

Meet the Authors



Costanza Bonadonna is an associate professor at the University of Geneva, Switzerland, and director of the CERG, a specialized program for the assessment and management of geological risk. After completing her PhD at the University of Bristol, she was awarded the position of Young Investigator at the University of Hawai'i, and she was later appointed assistant professor at the University of

South Florida. Most of her research is devoted to modeling sedimentation from volcanic plumes, exploring new methodologies for the characterization of tephra-fall deposits, investigating the dynamics of basaltic explosive eruptions, and developing probabilistic analysis techniques for the assessment of tephra-fall hazards and the quantification of risk.



Peter R. Buseck is a Regents' Professor at Arizona State University. His degrees, all in geology, are from Antioch College and Columbia University, and he was a postdoctoral student at the Geophysical Laboratory in Washington, DC. He conducts research on (1) crystal structures and effects in minerals at the atomic level using high-resolution transmission electron microscopy; (2)

the geochemistry and mineralogy of primitive meteorites; and (3) the nature of aerosol particles such as airborne minerals, soot, and other small grains, their chemical and physical reactions (e.g. deliquescence, efflorescence) in the atmosphere, and their effects on air quality and climate change.



Edward Derbyshire is Research Professor in Quaternary Science at Royal Holloway, University of London, UK, and an honorary professor of the Gansu Academy of Sciences, China. Formerly secretary-general of the International Union for Quaternary Research (INQUA) 1991–1995, he is currently Secretary for Foreign and External Affairs of the Geological Society of London. He holds the

Antarctic Service Medal of the United States and the 2008 Varnes Medal of the International Consortium on Landslides. He has done research on all six continents and has authored or edited more than 260 scientific articles, including 6 books and several conference volumes.



Volker Dietze is head of the Particle Laboratory (Air Quality Department, German Meteorological Service) in Freiburg, Germany. The laboratory is responsible for operational air-quality measurements in German health and recreation resorts, and also collaborates with universities and medical institutions in various research projects and air quality studies. Research projects are being carried

out in Greenland, South America, Asia, and Antarctica. Volker Dietze works mainly on passive sampler techniques and single-particle analysis for coarse particulate matter. Over the last 25 years, his main research topics have been in automated optical microscopy, in combination with computerized image processing and analysis systems.



Adam J. Durant is a research associate in the Centre for Atmospheric Science, University of Cambridge, UK. His research aims at building linkages between heterogeneous ice nucleation in atmospheric clouds, volcanic ash particle sedimentation, the atmospheric and climatic impacts of volcanic emissions and desert dust, and the human health impacts of airborne particulates. His current

research focuses on laboratory and field studies of atmospheric processes (related to volcanic emissions and the carbon cycle) using state-of-the-art miniature electrochemical and optical sensors, wireless sensor networks, and experimental measurement platforms.



Johann P. Engelbrecht is a research professor at the Desert Research Institute (DRI), Reno, Nevada. He holds a BSc in physics and chemistry, and a BSc (Hons), MSc, and PhD (1987) in geology from the University of Pretoria (South Africa). He has worked in the fields of petrology, geochemistry, mineralogy, applied mineralogy and, more recently, atmospheric science, specializing in multivariate

data analysis and receptor modeling. His current research includes characterizing windblown mineral dust, pertaining to potential health effects and global climate change. As a visiting professor at the Universidad de Las Palmas de Gran Canaria, Spain (2009), he pursued his research on windblown Saharan dust.



Guenter Engling is currently an assistant professor in the Department of Biomedical Engineering and Environmental Sciences at National Tsing Hua University in Taiwan. When he started writing his article in this issue, he was a group leader of the Aerosol Chemistry Lab at the Research Center for Environmental Changes at Academia Sinica in Taiwan. Dr. Engling's research interests include the

chemical characterization of carbonaceous aerosol particles, specifically those derived from biogenic sources and biomass burning.



Santiago Gassó is a researcher at the University of Maryland, Baltimore County, and NASA. His main interest is aerosol detection using remote sensing, with applications in fields such as the study of dust transport to high-latitude environments. He works on interdisciplinary subjects like the detection of aerosols of marine biological origin and the assessment of whether dust deposition

impacts on phytoplankton productivity. He is a team member of two satellite missions (NPP and OMI) and participates in the proposed NASA satellite mission ACE, where he leads the Aerosol–Ocean Interactions science working group.



