

Mitigate and Assess risk from Volcanic Impact on Terrain and human Activities: the FP7 MIAVITA project

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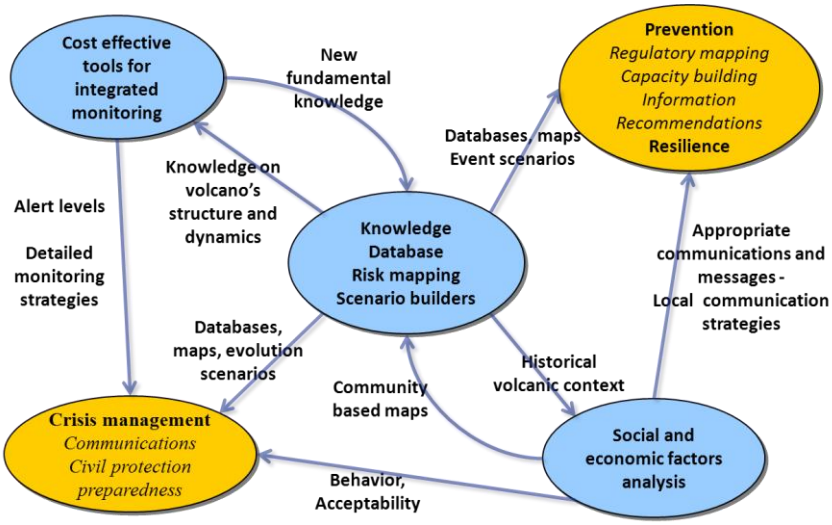
Mitigate and Assess risk from Volcanic Impact on Terrain and human Activities: the FP7 MIAVITA project.

P. Thierry, A. Vagner, M. Fontaine and MIAVITA team

Volcanic eruptions are one of the most impressive, violent and dramatic agents of change on Earth. Volcanic emissions (gas and ashes) can widely affect human health and disturb air-traffic and little is known about their impact on agriculture. Some phenomena constitute therefore a multi-level threat to human societies and environment. Nevertheless, soils fertility, amongst other characteristics, often attracts populations, which settle on volcanoes flanks, creating, by the conjunction of hazards and population, conditions to high risks areas. Assessing and managing multi-hazard and multi-risk at volcanoes require the combination and coordination of many capabilities and instrumental techniques, and involve expertise in many various fields such as volcanology, social sciences, physics, signal processing, data analysis, agriculture and telecommunications… It needs also a strong experience in crisis management.

In EU countries, volcanic risks assessment and management are tackled through scientific knowledge and monitoring, although there is still a need for integration between all risk management components. For international cooperation partner countries (ICPCs), the risk management depends on local situations but is often less favourable. Therefore, following UN International Strategy for Disaster Reduction recommendations and starting from shared existing knowledge and practices, the MIAVITA project aims at developing tools and integrated cost effective methodologies to mitigate risks from various hazards on active volcanoes (prevention, crisis management and resilience). Such methodology has been designed for ICPCs contexts but will be helpful for European stakeholders to improve their experience in volcanic risk management. The project multidisciplinary team gathers civil protection agencies (French – DGPCGC and Italian – DPC), scientific teams in earth sciences – BRGM (F), INGV (I), IST (P), University of Cambridge (UK), NILU (N), social sciences – CNRS (F), soil and agriculture – Hohenheim University (D), Information Technologies and telecommunications – INESC-ID (P) and an IT private company – KELL (I).
The objectives are being reached through sharing/transfer of know-how, through scientific and technological developments, and through dissemination/training, and with the help of local scientists and stakeholders in Africa (Cameroon - MINIMIDT, Cape Verde – INMG) and in Asia (Indonesia – CVGHM, Philippines – PHIVOLCS).
The scientific work focuses on:
1) Risk assessment methodology based on a multi-risk approach developed at Mt Cameroon by BRGM in cooperation with Cameroonian institutions and on a decision tool already applied by CVGHM at Merapi;
2) Cost efficient monitoring tools designed for poorly monitored volcanoes (satellite+gas analysis+volcano-seismology);
3) Improvement in terms of vulnerability assessment (people, buildings and agriculture);
4) Socio-economic surveys to enhance community resilience;

5) Integrated information system (data organisation and transfers, communications) taking advantage of GEONETCast initiative.



MIAVITA conceptual frame

One of the main outcomes of the project is the final book, or handbook, on MIAVITA's experience on volcanic threat assessment and management, designed to help decision makers and stakeholders involved in volcanic risk management to handle all its aspects: prevention, crisis management and resilience.

Thanks to the contribution of all its partners through common thoughts and studies, the MIAVITA project constituted a good opportunity to identify a list of minimum standards relevant for risk management in any geographical, geological and socio-economic situation in the context of an active volcano. This work is based on the scientific state of the art and the shared experience of the different partners as well as on identified international best practices.

In particular, the goal is that any country, whatever its economic level and even with low basic knowledge about volcanoes, can identify, with the help of this handbook, suggestions for tackling the situation (monitoring, preparedness, prevision and resilience).

The principle is to present an overview of all needed information to help decision makers set up technical and organisational frame for integrated volcanic risk prevention and crisis management. Ideally, the handbook aims at constituting a bridge between the different stakeholders and Authorities involved in risk management and Scientists, improving interactions among them.

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