



Recent improvements of MaGa: a gas emissions database

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Studying carbon flux pathways, understanding the complex process of the gas release from the Earth's interior by volcanoes and tectonically active areas, and improving the current estimates of global carbon emissions, requires access to comprehensive and global geochemical, petrological and volcanological data collections and to tools to explore and analyse these data in an integrated manner. MaGa (Mapping Gas emissions, www.magadb.net) is a database of gas compositions and fluxes from volcanic and non-volcanic gas emission sites, recently developed and improved. MaGa is a collaborative environment that allows to contribute data interactively and dynamically into a spatially referenced relational database system, as well as to access the data. Data can be accessed from the web interface and/or by data-driven web services, where software clients can request data directly from the database. This way, GIS and Virtual Globes can access the database, and data can be exchanged with other databases. The first example of MaGa interoperability is represented by the DECADE portal (<http://decade.iedadata.org/>, developed in the framework of the DCO-DECADE initiative) where volcanic activity data, geochemical and geochronological data of rocks, and gas emission data can be explored simultaneously. MaGa currently contains the location of more than 800 gas emission sites (i.e. volcanic plumes, fumaroles, cold vents and diffuse degassing areas) from 137 volcanoes and tectonically active areas located in 30 countries. More than 1630 datasets of gas flux and gas composition are available and are continuously implemented. We think that MaGa is showing good potentials to improve the knowledge on Earth degassing by making data more accessible, encouraging participation among researchers, and allowing to observe and explore a gas emission dataset with spatial and temporal extents never analysed before. Deposition of data in repositories and making these available to the scientific community will contribute to facilitate the most advanced data analysis.