

# About the authors

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**Nicola Ashton** completed her PhD in Environmental Geochemistry and Geomicrobiology from The University of Manchester in 2014. Her PhD research focused on investigating the influence of parent geology on the development of soil bio-physiochemical properties and the potential impact on microbial ecology and selenium mobility. Nicola also holds an undergraduate master's degree in Earth Sciences (hons) from The University of Manchester.

**David Beamish** is currently Team Leader for Regional Geophysics at the British Geological Survey. He has over 35 years' experience of geophysical methods. He has developed methodologies for non-seismic hydrocarbon exploration. He has acted as a principal consultant or Lead Scientist on research and applied work programmes for government agencies (DFID, DTI, Nirex, the Ministry of Defence); on European EC Framework programmes and World Bank airborne geophysical projects; and for many companies. Recent specialisations include near-surface and airborne geophysics applied to the environmental, resource and hydrogeological sectors. He has been closely involved with the Tellus programmes since 2004.

**Mark Cave**, a Principal Scientific Officer at the British Geological Survey, is an analytical chemist/geochemist with extensive experience in the analysis and interpretation of environmental chemical data in relation to human health. He has worked widely on the interpretation of geochemical data sets with reference to geogenic and anthropogenic influences. He has specialised in investigating the geological controls on the bioaccessibility of

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potentially harmful elements, particularly naturally occurring arsenic, and is chairman of the Bioaccessibility Research Group of Europe. Mark is a member of the Royal Society of Chemistry, Chartered Chemist and Chartered Scientist, and newsletter editor and committee member of the International Medical Geology Association.

**Mark Cooper** joined the Geological Survey of Northern Ireland (GSNI) in 1996 on completion of his BP supported research doctorate at University of Liverpool. He is currently the GSNI Chief Geologist for Northern Ireland and has a broad understanding of Northern Ireland geology in its all-Ireland, UK and international context. His main areas of geological expertise include bedrock and Quaternary mapping, Neoproterozoic–Lower Palaeozoic stratigraphy and structure as well as basement control on magmatism and mineralisation.

**Marie Cowan** is the Director of the Geological Survey of Northern Ireland. Prior to this, Marie was Project Manager of the Tellus Border Project and Deputy Manager of the Tellus Project, the communications programmes of which received five awards from the PR industry in NI and Ireland for best practice in public sector and community engagement. She is a member of the RIA Geosciences and Geographical Sciences Committee, has served on the board of Institute of Geologists of Ireland and as Chair of Earth Science Ireland. Previously, Marie worked at Exxon Mobil and in consultancy; she has a 1st Class Honours BSc and PhD in Geology from Queen's University Belfast.

**Michael Dempster** started his career in 1997 as a technician in Department of Agriculture laboratories in Northern Ireland. In 2003 he moved to the Northern Ireland Environment Agency where he worked on protection of nationally and internationally important conservation sites, focusing on the geological conservation programme. Michael has a BSc (hons) in Geoscience from the Open University and in 2014 completed a PhD at Ulster University, using the Tellus and Tellus Border soil geochemical data to investigate the provenance of till in the northern sector of the Irish Ice Sheet.

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**Garth Earls** is an Adjunct Professor at the School of Biological, Earth and Environmental sciences in University College Cork. From 2002 to 2010 he was the Director of the GSNI and was responsible for the instigation and delivery of the Tellus Project in Northern

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**Raymond Flynn** is a hydrogeologist with over 20 years' experience. He has worked for private, academic, and governmental organisations both in Ireland and abroad and currently teaches Hydrogeology and Engineering Geology at Queen's University Belfast. His research focuses on the hydrological cycle and the role of groundwater in maintaining human health and ecosystems; research projects have ranged from solute and particle contaminant transport in the water cycle to wetland eco-hydrology. Current research includes the integration of spatial datasets to develop a more holistic understanding of physical and geochemical influences on diffuse contaminant mobility, and quantifying the geo-ecological services provided by wetland ecosystems.

**Mairéad Glennon** manages the Tellus programme at the Geological Survey of Ireland, having been the Assistant Project Manager and Communications Lead for the award-winning Tellus Border Project. Previously, Mairéad worked in the private sector as a contaminated land hydrogeologist and with the Geological Survey of Ireland on groundwater and urban geochemistry projects. Mairéad is a non-executive Director and Professional Member of the Institute of Geologists of Ireland and a committee member of Earth Science Ireland and the Ireland Brownfield Network. Mairéad has a BA in Natural Science (2004) from Trinity College Dublin and an MSc in Applied Hydrogeology (2008) from Newcastle University.

