



Association of Applied Geochemists

www.appliedgeochemists.org

EXPLORE ARTICLE



The following is an abstract for an article that appeared in issue 171 of the *EXPLORE* newsletter.

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"A common perception in the analysis of rocks and soils in exploration geochemical surveys and ore deposit studies is that Hg is highly volatile and so handling and drying of samples must ensure that temperatures are maintained below ~ 60°C. In order to determine the validity of this assumption, we have reviewed the literature in terms of Hg speciation in geological media. We also performed experiments on pulverizing equipment to determine the range of temperatures attained during sample preparation. During pulverization of rocks, temperatures in excess of 100°C were found for large sample sizes (250 g). Only in cases where there is significant anthropogenic contamination or proximal active hydrothermal or geothermal systems are Hg⁰ or HgCl₂ likely to be major species in samples of interest to geochemical exploration. Both Hg⁰ and HgCl₂ start to volatilize at temperatures < 100°C. However, despite its volatility, relatively aggressive partial leaches are required to fully extract Hg⁰, such as 12 M HNO₃. A consistent result from most studies of Hg in soils is that in soils with abundant organic matter, most Hg appears to be strongly bound, especially to fulvic and humic acids. By contrast, studies using micro X-ray adsorption spectroscopy (XAS) and sedimentation field-flow size fractionation have shown that in some soils, Hg is not associated with organic matter, oxides or clay minerals, but is dominantly present as colloidal cinnabar and metacinnabar. In most soils, stream sediments, and near surface glacial sediments, which exist under generally oxidizing conditions, the predominant form of Hg is bound to organic matter, adsorbed to oxide and clay surfaces, and as insoluble sulfide phases i.e., as Hg²⁺. Thus, our analysis of the literature indicates that for most samples of geological interest, samples can be dried at temperatures around 100°C with no loss of Hg." To view the complete article please visit the AAG web site: www.appliedgeochemists.org/index.php/publications/explore-newsletter

AAG'S STUDENT SUPPORT PROGRAM



Helping the next generation of applied geochemists

Geochemical analysis can be a significant cost of thesis work carried out by applied geochemistry students. To support the next crop of applied geochemists, AAG has partnered with four commercial analytical laboratories to provide in-kind support by way of geochemical analysis to bona fide applied geochemistry students identified through AAG's Student Support Program.

The first version of this program commenced in 2011 and resulted in support for students from Australia and Africa. Their thesis work covered a wide range of topics, including analysis of particle size fractions in laterite, evaluation of diffusion gradients in thin films for

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the detection of element anomalies in soils, the petrogenesis of Ni, Cu and platinum-group mineralization in gabbro, and an investigation into the potential for granite-hosted mineral deposits.

In 2015, the program was restructured to account for the impact of falling commodity prices on the capability of participating laboratories to support the program. The revised program allows participating laboratories to decide on a case-by-case basis about their level of support. This has attracted commitment from Intertek-Genalysis, Bureau Veritas Minerals, ALS, and Actlabs, all of whom offer a range of analytical services, and many of which are operational world-wide.

The scope of the AAG Student Support Program, conditions, and an application form can be found on the Student page of the AAG website (www.appliedgeochemists.org). Each application is assessed on its merits by the AAG and is passed on to participating laboratories for their consideration. Laboratories can decide on their level of support, and successful applicants are put in touch with the chosen laboratory. A condition of the program is that the results are published either in AAG's journal *Geochemistry: Exploration, Environment, Analysis*, or in its newsletter, *EXPLORE*, and will include acknowledgement of the supporting laboratory.

Paul Morris

AAG Education Committee

IAG SYMPOSIUM 2018



A proposal to hold the next International Applied Geochemistry Symposium (IAGS) in conjunction with the "Resources for Future Generations" (RFG) meeting, which will be held 16–21 June 2018 in Vancouver (British Columbia, Canada), has been approved by the AAG Council. The AAG will join with the Canadian Institute of Mining and Metallurgy (CIM), the Geological Association of Canada (GAC) and the Mineralogical Association of Canada (MAC) to host the conference at the

Vancouver Convention Centre. Supporters include the Canadian Federation of Earth Sciences (CFES), the International Union of Geological Sciences (IUGS), the Canadian Geological Foundation (CGF) and the Canadian National Research Council (NRC). As many as 4,000 to 5,000 scientists, policy-makers and industry representatives are expected to attend. The AAG will organize applied geochemistry technical sessions, workshops, field trips and social events within the broader context of RFG2018. An organizing committee has been formed and work has commenced on planning for IAGS2018.

Peter Winterburn

Chair, IAGS 2018 Organizing Committee

RFG 2018
RESOURCES FOR FUTURE GENERATIONS

THE CONFERENCE ON
ENERGY • MINERALS • WATER • THE EARTH

June 16-21, 2018

Vancouver Convention Centre, BC, Canada