The GEOBASI (Geochemical Database of Tuscany) open source tools

M. Corongiu(1), B. Raco(2), A. Buccianti(4), P. Macera(5), R. Mari(1),(2), S. Menichetti(6), B. Nisi(3), S. Romanelli(1)

(1) Consorzio LaMMA (Laboratory for Monitoring and Environmental Modelling for the sustainable development), Sesto Fiorentino, (Florence), Italy
(2) CNR – IBIMET (National Research Council - Institute of BioMeteorology), Florence, Italy
(3) CNR – IGG (National Research Council - Institute of Geosciences and Earth Resources), Pisa, Italy
(4) UNIFI – DST (University of Florence, Department of Earth Sciences), Florence, Italy
(5) UNIPI – DST (University of Pisa, Department of Earth Sciences), Pisa, Italy
(6) Regione Toscana – ARPAT (Tuscany Environmental Protection Regional Agency), Florence, Italy

The database and the Infrastructure

The tools implemented for the new Regional Geochemical Database, called GEOBASI, are hereafter presented. The geochemical information (compositional and isotopic) has been stored in a structured way, useful for different level of users (e.g. institutional, public and private companies). The database contents can be downloaded freely and queried to correlate geochemistry to other non compositional variables. The repository has been aimed at promoting the use of the geochemical data already available from previous investigations through a powerful Web-GIS interface.

Available Data

The Objective

The tools implemented for the new Regional Geochemical Database, called GEOBASI, are hereafter presented. The geochemical information (compositional and isotopic) has been stored in a structured way, useful for different level of users (e.g. institutional, public and private companies). The database contents can be downloaded freely and queried to correlate geochemistry to other non compositional variables. The repository has been aimed at promoting the use of the geochemical data already available from previous investigations through a powerful Web-GIS interface.

Tools & Technologies

WEB Interface Tools

The resulting graphical-numerical tools in such a complex database have been developed to: 1) analyse the spatial variability of the investigated context, 2) highlight the geographic location of data pertaining to classes of values or single cases, 3) compare the results of different analytical methodologies applied to the determination of the same element and/or chemical species, 4) extract the geochemical data related to specific monitoring plans and/or geographical areas, and finally 5) recover information about data below the detection limit to understand their impact on the behaviour of the investigated variable.

Interoperability Levels

Available Data

20191 Stream Sediment

The Data Model

Cumulative curve

Histogram

Box Plot

Future perspectives...