

Global Volcanic Hazards and Risk

Approximately 800 million people live within 100 km of active volcanoes worldwide, and with ever-growing populations, the likelihood of volcanic emergencies is increasing. Volcanic eruptions can cause extreme societal and economic disruption through loss of life and livelihoods, and damage to critical infrastructure.

Originally prepared for the United Nations Office for Disaster Risk Reduction, this is the first comprehensive assessment of global volcanic hazard and risk, drawing on a wide range of international expertise. It presents the state of the art in our understanding of global volcanic activity, as well as a thorough introduction to volcanology, accessible to a broad audience. It also looks at our assessment and management capabilities, and considers the preparedness of the global scientific community and government agencies to manage volcanic hazards and risk.

Volcanic hazard profiles and local case studies are provided online for all countries with active volcanoes, with invaluable information on volcanic hazard and risk at the local, national and global scale. Particular attention is paid to volcanic ash, the most frequent and wide-ranging volcanic hazard. The first global ash fall hazard map is presented along with a discussion of the characteristics and impacts associated with volcanic ash fall.

Of interest to all those concerned with reducing the impact of natural hazards and disaster risk reduction, including government officials, the private sector, students, researchers and professional scientists, this book is a key resource for the disaster risk reduction community and for those interested in volcanology and natural hazards. A non-technical summary report is also included for policy makers and general interest readers. This title is also available as Open Access via www.cambridge.org/volcano.

Dr Susan Loughlin is the Head of Volcanology at the British Geological Survey (BGS) and joint leader of the Global Volcano Model (GVM). Her research interests include volcanic processes, hazards and risk, communication, social and environmental impacts of eruptions and the interaction of scientists and decision makers. Dr. Loughlin spent several years at Montserrat Volcano Observatory and was Director for two years. She has provided advice to governments and communities during volcanic unrest and eruptions (e.g. Montserrat and Iceland/UK) and provided scientific evidence for longer-term planning.

Professor Steve Sparks is a volcanologist at the University of Bristol and joint leader of the Global Volcano Model (GVM). With expertise in many aspects of volcanology, he is the most highly cited scientist in this field. His interests include volcanic hazards and risk, the physics of volcanic eruptions and fluid dynamics of hazardous flows. Professor Sparks

has provided advice to governments during ongoing and developing volcanic emergencies in Montserrat and Iceland.

Dr Sarah Brown is a researcher in volcanology at the University of Bristol. Her interests lie in physical volcanology with an emphasis on the assessment of hazard and risk. Dr. Brown works on combining and developing volcanological datasets including the Large Magnitude Explosive Volcanic Eruptions database (LaMEVE) to investigate the global eruption record with an aim towards developing a better understanding of volcanic risk.

Dr Susanna Jenkins is a volcanologist at the University of Bristol. Her research focuses on the assessment of hazards and risks associated with explosive volcanism. Dr Jenkins has worked with research, government and civil protection agencies, particularly in south-east Asia and the Lesser Antilles, in quantifying the risk from future eruptions and assessing the impact of recent damaging eruptions.

Dr Charlotte Vye-Brown is a volcanologist at the British Geological Survey (BGS). She applies a multi-disciplinary approach of field studies, geochemistry and remote sensing to her research. Her interests include volcanic geology, formation of continental flood basalts, lava flow emplacement, rift volcanism and communication of science to support planning and response to volcanic activity.

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