

Meet the Authors



Ronald Amundson is Professor of Pedology and chair of the Division of Ecosystem Sciences at the University of California, Berkeley. Amundson's research focuses on the role of soils in the Earth's carbon

and nitrogen cycles, processes controlling trace gas emissions from soils, and the effect of climate on soil weathering and erosion processes. He has worked with colleagues to quantify the human footprint on soil diversity in the United States and is involved in efforts to link bio- and geodiversity in research and land planning. Much of his research has involved the use of stable and radioactive isotopes for tracing biological processes and for developing new substrates for dating. Currently, his work is focused on biogeophysical processes in the Atacama Desert of Chile and how these processes fundamentally change as rainfall declines and the imprint of life vanishes.



Suzanne Prestrud Anderson is a geomorphologist interested in landscape controls on chemical weathering fluxes and how weathering processes tear rocks apart. She grew up with the

Olympic and Cascade mountain ranges in her backyard, which fostered her interest in glaciers and mountains. She earned a BS in chemistry at the University of Puget Sound, an MS in geology at the University of Washington, and a PhD in geology at the University of California, Berkeley. She spent her NSF Earth sciences postdoctoral fellowship at the University of Wyoming. She is currently an assistant professor in geography and a member of the Institute of Arctic and Alpine Research at the University of Colorado at Boulder.



Susan L. Brantley received her PhD in geological and geophysical sciences from Princeton University in 1987. She is now a professor of geosciences and the director of the Earth and Environmental

Systems Institute at Penn State. Her research interests include chemical, physical, and biological processes occurring during water-rock interactions. She is especially interested in soil formation. Dr. Brantley also directs the Center for Environmental Kinetics Analysis, a joint research and education initiative of the National Science Foundation, the U.S. Department of

Energy, and Penn State. Dr. Brantley, along with a diverse group of geochemists, geomorphologists, soil scientists, and ecologists, is involved with the Critical Zone Exploration Network (CZEN), an initiative to study the Earth's weathering engine.



Oliver A. Chadwick received his PhD from the University of Arizona and then joined NASA's Jet Propulsion Lab at Caltech as a soil scientist concerned with the functioning of soil as a part of Earth's surface.

His research focus on the role of soil as a reactive medium at the atmospheric, hydrological, biological, and geological interface. For the last 12 years, he has been a professor in the Departments of Geography, Earth Science, and Environmental Studies at the University of California, Santa Barbara.



Jon Chorover is a professor in the Department of Soil, Water and Environmental Science at the University of Arizona. His research and teaching focus on environmental biogeochemistry.

He received his PhD in soil chemistry from the University of California, Berkeley and was an NSF postdoctoral fellow in environmental chemistry at the University of Geneva. His research group conducts laboratory and field experiments designed to identify molecular-scale mechanisms that underpin macroscale phenomena such as mineral-organic-solution interactions, weathering processes, and pollutant transport in soils and sediments. He is involved in several interdisciplinary projects whose goal is understanding the couplings between physical, chemical, and biological processes in the Critical Zone.



Louis A. Derry is a geologist specializing in low-temperature biogeochemistry. Before graduate school at Harvard, Derry worked for the Homestake Mining Co. and the Chevron Oilfield Research Corpora-

tion. From 1990 through 1992, he was a visiting scientist at the Centre de Recherches Pétrographiques et Géochimiques and a visiting lecturer at the École de Géologie in Nancy, France. He was a visiting professor of chemistry at Hartwick College in 1992. He arrived at Cornell University as a Snee Research Fellow in 1993 and joined the faculty in 1996.



Jérôme Gaillardet received a PhD in geochemistry from Paris University after a background in natural sciences at the École Normale Supérieure de Lyon. He is now a professor at the Institut de Physique du

Globe de Paris (IPGP) and the director of the Earth science teaching department of the Université Paris Diderot. He works on rivers, applying geochemistry techniques for understanding erosion and weathering of the continents, and more recently has become interested in environmental studies. He has carried out boron isotope measurements in rivers and ocean and has contributed to the development and application of other isotopic tracers in rivers. He received an award from the French Academy of Science in 2003 for his contribution to the global cycle of boron and ocean paleo-pH reconstructions.



Ferran Garcia-Pichel is Professor of Microbiology in the School of Life Sciences at Arizona State University, where he has been since 2000. He conducts research in the fields of microbial ecology and geomicrobiol-

ogy and teaches general microbiology and geomicrobiology. He holds a bachelor's degree in science from the Autonomous University in Barcelona and Master's and PhD degrees in microbiology from the University of Oregon, and has been a Fulbright Scholar. His research interests are centered on the biogeochemistry of extreme environments, the interactions between microbes and minerals, and the biological adaptations that make them possible.



Martin B. Goldhaber grew up in Los Angeles California. He received his BS in chemistry (1968) and PhD in geochemistry (1973) from UCLA. After spending a year as a postdoctoral fellow at Yale, he joined

the USGS in 1975 where he is currently a senior scientist. He has been a member of the Geochemical Society since 1972 and is currently vice president. He is a fellow of the Geological Society of America and the Society of Economic Geologists and has served on the editorial boards of *Economic Geology*, *American Journal of Science*, and *Geochimica et Cosmochimica Acta* (two terms). He is currently co-chief of a USGS project to map the inorganic and selected organic constituents in soils of the U.S. and, together with the Canadian and Mexican geological surveys, all of North America.

