



Association of Applied Geochemists

www.appliedgeochemists.org

FROM THE PRESIDENT

Announcing the Distinguished Lecturer for 2013–2014



Bob Eppinger

The Association of Applied Geochemists (AAG) has supported Distinguished Lecturers since the mid-1980s, and they have presented their work worldwide. Past lecturers include Ian Nichol (1985–1986), W. K. Fletcher (1988–1989), Jane Plant (1992–1993), Charles Butt and Ray Smith (1996–1997), Gwendy Hall (1998–1999), Clemens Reimann (2001–2002), Stew Hamilton (2005–2006), Kurt Kyser (2007–2008), and Robert Bowtell and Scott Long (2011–2012). Generally, lecture topics involve exploration and the environmental aspects of geochemistry that relate to mineral resources.

Our Distinguished Lecturer for 2013–2014 is Dr. Ravi Anand of Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO). Dr. Anand is a dynamic speaker, has had a long and distinguished career with CSIRO, has held professorships in Australia and India, and has specialized in regolith geochemistry, biogeochemistry, landscape evolution, weathering processes, lateritic environments and geochemical exploration. Dr. Anand is planning a CSIRO-funded round-the-world trip in March–April 2013, which will be an excellent opportunity for the applied geochemistry community to hear his views. Dr Anand's itinerary will be posted on AAG's website (www.appliedgeochemists.org). The following is a tentative list of his presentations: Understanding anomaly formation through transported cover: Field and experimental approaches; Regolith–landscape processes and evolution and their implications to mineral exploration; Role of palaeoclimates, mineralogy and geochemistry in forming anomalies on interfaces in areas of deep basin cover: Implications for exploration; How supergene laterite gold deposits form: New insights into anomaly formation processes; Mineral hosts for Au and trace elements in regolith; Global-scale comparison of laterite- and ferricrete-forming processes in deeply weathered terrains of the world and their implications to geochemical exploration; Origin of ferruginous pisoliths in terrestrial environments: Success in mineral exploration and clues to life on Mars

On behalf of AAG's Council, I congratulate Ravi on his selection as AAG's next Distinguished Lecturer and look forward to hearing some of his lectures. Commonly presented in university settings, these lectures are another example of AAG's efforts to educate and ensure a steady flow of young upcoming geochemists, tomorrow's leaders in applied geochemistry. Geology/geochemistry professors and student groups are encouraged to contact Ravi (ravi.anand@csiro.au) to arrange talks at their universities.

Bob Eppinger (eppinger@usgs.gov)
U.S. Geological Survey, AAG President

IAGS 2013

The next AAG biennial International Applied Geochemistry Symposium (IAGS) will be held in Rotorua, New Zealand, on 18–21 November 2013 and will incorporate the annual New Zealand Geothermal Workshop. The meeting will focus on applied geochemistry, new ways of analysis, interpretation of data, and geochemistry applied to environmentally sustainable mineral and geothermal exploration and development. Special sessions will be held on geothermal geochemistry and on the exploration and environmental geochemistry of sea-floor hydrothermal systems and black smokers.



Champagne Pool in
Wai-O-Tapu thermal park

Pre-symposium workshops are planned for topics such as epithermal deposits, orogenic gold deposits, sea-floor massive sulfide deposits, geothermal geochemistry, the application of indicator methods to mineral exploration, and quality assurance in geochemical analysis. Pre- and post-symposium field trips include North Island epithermal gold deposits and geothermal systems; South Island orogenic gold deposits; the environmental geochemistry of Rotorua lakes; limestone caves; the active andesite volcano of White Island; and the wine terroir of the Hawkes Bay region, New Zealand's premier red wine region.

The city of Rotorua (www.rotoruanz.com) is an iconic touristic destination because of its volcanic and geothermal attractions and spas, as well as being the heartland of Maori culture. A daily program of tours for accompanying persons will take advantage of the many local tourist attractions. The social programme will include functions every evening of the symposium, such as an optional Maori cultural evening and an optional Hydrothermal Fluid Society wine-tasting evening.

The first circular and additional information are available on the website www.gns.cri.nz/iags.

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RECENT ARTICLE PUBLISHED IN EXPLORE

CHRIS BENN, NEIL JONES, DAVID WEEKS, JAMES BELL AND KIRIL MUGERMAN (2012) Lithological discrimination in deeply weathered terrains using multielement geochemistry – An example from the Yanfolila Gold Project, Mali. *EXPLORE* 156 (September 2012)

The Yanfolila Gold Project is located in southwest Mali and is hosted in a volcano-sedimentary sequence that is part of a Middle Proterozoic Birrimian-age greenstone belt. Consistent logging of the main rock types is difficult because of deep weathering and strong hydrothermal alteration. This article describes the application of robust lithological discriminators determined in fresh material, saprolite and soil material.

Systematic sampling and analysis of fresh material in diamond drill core produced data that allowed the discrimination of basalts, mafic sediments, siliciclastic sediments and felsic intrusive rocks. Classification diagrams that were considered to be robust enough to be still valid in the weathering environment (saprolite) were constructed. These diagrams are bivariate plots of the more immobile elements, such as Ti, Cr and Zr. A Cr–Ti diagram produces good discrimination of the felsic and mafic volcanic lithologies, and further discrimination between sandstone and siltstone is achieved with the Sr–V plot. The classification diagrams were successfully validated using a set of bottom-of-hole air core drill samples and an interpreted geological map from logging of the drill cuttings. The same classification diagrams were used for multielement data for soil samples that covered the test area. The Ti–Zr diagram produced a separation of mafic and felsic rock types for the soil samples.

Careful development of classification diagrams using fresh material can produce a rapid and cost-effective method of identifying basic rock types in weathered material. Similar outcomes for the fresh and weathered materials were achieved using geochemical data from a field-portable XRF and the same or slightly modified classification diagrams.

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