Association of Applied Geochemists

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AAG COUNCILLORS 2013–2014

The AAG welcomes three new and three second-term (*) councillors for 2013–2014: Patrice de Caritat*, Romy Matthies*, Tom Molyneux, Peter Rogers, Cliff Stanley* and Peter Winterburn.

Patrice de Caritat has a PhD in sedimentary geochemistry and has practised in water and regolith geochemistry for over two decades in Canada, northern Europe, and Australia. His principal fields of interest are mineral exploration and environmental geochemistry. Currently he is working on National Geochemical Survey of Australia data and monitoring groundwater quality at a carbon-storage demonstration site.

Romy Matthies is a biogeochemist with eight years of experience in the mining industry and research. She obtained her PhD from Newcastle University, UK, and currently is a Marie Curie Postdoctoral Fellow at the University of Waterloo, Canada, where she investigates stable metal isotopes and their fractionation. Her areas of expertise encompass mine drainage prediction and passive remediation.

Tom Molyneux obtained his geology degrees from Trinity College Dublin (BSc Hons) and the University of Pretoria (MSc and PhD). For three decades he worked as an exploration geologist and geochemist for Anglo American and gained experience in many commodities and regions of Africa and the UK. After a few years with the South African Council for Geoscience, Tom now works as a geological and geochemical consultant based in Ireland.

Peter Rogers has over 40 years of worldwide experience in economic geology, applied mineral exploration and environmental geochemistry. He graduated from University College London (BSc, geology) and the University of Leicester (PhD). Peter has worked in many countries in the mineral exploration sector and in government (UK and Canada). Currently, Peter is country manager in Columbia for a gold exploration company.

Cliff Stanley is a professor of geochemistry at Acadia University, Canada. His research interests are in lithogeochemistry, hydrothermal alteration, sampling, geochemical quality control, mathematical applications in geochemistry, and partial digestion geochemistry. He holds degrees from Dartmouth College (AB) and the University of British Columbia (MSc and PhD) and has authored over 50 scientific papers. Cliff has a long history of service to academia and professional associations, including AAG.

Peter Winterburn is chief geochemist (exploration) for Vale, with global responsibility for developing best-practise geochemistry in exploration, operations, and R&D. He holds a BSc in geological sciences from the University of Aston, UK, and a PhD from the University of Edinburgh. Previously he worked 18 years for Anglo American in Africa and South America, after a brief stint at CSIR in Pretoria.

David Smith (dsmith@usgs.gov)
U.S. Geological Survey, AAG Secretary

RECENT ARTICLE PUBLISHED IN *EXPLORE*

Xin Du, Andrew W. Rate and M. A. Mary Gee (2012) Particle size fractionation and chemical speciation of REE in a lateritic weathering profile in Western Australia. *EXPLORE* 157 (December 2012)

The distribution and partitioning of rare earth elements (REEs) in intensely weathered regolith were investigated through the analysis of REE concentrations in different particle size fractions and in different chemically extractable phases from a lateritic regolith developed on meta-granitoids in Jarrahdale, Western Australia.

High concentrations of REEs were found in the silt and clay size fractions, implying hosting of REEs by secondary minerals and adsorption on clays. The sand size fraction had the lowest concentrations but the highest mass of REEs, showing the dilution effect of quartz and the importance of weathering-resistant minerals in the retention of REEs. In the ferruginous zone, Ce was predominantly hosted by gravel, suggesting that Ce was fractionated and enriched by oxidative processes, such as the precipitation of ferric minerals.

In the sequential extraction, the residual phase contained most REEs, indicating that the abundance and distribution of REEs are controlled by weathering-resistant minerals. The water soluble/adsorbed/exchangeable phase was the fraction hosting the next-highest proportion of total REEs, suggesting adsorption on clays and potential REE bioavailability. The amorphous and crystalline Fe (hydr)oxide–bound phases preferentially hosted light and mid REEs, whereas organic matter was enriched in heavy REEs. These findings inform on the use of REEs as tracers for regolith weathering and pedogenesis, especially when particle-size-sorting processes are involved.

Xin Du (dux01@student.uwa.edu.au)
University of Western Australia