and held senior research positions in a number of collaborative research programs, organisations, and universities in Australia, Norway, and Canada. Patrice has a Lic Sci (BSc Hons) degree from the University of Louvain (Belgium) and a PhD from the ANU. Patrice was an International Association of GeoChemistry (IAGC) Councillor (2015–2018) and the Association of Applied Geochemists' Society News Editor for *Elements* (2011–2015). Currently, he is an associate editor for *Applied Geochemistry* and for *Geochemistry: Exploration, Environment, Analysis*. Patrice is a Fellow of the AAG and an AAG Councillor (periods 2011–2012; 2013–2014; 2019–2020).

Dave Heberlein has been a consulting exploration geochemist for 12 years (2008–present). Prior to that he was Chief Geochemist – Global Exploration for Barrick Gold Corp (2002–2007). He received his BSc Honors degree from Southampton University (UK) and completed a bachelor's thesis on lithogeochemistry of the volcanic massive sulphide deposits in the Iberian pyrite belt. His MSc (under the supervision of K. Fletcher, A. Sinclair, and C. Godwin) involved lithogeochemical studies of leached caps and supergene enrichment at the Berg porphyry Cu–Mo deposit in central British Columbia (Canada). At Barrick Gold Corp, his main areas of focus were: a) the development of a company-wide quality assurance–quality control (QA–QC) program; b) investigating deep-penetrating geochemistry methods for covered environments globally; c) in-house training of exploration geologists. In his current role, he provides consulting services in exploration geochemistry to the global mining industry. Working for both major and junior companies, he provides consulting services in QA–QC and in laboratory auditing, geochemical survey design, sampling, analytical methods, data interpretation, and geographical information system integration. He also provides training to industry in the form of public and private short courses. Recent research activities include participation in several Geoscience British Columbia–funded studies into deep-penetrating geochemical methods applicable to porphyry exploration in the glaciated regions of central British Columbia. In collaboration with Colin Dunn, he has been involved in studies of the applicability of plant exudates as geochemical sampling media and the uses of halogens as pathfinder elements in organic-rich media. He is a registered Professional Geoscientist in British Columbia.

Paul Morris was university educated at Otago University and Victoria University (both in New Zealand), followed by stints at the University of Sydney (Australia) and Shimane University (Japan). In 2018, he retired from a 30-year career at the Geological Survey of Western Australia, where he was chief geochemist for 22 years. He joined AAG in 1999 (when it was AEG) and has been a Fellow since 2002. During his AAG membership, he has held various positions, including councillor, symposium coordinator, president, chairman of the Awards and Medals Committee and the Education Committee, and is currently Chairman of the New Membership Committee.

Ryan Noble is a senior principal research scientist and the group leader of Predictive Mineral Systems Science with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Perth (Western Australia). He has been with CSIRO for 15 years working on geochemical research applied to the exploration industry. Ryan has a BSc and MSc in soil science from the University of Tennessee (USA) and a PhD in applied geology from Curtin University (Australia). Ryan has worked on numerous regolith and groundwater geochemistry projects related to Au, base metals, Ni, and U mineral exploration. He is a past-president and a Fellow of the Association of Applied Geochemists. Currently, Ryan serves on the editorial board of *GEEA* and is a board member of the Australian Geoscience Council, of Earth Science Western Australia, and of *Elements*. Building on his earlier activities in the AAG, Ryan is keen to continue his involvement in strengthening the AAG and enhancing membership benefits.

Pim van Geffen is a professional geochemist and consultant based in Vancouver (Canada). He obtained his PhD at Queen's University in Kingston (Canada) and his MSc from Utrecht University (the Netherlands). Since 2005, he has worked on a wide variety of projects in applied geochemistry and geochemical data analysis, including soil geochemistry, biogeochemistry, lithogeochemistry, and geometallurgical assessments. He currently works as a consultant with CSA Global, which is part of the ERM group of companies. In this capacity, he uses geochemical data analysis to solve metallurgical and environmental problems in mining operations and advanced projects. He was previously employed with Anglo American, Queen's University, ioGlobal, REFLEX (IMDEX), and as an independent consultant (operating as Vancouver Geochemistry). He is a registered Professional Geoscientist with the Engineers and Geoscientists of British Columbia, a Fellow of the Association of Applied Geochemists, a Fellow of the Society for Economic Geology, and he serves on the Technical Advisory Committee of Geoscience British Columbia.

RECENT ARTICLE PUBLISHED IN *EXPLORE*

The following abstract is for an article that appeared in issue 189 (December 2020) of the *Explore* newsletter.

"Measurement of seasonal variations in stream water chemistry using a portable photometer: case histories from central and southwestern British Columbia, Canada"

Ron Yehia[1], David R. Heberlein[2], Ray E. Lett[3]

Two surveys used a photometer to assess seasonal variation of groundwater chemistry in regional and local settings. The first was a regional Geoscience British Columbia–funded study carried out in June, August, and October of 2016 south of Nazko, a village in central British Columbia. The second involved weekly discharge measurements from a city storm drain having a suspected groundwater influx at a single locality, Vivian Creek, in southeast Vancouver. This study was carried out between June 2018 and May 2019. The article highlights measured pH, Al, total hardness (as $CaCO_3$), Cu, and SO_4 in water samples and evaluates the effects of seasonal variability from the results. The two main objectives of the studies were to identify if seasonal variation in water chemistry could be measured by a photometer and to assess those seasonal variations in regional and local settings. In both cases, we were able to observe that there is seasonal variation in the water chemistry for some analytes and that the results demonstrate that the photometer can be used to identify those trends.

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