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The development of a new database of gas emissions in Italy: a collaborative web environment for collecting and publishing data on natural gas emissions.

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In spite of the large extension of the Earth degassing process and of the correlations with geodynamic processes and large scale geochemical processes, the Earth degassing process in the world is still poorly known. Beside the scientific interest on studying gas emissions, a better knowledge of the degassing process is crucial for mitigate gas hazard correlated to the release of dangerous gases (e.g., CO₂, H₂S) from natural emissions, that, like in Italy, caused many lethal accidents to animals and humans.

After years of data collection organized on a base of a single research group, institution, or project, there is clearly a need for common frameworks that allow to aggregate data in order to observe the phenomena at various scale. The development of Googas in 2007 (Chiodini et al., 2008), funded by the Italian Civil Defence and focused on the serialization of data and the publication of a web map of gas emissions, was the first attempt to create a collaborative database on gas emissions. Googas, that represented an important advance in the knowledge of the phenomenon at the national scale, is however a static representation of the results of the project.

Starting from the Googas experience, we are now extending the capabilities of Googas on the user side, developing a new web environment for collecting and publishing data of gas natural emissions dynamically. The collaborative environment allows researchers from different institutions to collect data in the most seamless way, and data to be published directly from within the same system.

The web interface allows to insert data interactively into a spatially referred relational database management system. Moreover, researchers are aware of the activity of the others and can access data, leave comments as soon as data is being inserted. This new system aims to excite, inspire, and encourage participation among researchers.

As gas emissions are inherently referred to geographic locations, published digital data will be available in several formats, including the ones conformant to Open Gis Consortium (OGC) standards, for an easy access by using Geographical Information Systems (GIS).

The publication of data on the website will be ruled by a licensing system that facilitates and encourages the scientific method processes. The license will allow to use and distribute the data, to produce works from the data and to build up new data from it, as long as these rules are maintained and the attribution to the original work is being referred. In this way, the efforts to publish the data are balanced by the guarantees that the data's access will remain open.

This new database of Italian gas emissions is an interesting environment where researchers can insert data in a common interface asynchronously and the results are immediately tangible. The development of this project is undergoing and researchers and developers interact closely, introducing and testing new features during the development phase.

We believe that the development of this new environment represent a starting point towards the foundation of a collaborative database of gas emissions at global scale.

Contact Information

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