



“Geological metadata” to share field geological knowledge and related map generalizations

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Sharing of geological information on the Web is rapidly increasing and steadily supported by ongoing IT innovation. Since GIS databases, metadata (MD) and spatial data infrastructures are tools gradually used in Earth science, concepts such as clearness, usefulness, quality and use constraints of web disseminated data, become matters of interest for the communities of geologists

In field geosciences, the possibility to share actually understandable information is constrained by the peculiar approach adopted in knowledge acquisition (field survey) and knowledge representation (geological maps). Datasets comprehend both measurements/observations and applications of conceptual models, achieved with a large use of implicit knowledge that characterizes the analysis, processing and interpretation of original data. Field geological knowledge is biased by geologists' subjectivity and constrained by different type of uncertainties coming from capture methods, interpretative models and map generalizations. Shared information need thus specifications about i) the intended meanings of adopted concepts, ii) the physical paths (i.e. the operational steps concerning data acquisition on the field), iii) the knowledge paths (interpretation steps performed on data). Field geological data have to be organized in conceptually-driven systems, where explained information get retraceable. An attempt to reach this goal has been recently carried out by CNR IGG TO working group in the IDE-Univers project, by setting up a geoportal (<http://www.geoportal-idec.net/ideunivers/>), where geological information are described through ISO19915 MD standard and shared through WMS technology. The CNR IGGTO Server contains field data and related geological maps mainly stored in the frame of the CARG project (1:50000 Geological Map of Italy). Our strategy is to get this information conceptually described, using the Geographic MD international standard for the geological context, in order to give geological interpretations in an explicit format. These “geological metadata” have been compiled mainly as regard the “Identification” and the “Data Quality” classes. The Abstract element (Identification class) explains the criteria on which data are interpreted and the meaning of them, giving the peculiarities of interpreted features. The Resource Locator element (Identification class) allows to link datasets with conceptual supplemental information (conceptual schemas), where concepts and methods adopted in the acquisition of knowledge are given. The Lineage element (Data Quality class) gives the different process steps performed on data, specifying the provenance of interpreted features and making them retraceable.

A further improvement of the readability of the information stored in the CNR IGGTO geoportal, is presently carried out in the frame of GIIDA project (an initiative to implement the Spatial Information Infrastructure of CNR for Environmental and Earth Observation data) by development of Wiki sites linkable to the MD sheets.