Association of Applied Geochemists

www.appliedgeochemists.org

FROM THE PRESIDENT

Paul Morris

At the time of writing, the latest edition of AAG's journal, *Geochemistry: Exploration, Environment, Analysis* (*GEEA*, February 2011, vol. 11, no. 1), has just reached the Association's members. Typical of this journal's content, it contains papers that canvass many areas of geochemistry. This issue features papers on alteration zones related to mineral exploration, regional geochemistry, environmental assessment, and mineral chemistry. The diversity of topics covered by *GEEA* reflects the interests and professional affiliations of the AAG membership and is an outcome of a debate about eight years ago within the Association about who uses applied geochemistry. At that time members of the Association of Exploration Geochemists, as it was then known, discussed a name change to better reflect those who were routinely using geochemistry as a tool in their profession.

The development of rapid and more sophisticated methods of analysis (particularly inductively coupled plasma mass spectrometry), coincident with a notable decrease in analytical costs and the ability to analyse a wider variety of media (vegetable and mineral), meant that geochemical data generated for one purpose (e.g. mineral exploration) were being picked up and used in other areas, such as environmental remediation and land use planning. A name change for the association – to embrace the increasingly diverse use of these data – seemed obvious, and so the name Association of Applied Geochemists was subsequently adopted. This broadening of the Association's charter has drawn in the expertise of a wider range of scientists, thus increasing the scope of papers presented at our biennial symposia and ensuring the growth of *GEEA*. On a more pragmatic note, the widened scope has also meant AAG is now an attractive organisation for a wider spectrum of scientists, an important consideration given the ever-increasing competition for the society membership dollar. The key to the inception and growth of *GEEA* has been the commitment of the editor, Gwendy Hall, and the steady stream of high-quality contributions from authors. A future issue of *GEEA* will include papers from the Association's 25th International Applied Geochemistry Symposium (IAGS) (www.iags2011.fi), which will be taking place from August 22 to 26.

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NEWS FROM AAG REGIONAL COUNCILLORS

Geochemical Surveys in Brazil

The Geological Survey of Brazil (CPRM) has been conducting geochemical mapping surveys since the 1970s in order to characterise the regolith. Stream sediments, overbank sediments, pan concentrates, and soil and water samples are the main media collected from the Amazon to Pampa regions. Twenty geochemical maps have been published in the last two years at 1:100,000 or 1:250,000 scales. Thirty-five maps are in press. Twenty-five map sheets are being sampled. Sampling in seventeen more map sheet areas will start in the next few months. A special project will be conducted in the Carajás mineral province, and similar projects are planned elsewhere. Brazil is experiencing exciting times at the moment, and the Brazilian government has raised its level of investment in the geosciences. CPRM has hired new geochemists and

is conducting geochemical studies at various scales, with objectives ranging from regional exploration to environmental remediation. For additional information, please see CPRM's website (www.cprm.gov.br).

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RECENT ARTICLE PUBLISHED IN *EXPLORE*

Nicholas Turner (2011) – Rising to the Challenge – Applications of Cell-Based ICP-MS to the Analysis of Geological Samples. EXPLORE 151 (June 2011): 1-6

Until recently, geological exploration programs have typically been aimed at discovering precious and base metal commodities. However, technological innovation in areas such as batteries and magnets has increased assay requirements to 50–60 elements, which can vary widely in concentration and may include isotopic data. This has resulted in the need for new analytical approaches that must remain practical, both in terms of cost and the number of different determinations. ICP-MS instruments are ideally suited for this type of application due to their multi-element capability and low detection limits, but they do suffer from interferences on some key elements, plus their sensitivity often prohibits measurement of high- and low-concentration elements simultaneously. The use of cell-based ICP-MS instruments can overcome many of these limitations using either reactive or collision gases. The dynamic reaction cell (DRC) instrument utilizes a quadrupole housed inside a pressurized cell in order to remove interferences by reactions. Furthermore, the predictable bandpass of the quadrupole prevents further interferences from forming and can be used to filter high ion signals, increasing the dynamic range. Examples are given of the application of the DRC to the analysis of a variety of matrices, including high concentrations of rare earth elements in geological samples; low-level vanadium, chromium, selenium and sulphur in MMI-M® partial weak extractions using reaction gases to either remove interferences or move the analyte to an interference-free mass; and the use of a non-reactive gas to improve copper isotope ratio precision by homogenizing the ion beam in the reaction cell. In this way, geological analysis has been simplified as we strive to provide a single-point determination for a specific resource-target exploration.

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