A database of the economic impacts of historical volcanic eruptions

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RÉSUMÉ

History has shown that economic consequences of a volcanic eruption can be disastrous, and nowadays 800 million people in 86 different countries are living within 100 km of an active or a potentially active volcano. Eruptions can cause significant economic loss and damage directly (eruptive processes) or indirectly (associated non-eruptive processes like lahars, tsunamis, etc.), and through cascading effects (perturbations on transport, networks, etc.). Loss and damages can then be direct, indirect, tangible or intangible, short-term or long-term, also depending on the exposure and vulnerability of the economic activities. Existing database on historical eruptions do not provide, or too sparsely, information on these economic impacts. The aim of the project presented in this paper is to build a new database to increase our understanding in the field, to facilitate the identification of vulnerability and resilience factors to future events. We first selected a sample of 43 eruptions from 31 volcanoes located in 17 developing and developed countries, that occurred after the World War II. We documented a number of physical characteristics of these eruptions and volcanoes. Second, we identified the different damages and losses due to volcanic events through 21 qualitative and quantitative variables. We collected economic information and data on these variables, using a variety of sources (governmental and non-governmental agencies, academic institutions, volcanic observatories, press, etc.). This database will be accessible through a web interface and the community will be able to contribute to its development by recording information on the economic consequences of past and future events. A next step would consist in extrapolating the economic impacts for those historical eruptions with missing data and of those that are not included in our first sample.

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