

Meet the Authors



David M. Chew is an associate professor of geology at Trinity College Dublin (Ireland). He received his PhD from University College Dublin. His uses thermochronology to quantify the timing and rates of tectonic processes, such as mountain building and exhumation. He also develops new isotopic dating methods to identify the sources of sediments and to track sediment histories. His field areas include the Andean margin of South America, the Caledonides of Europe and the East African Rift.



Daniel E. Harlov is a research scientist at the Deutsches GeoForschungsZentrum, Potsdam (Germany) and a visiting professor in the Department of Geology, University of Johannesburg (South Africa). He holds two MSc degrees from the University of Wisconsin–Madison and a PhD from Purdue University (USA). Dan's research philosophy is to couple field observation with experimental replication and thermodynamic verification. To this

end, he has field projects worldwide investigating the role that fluids play in geological processes and he has laboratory projects that focus on mineral–mineral and mineral–fluid equilibria and mineral alteration (including apatite, monazite, xenotime, allanite, zircon, titanite, garnet, feldspars, scapolite, oxides, sulfides) under a broad range of P – T – X conditions.



John M. Hughes is a professor of geology at the University of Vermont, which he joined as Provost after a career at Miami University (USA). John received his PhD from Dartmouth College (USA), was a predoctoral fellow at the Carnegie Institution for Science's Geophysical Laboratory (USA), and was president of the Mineralogical Society of America in 2013. He uses X-ray diffraction to analyze crystal structures and is particularly interested in the

behavior of F, Cl, and OH in apatite's anion column. John is pleased to recognize the numerous students and colleagues who have participated in this work.



Rhian H. Jones has been a Reader in Isotope Geochemistry and Cosmochemistry at the University of Manchester (UK) since the fall of 2014. Prior to her current appointment, she was a professor in the Department of Earth and Planetary Sciences at the University of New Mexico (USA). She received her PhD at the University of Manchester. Rhian is particularly fascinated with chondritic meteorites, the oldest rocks in the Solar

System. She researches chondrites so she can unlock the mysteries of how the early Solar System developed and discover what processes shaped the geologic history of asteroids.



Francis M. McCubbin is currently a senior research scientist in the Institute of Meteoritics at the University of New Mexico. In the summer of 2015, he will move to NASA's Johnson Space Center in Houston (Texas) to become the next Astromaterials Curator. He received his BSc in geology from Towson University (USA) and his PhD in geosciences from Stony Brook University (USA). McCubbin's research combines experimental

petrology and sample analysis to understand the thermal and magmatic evolution of the terrestrial planets and to determine the abundance and distribution of water in the Solar System.



Jill D. Pasteris is a professor in the Department of Earth and Planetary Sciences at Washington University in St. Louis (USA). She received her PhD from Yale University (USA). Her early research involved the metallic ore deposits of the Duluth Complex (USA) and Raman spectroscopy of fluid inclusions and carbonaceous materials. Currently, Jill investigates phosphate biomineralization by analyzing synthetically precipitated apatite, the

bones and teeth in modern vertebrates, and the hypermineralized bone in whales. Her goal is to understand how the composition of bioapatite guides its structure and properties, so enabling its wide range of biological functionality.



Philip M. Piccoli is a senior research scientist at the University of Maryland at College Park (USA), where he completed his PhD on the chemistry of apatites in felsic magmas. Prior to this, he obtained a BA at the University of Montana (USA) and a MSc from the University of Pittsburgh (USA). Phil researches the transport mechanisms of ore metals, such as Cu, Mo, Au, in porphyry-type environments; the chemical evolution of magmatic fluids;

how accessory phases help to decipher petrologic processes; the textures in magmatic rocks; and how to improve analytical techniques.



John F. Rakovan is a professor of mineralogy and geochemistry at Miami University (USA). He received his PhD from Stony Brook University (USA) and did a postdoc in mineral surface science at Virginia Tech (USA). Since 2001, John has been an executive editor of *Rocks & Minerals*. His research interests include crystallography, crystal chemistry, and the nature of the mineral–water interface. John is particularly interested in all things apatite:

crystal growth, metal sorption, trace element partitioning, and surface-mediated reactions.



Richard A. Spikings graduated in geochemistry at the University of St. Andrews (UK) in 1993. Unravelling the thermochronology of Mount Isa (Australia) earned him a PhD in 1998 from La Trobe University (Australia). Between 1998 and 2001 he was a postdoctoral fellow at the Eidgenössische Technische Hochschule (ETH)-Zurich (Switzerland). In 2004, Richard was appointed to a tenured research position at the University of Geneva

(Switzerland), where he currently manages the $^{40}\text{Ar}/^{39}\text{Ar}$ laboratory. His research focuses on the thermochronology and geochronology of the Andean cordilleras of Ecuador, Colombia, Venezuela, Peru, and Chile, most recently concentrating on bulk and in situ U–Pb thermochronology of the accessory phases.



James D. Webster is a curator at the American Museum of Natural History (USA) where he curates the mineral deposits and volcanology collections. John also operates an experimental petrology laboratory at the museum, which he uses to investigate the role that volatiles play in magmatic systems, exsolving fluids, volcanic processes, and hydrothermal mineral deposition. As part of this research, he studies apatite and silicate melt inclusions both from mineralized and from barren igneous systems. His field research has taken him to the volcanoes of Vesuvius (Italy) and Augustine (USA), to the tin-mineralized granites of southern Germany, and to the copper-porphyry deposits of Arizona (USA).