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**Steven Hollis** is a postdoctoral research scientist at University College Dublin, Ireland. His research has focused on understanding linear orogens, modern and ancient volcanogenic massive sulphide mineralisation, and copper isotope systematics associated with the lead–zinc Navan ore deposit, Co. Meath. In 2015 he was awarded the President's Award from The Geological Society of London in recognition of a series of papers on the geology of Northern Ireland. He graduated from the University of Birmingham, holds an MSc in Geochemistry from the University of Leeds, and completed his PhD at the University of Southampton in 2012 on the Tyrone Igneous Complex of Northern Ireland.

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**Valerie McCarthy** is a Lecturer in the Department of Applied Sciences in Dundalk Institute of Technology, teaching biology and environmental sciences. Her research is focused on investigating the consequences of anthropogenic environmental impacts on the functioning of aquatic ecosystems and includes investigating the linkages between aquatic systems and their catchments, tracking the fate of contaminants from source to receptor, and the ability of wetlands to treat domestic wastewater. Valerie holds a PhD in Freshwater Ecology from Trinity College Dublin.

**Rebekka McIlwaine** graduated from Queen's University Belfast in 2012 with a BEng in Civil Engineering and completed a PhD which studied the varying sources and concentrations of potentially toxic elements in soils. This research considered 'background' values of contaminants in soil and compared the concentrations measured by different geochemical analytical techniques. Her most recent research, sponsored by a Society of Brownfield

Risk Assessment scholarship, considers the relationship between historical development in urban areas and varying concentrations of contaminants in soil.

**Jennifer McKinley** is a Senior Lecturer in the School of Geography, Archaeology and Palaeoecology at Queen's University Belfast. Her research focus is on the development and application of spatial analysis techniques – geostatistics and Geographical Information Science – to soil geochemistry, environmental and criminal forensics, airborne geophysics and weathering studies. A graduate of Queen's, Jenny is currently President of the International Association of Mathematical Geoscientists, a Council Member of the Geological Society of London and sits on the RIA Geological and Geographical Sciences Committee.

**Kate Moore** is integral to the Critical Metals Alliance between the British Geological Survey and the Camborne School of Mines (CSM). Based at CSM, she leads research into the emerging issue of security of resource supply, particularly for the raw materials used in the low-carbon energy technologies. Her research involves deciphering the geological mechanisms that concentrate technology metals, which may be subject to critically short supply, into economic ore deposits. Before joining CSM in March 2012, she lectured in economic geology, igneous petrology and geochemistry at the National University of Ireland Galway for 13 years.

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**Sherry Palmer's** recent research has focused on a spatial analysis of Northern Ireland geochemistry to understand how different geologic and soil forming processes may determine if soil-borne contaminant exposure is a risk to human health. Sherry holds a bachelor's degree in Environmental Science and Chemistry from Western Washington University (USA) and an MSc in Environmental Engineering from the Queen's University Belfast. She also completed her PhD in geochemistry at Queen's, researching the oral bioaccessibility of potentially toxic trace elements in soil.

**Barbara Palumbo-Roe** is a senior process geochemist at the British Geological Survey, studying the source, transport and attenuation of trace elements in the environment and their impact on ecosystems and human health, through field observations, experimental

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**Koen Verbruggen** was appointed Director of GSI in 2013, having been Acting Director since 2012. He joined GSI in 2000, working firstly in Minerals and later in Information Management, before becoming co-Manager of the INFOMAR project in the Marine Geology Department. Koen is a geology graduate with an MSc in Petroleum Geology, both from UCD. He spent 15 years in the resource industry, briefly in oil and gas exploration but mainly working in mineral exploration, working mostly for Irish junior exploration companies, and worked and lived for several years in Canada, Australia, Mexico, Cuba and various parts of Africa.

**Mike Young** was Director of GSNI from 2011 to 2014, having joined in 2004 to manage the first of the Tellus Projects. Previously he worked in industry, mostly in the Middle East, Africa and South America, designing and managing regional geophysical survey and water resources projects in 20 countries. He has published on geophysical exploration in arid environments, regional geoscience mapping, and groundwater assessment. He graduated in physics from Bristol University, has an MSc in geophysics from Imperial College and an MBA from Warwick Business School, and is Secretary for Foreign and External Affairs at the Geological Society of London.

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