

# Meet the Authors



**Suzanne P. Anderson** is a geomorphologist interested in how rock breaks down and in how weathering and erosion interact to produce a diversity of landscapes. She has led the Boulder Creek Critical Zone Observatory (Colorado, USA) since 2007 and is a professor of geological sciences at the University of Colorado at Boulder (USA).



**M. Grace Andrews** is a postdoctoral research fellow at the University of Southampton (UK) and a staff member at the Leverhulme Centre for Climate Change Mitigation (University of Sheffield, UK). She received her PhD from Northwestern University (Illinois, USA) in 2017. As a geochemist, her research focuses on using nontraditional stable isotope systems (e.g., Sr and Ca) to understand the global carbon cycle and Earth's climate on human and geologic timescales. She has investigated chemical weathering in environments ranging from Malaysian Borneo to beneath the Greenland Ice Sheet.



**Heather L. Buss** is a geochemist who specializes in biogeochemical weathering in the critical zone. Her focus is on identifying, quantifying, and modelling feedbacks between chemical weathering and biological and physical processes, especially at rock-soil interfaces. She applies a range of tools and approaches, including field work; experimentation; textural, elemental, and isotopic analyses of rocks, minerals, waters, microorganisms and vegetation; and numerical modeling. Her work on weathering extends from tropical and temperate forests to agricultural soils to the deep subsurface. She obtained her PhD in geosciences from Pennsylvania State University (USA) and has held positions as a postdoctoral fellow and research chemist at the US Geological Survey. She is currently an associate professor in the School of Earth Sciences at the University of Bristol (UK).



**Patrick J. Frings** is a geographer by training and an isotope geochemist on a day-to-day basis. His research interests revolve around developing and applying isotope geochemical proxies to constrain and quantify processes that range from microbial metal fluxes to global-scale weathering fluxes. Born and raised in the southwest of the UK, he holds a BSc in environmental geography and an MSc in Quaternary science from University College London (UK). His PhD, awarded in 2014 from Lund University (Sweden), focused on silicon biogeochemistry and isotope geochemistry in aquatic systems. He followed this with an outgoing mobility scholarship from the Swedish Research Council: although this was associated with the Swedish Museum of Natural History, it was hosted at the Helmholtz Center in the GeoForschungsZentrum (GFZ) Potsdam (Germany). He remains at GFZ today, working at the interface between geomicrobiology and isotope geochemistry.



**James F. Kasting** is an Evan Pugh Professor at Pennsylvania State University (USA) where he holds joint appointments in the Departments of Geosciences and in Meteorology and Atmospheric Science. He earned an undergraduate degree in chemistry and physics from Harvard University (Massachusetts, USA) in 1975 and a PhD in atmospheric sciences from the University of Michigan (USA) in 1979. Prior to coming to Penn State in 1988, he spent two years at the National Center for Atmospheric Research in Boulder (Colorado, USA) and seven years in the Space Science Division at NASA Ames Research Center (California, USA). His research focuses on the evolution of planetary atmospheres and climates and on the question of whether life might exist on planets around other stars. In 2016, he was awarded the Stanley Miller Medal, otherwise known as the National Academy of Science Award in Early Earth and Life Sciences. His book *Atmospheric Evolution on Inhabited and Lifeless Worlds*, coauthored with David Catling, was published in 2017.



**Stephen Porder** is a professor of ecology and evolutionary biology and the Assistant Provost for Sustainability at Brown University (Rhode Island, USA). He received a BA (history) from Amherst College (Massachusetts, USA), an MS (geology) from the University of Montana (USA) and a PhD (ecology and evolutionary biology) from Stanford University (California, USA). He studies the controls of tropical rain-forest growth, how such forests may respond to human-driven global changes, and how these responses may vary with geologic setting. He also explores the ecological consequences of industrial tropical agriculture, and how large-scale tropical forest reforestation programs might be designed to increase forest cover while promoting human well-being.



**Lyla L. Taylor** is an interdisciplinary process modeler of vegetation and weathering geochemistry with a particular interest in plant-mineral-Earth system interactions and how the critical zone has evolved throughout geological time. Following an eclectic life in astronomy, geophysics, geology, paleontology, and botany, her PhD on the effect of plants and fungi on the long-term carbon cycle was conferred in 2012 by the University of Sheffield (UK). At present, she is a research scientist within the Leverhulme Centre for Climate Change Mitigation (University of Sheffield), where she aims to quantify carbon capture and greenhouse-gas balances associated with silicate mineral treatments on agricultural land and forested watersheds.

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