

Meet the Authors



Benjamin C. Gill is currently a postdoctoral fellow at Harvard University. He received a BSc and PhD in geological sciences from the University of Missouri and the University of California–

Riverside, respectively. His research interests involve reconstructing past ocean chemistry and relating this to the history of life on Earth, particularly during the Cambrian and Jurassic periods. He utilizes several geochemical proxies and numerical modeling techniques to help constrain past cycles of biologically important elements, such as sulfur, carbon, and molybdenum.



David T. Johnston is an assistant professor of biogeochemistry in the Department of Earth and Planetary Sciences at Harvard University. An isotope geochemist by training, David's research

now falls more in line with the emerging discipline of geobiology. Johnston uses isotopic techniques to bridge microbial ecology with Earth history and chemostratigraphy. His group is currently working on problems concerning Earth-surface evolution (on geological timescales), Neoproterozoic ecosystems and energy budgets, and cellular-level processing of sulfate and sulfide for metabolic energy gain.



Timothy W. Lyons, a professor of biogeochemistry at the University of California–Riverside, began cultivating his passion for anoxic marine environments during his doctoral research on the

Black Sea. Exploration of the Cariaco Basin and other celebrities of oxygen deficiency followed, and soon Lyons was applying the lessons gained from his modern vantage point to major redox-dependent questions of the geologic past. Now, he and his research group split their time equally between the development of geochemical proxies in modern settings—including the sulfur isotope system and all flavors of Fe and Mo geochemistry—and the

pursuit of answering big questions about the ancient ocean. Their favorite targets encompass the timing of atmospheric oxygenation, the persistence of deep-ocean anoxia, and the coevolution of seawater chemistry and life.



Penelope L. (Penny) King is a senior research scientist at the Institute of Meteoritics at the University of New Mexico. After graduating from the Australian National University, she received

her PhD from Arizona State University for research in experimental petrology and microanalysis. She was on the faculty of the University of Western Ontario for seven years (where she is an adjunct research professor) before joining the University of New Mexico. Her current research focuses on the origin and evolution of planetary interiors and surfaces, and on the roles of volatiles, pH, volatile activities, and oxygen fugacity on minerals and melts at high and low temperatures. King has served on the councils of the Mineralogical Association of Canada and the Mineralogical Society of America (MSA), and was an MSA Distinguished Lecturer in 2005.



Charles W. Mandeville is a senior research scientist at the American Museum of Natural History in New York and conducts research in volcanology and geochemistry. His PhD research

focused on the 1883 eruption of Krakatau. He utilizes stable isotope data (S, O, H), combined with infrared spectroscopic and petrologic data, to delineate the sources of magmatic volatiles, the extents and styles of degassing, and initial isotopic signatures. He currently conducts NSF-supported research on recycling of sulfur in subduction zone magmatism. He uses secondary ion mass spectrometry (SIMS) and X-ray absorption near edge structure spectroscopy (XANES) to measure sulfur isotope ratios and speciation in mafic melt inclusions from arc volcanoes and experimental glasses produced in high-temperature sulfur isotope fractionation experiments.



Scott M. McLennan is a professor of geochemistry in the Department of Geosciences at the State University of New York at Stony Brook. His current research deals primarily with surficial processes,

sedimentary geochemistry, and crustal evolution on Mars. He uses a combination of laboratory experiments and geochemical/mineralogical data returned from the various orbital and landed missions. He is a participating scientist on the Mars Exploration Rover (MER) and Mars Odyssey Gamma Ray Spectrometer science teams.



Nicole Métrich is a senior scientist at the Laboratoire Pierre Süe (Saclay, France). She is an associate researcher at the Istituto Nazionale di Geofisica e Vulcanologia (Pisa, Italy) and will soon join the

Institut de Physique du Globe de Paris (France). Her major interest is the behavior of volatiles in magmas and degassing processes, which she studies using melt inclusions trapped during crystal growth. She was introduced to the world of melt inclusions working with R. Clocchiatti and A. Sobolev. Since then, she has concentrated her work on the role of water in magmatic processes and more broadly on the evolution of volatiles during magma decompression, ascent, and eruption.



Clive Oppenheimer is a reader in volcanology and remote sensing at the University of Cambridge, and a research associate of “Le Studium” based at the Institut des Sciences de la Terre d’Orléans. His

main research interests are how magma transport and degassing control eruptive style at active volcanoes; the atmospheric chemistry of volcanic plumes; the environmental, climatic, and human impacts of volcanism in antiquity; and development of environmental sensing techniques and applications. His favorite field location is Erebus volcano in Antarctica where he has carried out research as part of the US Antarctic Program since 2003.

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