Introduction

The Global Earth Observation System of Systems (GEOSS) is estimated to contain more than 28 million dataset records and is constantly growing. To tackle the problem of data quality assessment and dataset selection decision making, our project – GeoViQua – is undertaking active research to define, develop and evaluate a GEO label. The GEO label will visually summarise and allow interrogation of key informational aspects of geospatial dataset records upon which users rely when selecting datasets for use.

GEO Label Studies

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.

Phase II

We conducted an initial investigation into how geospatial data users evaluate the comparative quality and trustworthiness of geospatial datasets. Using a series of face-to-face and telephone interviews, our intention was to uncover initial information about dataset selection, use and production in order to inform design and development of the GEO label.

The results revealed eight informational facets that could potentially be a part of the GEO label function:

- the reputation of the data producer;
- producer comments on dataset quality;
- dataset compliance with international standards;
- community advice;
- dataset ratings;
- links to dataset citations;
- expert user judgments; and
- side-by-side metadata records comparison.

Developing a GEO Label for Integration in the GEOSS

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.

Conclusion

Our three studies results indicate significant potential for the provision of visual dataset quality and trust indicators to help data users in dataset evaluation, interrogation and comparison. Specifically, we believe that a GEO label can be a step towards better visualisation and communication of trust and quality information in the GIS domain. Our proposed label will visually summarise and allow interrogation of user-derived key informational aspects of geospatial datasets, acting as a decision support mechanism in dataset selection. When integrated in the Global Earth Observation System of Systems (GEOSS), the GEO label will be used as a value and trust indicator for datasets accessible through the GEO Portal.

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