András Gelencsér is a full professor at the University of Pannonia and head of the Air Chemistry Group. He received his MSc and PhD from the University of Veszprém. His main research interest is atmospheric aerosol chemistry, in particular the chemical characterization and source apportionment of fine organic aerosol, and secondary organic aerosol formation in multiphase

reactions, with special emphasis on humic-like substances and brown carbon. He has been the principal investigator on several international research projects, including CARBOSOL and OOMPH. He has authored more than 60 peer-reviewed publications and a monograph entitled *Carbonaceous Aerosol*, published by Springer.



Reto Gieré received his PhD in Earth sciences from ETH Zürich and gained extensive teaching and research experience at the University of Basel, the Carnegie Institution of Washington, Argonne National Laboratory, the Australian Nuclear Science and Technology Organisation, and Purdue University, where he was a tenured professor. Currently he is Professor of Geochemistry and

Dean of Student Affairs at the University of Freiburg. His research is focused on environmental mineralogy and applied geochemistry. He is on the editorial board of the *Journal of Petrology* and is a book advisor for the Geological Society of London. He is a fellow of both the Mineralogical Society of America and the Geological Society of London.

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Vicki H. Grassian was recently named the F. Wendell Miller Professor of Chemistry at the University of Iowa and holds additional appointments in the Departments of Chemical and Biochemical Engineering and Occupational and Environmental Health. Her research interests include heterogeneous atmospheric chemistry, the climate impact of atmospheric aerosols, and fundamental studies of environmental interfaces. She has over 175 peer-reviewed publications, has written 15 book chapters, and has edited 3 books. She currently serves on the editorial boards of five journals, including the *Journal of Physical Chemistry*, *Atmospheric Environment*, and *Aerosol Science and Technology*.



Bernard Grobéty is a professor of applied mineralogy at the Department of Geosciences at the University of Fribourg, Switzerland. He received his PhD in Earth sciences at ETH Zürich working on crystallographic defects in silicate minerals. After postdoctoral appointments at Johns Hopkins University and the Smithsonian Institution, he spent three years as lecturer at the University of

Aarhus before returning to Switzerland. His current research interests include environmental mineralogy, particularly the study of natural aerosols such as desert dust and particles emitted by volcanoes. A second field of interest is materials science-related mineralogy, i.e. asbestos replacement and nanoceramics.



Claire J. Horwell holds a Research Councils UK Fellowship at Durham University, in the Department of Earth Sciences and the Institute of Hazard Risk and Resilience. Her research uses mineralogical and geochemical techniques to understand why certain minerals pose a respiratory health hazard. In particular, her work focuses on the variability of crystalline silica toxicity in natural dusts. Her group is currently working on silica in dome-forming volcanoes, silica released during sugarcane combustion, and the hazard of quarrying volcanic deposits. She is a founder and director of the International Volcanic Health Hazard Network (www.ivhnn.org) and also leads the multidisciplinary UK Natural Dust & Health Network.



Ron L. Miller received his doctorate in meteorology from the Massachusetts Institute of Technology in 1990. Since then, he has been at the NASA Goddard Institute for Space Sciences in New York City, where he is a physical scientist. He is also an adjunct professor in the Department of Applied Physics and Applied Mathematics at Columbia University. His research interests include

the mechanisms of climate change and the effect of aerosols on present and past climates.



Xavier Querol is a research professor at the Institute of Environmental Assessment and Water Research (IDAEA) of the Spanish Research Council (CSIC). He obtained a PhD in geology at the University of Barcelona and occupied a postdoctoral position at the British Geological Survey. He does research on trace pollutants in coal, on the balance and fate of trace inorganic pollutants in power plants, and on trace and major particulate pollutants in the atmosphere at industrial, urban, rural, and remote sites. He is an author or coauthor of about 200 research articles. He has been or is a member of a number of expert and working groups from the program Clean Air for Europe (EC) and UN-ECE.



Peter Stille obtained his PhD in Earth sciences from the University of Berne, Switzerland. He has extensive teaching and research experience at various institutions, including the University of Strasbourg, ETH Zürich, Tohoku University, Hiroshima University, the U.S. Geological Survey (Denver), Riksmuseet Stockholm, and Queen's University at Kingston. He is Research Director (CNRS) at the University of Strasbourg. His main research interests are in the areas of environmental and applied geochemistry/isotope geochemistry, particularly the interaction and fractionation processes at the rock-soil-water-plant-atmosphere interface.

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