GEO Label – Quality Information Interrogation Tool for Geospatial Datasets: Towards Effective Visualization of Quality Metadata.

Victoria Lush (1), Jo Lumsden (2), and Lucy Bastin (3)

(1) Aston University, Computer Science, Birmingham, United Kingdom (lushv@aston.ac.uk), (2) Aston University, Computer Science, Birmingham, United Kingdom (j.lumsden@aston.ac.uk), (3) Aston University, Computer Science, Birmingham, United Kingdom (l.bastin@aston.ac.uk)

Although the importance of dataset fitness-for-use evaluation and intercomparison is widely recognised within the GIS community, no practical tools have yet been developed to support such interrogation. GeoViQua aims to develop a GEO label which will visually summarise and allow interrogation of key informational aspects of geospatial datasets upon which users rely when selecting datasets for use. The proposed GEO label will be integrated in the Global Earth Observation System of Systems (GEOSS) and will be used as a value and trust indicator for datasets accessible through the GEO Portal. As envisioned, the GEO label will act as a decision support mechanism for dataset selection and thereby hopefully improve user recognition of the quality of datasets.

To date we have conducted 3 user studies to (1) identify the informational aspects of geospatial datasets upon which users rely when assessing dataset quality and trustworthiness, (2) elicit initial user views on a GEO label and its potential role and (3), evaluate prototype label visualisations. Our first study revealed that, when evaluating quality of data, users consider 8 facets: dataset producer information; producer comments on dataset quality; dataset compliance with international standards; community advice; dataset ratings; links to dataset citations; expert value judgements; and quantitative quality information. Our second study confirmed the relevance of these facets in terms of the community-perceived function that a GEO label should fulfil: users and producers of geospatial data supported the concept of a GEO label that provides a drill-down interrogation facility covering all 8 informational aspects. Consequently, we developed three prototype label visualisations and evaluated their comparative effectiveness and user preference via a third user study to arrive at a final graphical GEO label representation.

When integrated in the GEOSS, an individual GEO label will be provided for each dataset in the GEOSS clearinghouse (or other data portals and clearinghouses) based on its available quality information. Producer and feedback metadata documents are being used to dynamically assess information availability and generate the GEO labels. The producer metadata document can either be a standard ISO compliant metadata record supplied with the dataset, or an extended version of a GeoViQua-derived metadata record, and is used to assess the availability of a producer profile, producer comments, compliance with standards, citations and quantitative quality information. GeoViQua is also currently developing a feedback server to collect and encode (as metadata records) user and producer feedback on datasets; these metadata records will be used to assess the availability of user comments, ratings, expert reviews and user-supplied citations for a dataset. The GEO label will provide drill-down functionality which will allow a user to navigate to a GEO label page offering detailed quality information for its associated dataset. At this stage, we are developing the GEO label service that will be used to provide GEO labels on demand based on supplied metadata records. In this presentation, we will provide a comprehensive overview of the GEO label development process, with specific emphasis on the GEO label implementation and integration into the GEOSS.