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Esteban G. Jobbágy is a staff scientist of the National Research Council of Argentina (CONICET) at the Environmental Studies Group in Universidad Nacional de San Luis. His research focuses on the role

of plants in the shaping of biogeochemical and hydrological cycles in the context of land use changes, particularly the transitions between woody and herbaceous vegetation. The techniques he uses include deep soil coring, stable isotope tracing, remote sensing, and groundwater monitoring. Some of his contributions have involved the exploration and synthesis of global and continental biogeochemical patterns.



Ruben Kretzschmar is a professor of soil chemistry in the Institute of Biogeochemistry and Pollutant Dynamics at ETH Zürich, Switzerland. He received his PhD degree in soil science from North Carolina State

University in Raleigh. He and his research group are investigating biogeochemical processes controlling the behavior of trace elements in soils and sediments. He has published over 60 papers in international peer-reviewed journals and several book chapters and reviews. Currently, he serves as chair of Division 2 in the International Union of Soil Sciences, editorial board member of *Geoderma* and *Journal of Plant Nutrition and Soil Science*, and associate editor of *Environmental Science and Technology*.



K. Vala Ragnarsdottir is Professor of Environmental Sustainability at the University of Bristol, UK. She was educated in Iceland (BSc, geology) and at Northwestern University, Evanston, Illinois (MS and

PhD, geological sciences). Vala has been conducting research and teaching in aqueous environmental geochemistry for over 20 years. More recently she has become involved in studies related to biogenic weathering and the life cycle of soils. She also leads action research designed to empower citizens to develop sustainable communities. Vala is a member of scientific advisory boards for research councils in the United Kingdom and European Union.



Daniel D. Richter is Professor of Soils and Ecology and Director of Graduate Studies for Duke University's Interdepartmental Program in Ecology. He teaches graduate-level courses in environmental sciences,

dealing mainly with the soil system. Richter's research is aimed at exploring the decadal trajectories and dynamics of soils as biogeochemical systems, research that is based at the Long-Term Calhoun Soil-Ecosystem Experiment, a permanent soil and ecosystem field experiment that celebrates its 50th anniversary in 2007. Richter leads the first global inventory and metadatabase of long-term soil-ecosystem experiments (<http://ltse.env.duke.edu>).



Donald L. Sparks is S. Hallock du Pont Endowed Chair of Soil and Environmental Chemistry at the University of Delaware. His research focuses on the kinetics of soil chemical reactions and the surface

chemistry of soils. He and his group have been leaders in employing synchrotron-based techniques to study metal, metalloid, and nutrient reactions in soil minerals, soils, and biosolids. He has advised and mentored 60 graduate students and postdoctoral researchers. A fellow of AAAS, the Soil Science Society of America, and the American Society of Agronomy, he is the recipient of numerous awards and honors, including the Francis Alison Award, the University of Delaware's most prestigious faculty honor.



Friedhelm von Blanckenburg is a professor of geochemistry at the University of Hannover, Germany. His research interest is the application of isotope geochemical techniques to

current questions in the Earth, environmental, and ocean sciences. He graduated from the Technical University of Berlin and completed his PhD in high-temperature isotope geochemistry and geochronology at ETH Zürich, Switzerland. He spent seven years as research fellow at the universities of Cambridge and Oxford, England, and then four years as lecturer at the University of Berne, Switzerland. There he developed an interest in geomorphological studies using cosmogenic nuclides. He moved to Hannover in 2001, where his group established a laboratory specializing in cosmogenic nuclide and heavy stable metal (e.g. Fe, Si) isotope studies, applied mostly to Earth surface processes.



Arthur F. White received a BS in geology at the University of California, Berkeley and a PhD in geochemistry at Northwestern University with Fred Mackenzie. He formerly held research positions in

the nuclear hydrology program with the USGS in Denver, Colorado, and in the Earth Sciences

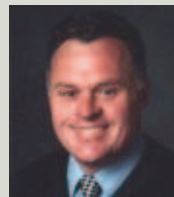
Division at the Lawrence Berkeley National Laboratory. He currently serves as a project chief in the National Research Program with the USGS in Menlo Park, California. His current research mainly involves understanding the chemical, hydrologic, and biological processes associated with chemical weathering. He is a fellow of the Mineralogical Society of America and of the Geochemical Society/European Association for Geochemistry.



Timothy S. White is a senior research associate in the Earth and Environmental Systems Institute at the Pennsylvania State University. He received his MS and PhD from Penn State and a postdoctoral

research fellowship from the University of Iowa. Tim was a shipboard scientist on ODP Legs 189 and 194 as an organic geochemist. From 2000 to 2003, Tim was employed in the U.S. Geological Survey's Minerals Program in Alaska. His current research includes high-resolution stratigraphy and paleoenvironmental reconstructions. More recently his work has focused on the application of paleosol studies to understanding the paleoclimatology of ancient greenhouse episodes.

IN MEMORIAM



Geoff Humphreys died suddenly on August 12, 2007, while doing what he loved, running in the Australian bush. Professor Humphreys was an associate professor in the Department of Physical

Geography at Macquarie University. His research crossed the interfaces of pedology, geomorphology and ecology, focusing on soil formation, environmental change, and landscape degradation; he had a special interest in the soils of Papua New Guinea. Dr. Humphreys, along with a small group of Australian and American colleagues, promoted and explored the importance of biological mixing of soils, rainsplash erosion, and their combined effects on geomorphic processes. Together with T.R. Paton and P.B. Mitchell, Humphreys wrote the widely discussed book *Soils: A New Global View*, a treatise in which the biological and physical processes that shape soils are given full consideration. His great spirit and insightful views on nature will be greatly missed.