Volcanic Ash Impacts Database

Sarah K. Brown[1], Cheryl Cameron[2], Natalia Deligne[3], Susanna Jenkins[1], Graham Leonard[3,] Carol Stewart[4], Kristi Wallace[2], Thomas Wilson[5]

[1]University of Bristol, UK;

[2]Alaska Volcano Observatory , USA;

[3]GNS Science, New Zealand;

[4]Massey University, New Zealand;

[5]University of Canterbury, New Zealand

Keywords: Ash, impacts, database, citizen science, risk assessment

Volcanic ash is a very common volcanic hazard. It can have extensive impacts across wide areas, across borders and around the world and it can be extremely disruptive both during and for a long time after eruptions. People and property can be affected in a variety of ways, with impacts on health, critical infrastructure (e.g. water supplies, telecommunications, electricity generation), and long-lasting effects particularly through impacts to agriculture. Severe economic losses have occurred through volcanic ash and its effect on transportation. A global ash impacts database is in development to aid our understanding of ashfall impacts. This will facilitate the learning of lessons from past occurrences and will improve response to future ashfalls. This database organises and archives information about ash impacts from historical eruptions, allowing the storage of critical impact details from a variety of sources, including academic and field studies, ephemeral news articles, social media, grey literature and isolated resources. The database will provide evidence for warning messages, will aid the development of appropriate mitigation measures, enable better public, private and lifeline emergency preparation and facilitate eruption response and recovery.   The database will be easily accessible through a web interface and data will be systematically catalogued, enabling users to query and extract valuable data. We anticipate three main user groups: 1) researchers who would use the database to assist in systematic collection and storage of ash impact data and to prioritise impact assessment field studies and experiments; 2) risk assessors who need accessible and accurate impact data for risk, vulnerability and fragility assessments; and 3) the general public for citizen science hazard reporting and hazard and impact identification and education. Users will be able to record field observations through mobile apps, and the database will be open source and available to all.