



Spatial database for the new geological map of Mount Etna (Italy)

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Recent scientific and civil protection outcomes outline the needs for a complete set of information about the geological evolution and the eruptive history of Mount Etna volcano (Italy), the most active European volcano. The spatial database is primarily intended as a way to store and disseminate data on the superficial geology derived from the new geological map of Mount Etna, which represents the fundamental part of the database. Several geological studies were performed in the last decade with the aim of producing a new 1:50,000 scale geological map of Etna volcano fully based on modern stratigraphic concepts and on detailed mapping according to the guidelines suggested by ISSC and Italian National Geological Survey. The spatial database was designed to efficiently manage field and laboratory data, in addition with information derived by other sources, like geophysics, topography and reports of historic eruptions. The resultant relational database is based on the capabilities of PostgreSQL/PostGIS to store geometries (vectors) and alphanumeric data, to provide a unique environment that supports complex queries and spatial/temporal analyses. The future development of the database is to provide geological data to the whole scientific community, as well as to people involved in land use and emergency management. The database will lead to a new way to consider geological maps of active volcanoes as a live up-to-date instrument for complex statistical spatial and temporal analyses and not only as static source of information. Moreover, it will provide a common base capable to support and validate specific studies on the magmatic and eruptive history of a volcano that pose significant hazard to human activities.