A Provenance Visualization Tool for Global Earth Observation System of Systems

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The widespread use of the distributed environments in the Geographic Information Systems field had generated a broader access and a broader interchange of geographic information. This huge quantity of information, the heterogeneity of the origin of the data, and the complex functionalities involved in the creation of some geographical products can generate some problems in the reliability assessment process. Hence, this can affect to the quality of the results obtained from processing geographic information. In order to increase the trust of the data, the collection and the accessibility of detailed lineage information including responsibilities parties (part of the metadata that refers to the origin and the processes undertaken to obtain a specific geographic product, also known as provenance), is crucial to evaluate the quality of the resulting knowledge, to estimate the trustworthiness level offered by the Agents and the Processes, as well as to allow the reproducibility of the geographical information.

Even there are several works related to this topic and some models have been created to integrate provenance information into the metadata standards, there are still some challenges in provenance-aware applications, like the interoperability of the provenance formats, automatic provenance registration and provenance visualization tools. The first goal of this communication is to analyze the state of the art in provenance visualization by comparing different approaches and methods. Secondly, we propose a tool for provenance visualization in Global Earth Observation System of Systems (GEOSS) considering also the relation between provenance information and workflow processing in distributed environments e.g. Web Processing Services. This work is done in the context of the GeoViQua FP7 project.