Challenges in Environmental Geochemistry & Health: Future Research Priorities?

Invited Speaker: Professor Andrew S Hursthouse, University of the West of Scotland, UK

Abstract: Globally the environmental geochemistry community has contributed to a wealth of data and models of the abundance, distribution, transport and partitioning of a wide variety of chemical species from naturally occurring ions through to complex anthropogenic molecules. The contribution to understanding from detailed chemical analysis, innovative experimental evaluation and comprehensive system surveys has provided insight to the environmental controls on human exposure to many potentially harmful substances. The context is often where obvious causal links can be identified surrounding geochemical anomalies from natural and human actions such as waste disposal, accidents and changes in human behaviour.

The range of substances are potentially enormous, but even the briefest scan of reports and literature highlight metals and metalloids (e.g. Pb, As, Cr); radioactivity (e.g. U, Rn, Cs) and organic compounds (petroleum hydrocarbons, pesticides). The exposure is often directly to large populations (e.g. contaminated drinking water, air quality) or in a context significant to society function (e.g. land contamination), local situations often reported in popular and stimulate ongoing scientific investigations (e.g. reported in EG&H). The context for this activity often results in environmental geochemists working in partnership with other disciplines and valuable insight can be gained both for fundamental science and for the improvement of public health. The future demands on resources – supply of raw materials and preservation and enhancing water, food and energy security, will increase the intensity and demand for objective scientific support to regulatory (and political) decision making, further encouraging the scientific community to think more holistically. There are as many barriers as there are opportunities. How will this affect future research opportunities? What is the role of the environmental geochemist?

Short Curriculum Vitae: Andrew Hursthouse in an environmental geochemist based at the University of the West of Scotland, UK, where he is subject development lead for Physical Sciences. Over the last 25 years, his research has included studies of radionuclide migration in coastal soils and sediments; estuarine cycling and bioaccumulation of potentially toxic elements and POPs; urban soil and air quality; contaminated land assessment; the remediation of soils and wastes; micronutrients in maternal health. He has worked extensively with industry, NGOs and as an expert advisor to EU and national and local government initiatives in environmental quality and public health. He is currently European Chair of the Society for Environmental Geochemistry & Health.