



Toward a pro-active scientific advice on global volcanic activity within the multi-hazard framework of the EU Aristotle project

Sara Barsotti (1), Melanie Duncan (2), Susan Loughlin (2), Bryndis Gísladóttir (1), Matthew Roberts (1), Sigrún Karlsdóttir (1), Simona Scollo (3), Giuseppe Salerno (3), Rosa Anna Corsaro (3), Marinos Charalampakis (4), and Gerassimos Papadopoulos (4)

(1) Iceland Met Office, Iceland (sara@vedur.is), (2) British Geological Survey, United Kingdom (md@bgs.ac.uk), (3) Istituto Nazionale di Geofisica e Vulcanologica, Italy (rosanna.corsaro@ingv.it), (4) National Observatory of Athens, Greece (cmarinos@noa.gr)

The demand for timely analysis and advice on global volcanic activity from scientists is growing. At the same time, decision-makers require more than an understanding of hazards; they need to know what impacts to expect from ongoing and future events. ARISTOTLE (All Risk Integrated System TOwards Trans-boundary hoListic Early-warning) is a two-year EC funded pilot project designed to do just that.

The Emergency Response Coordination Centre (ERCC) works to support and coordinate response to disasters both inside and outside Europe using resources from the countries participating in the European Union Civil Protection Mechanism. Led by INGV and ZAMG, the ARISTOTLE consortium comprises 15 institutions across Europe and aims to deliver multi-hazard advice on natural events, including their potential interactions and impact, both inside and outside of Europe to the ERCC. Where possible, the ERCC would like a pro-active provision of scientific advice by the scientific group. Iceland Met Office leads the volcanic hazards work, with BGS, INGV and NOA comprising the volcano observatory team.

At this stage, the volcanology component of the project comprises mainly volcanic ash and gas dispersal and potential impact on population and ground-based critical infrastructures. We approach it by relying upon available and official volcano monitoring institutions' reporting of activity, existing assessments and global databases of past events, modelling tools, remote-sensing observational systems and official VAAC advisories. We also make use of global assessments of volcanic hazards, country profiles, exposure and proxy indicators of threat to livelihoods, infrastructure and economic assets (e.g. Global Volcano Model outputs). Volcanic ash fall remains the only hazard modelled at the global scale. Volcanic risk assessments remain in their infancy, owing to challenges related to the multitude of hazards, data availability and model representation. We therefore face a number of challenges in delivering pro-active scientific advice to ARISTOTLE, in addition to the main challenge of working within a multi-hazard framework. Here we present our methods for analysis and advice, along with the challenges we face, and hope to stimulate interesting discussion and receive constructive feedback, as well as explore how the global community can address the demand for scientific advice at the international level. The role of international networks and collaboration is clear; as is the critical role of volcano observatories, which are embedded in local communities and connected to the international community. We aim to enhance our approaches through the Global Volcano Model network (including IAVCEI, WOVO, GVP and VHub) and directly with volcano observatories, VAACs and civil protection agencies.