MyGeoOntology – An Information–Focused Geospatial Ontology for SDI towards Knowledge Interoperability

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SUMMARY

In the context of spatial information management (SIM) for spatial data infrastructure (SDI), Semantic Technology can assist in geo-knowledge discovery in a data sharing environment by providing knowledge interoperability in the use of geospatial data. Knowledge interoperability is about enabling ready and correct use of the knowledge contained in spatial data, allowing enrichment of the spatial data with relevant information thus enhancing the knowledge that can be associated with the spatial data, as well as enabling the use of information which at the first glance seems not to be relevant spatially. This opens up information from various sources to be analyzed spatially. Geo-knowledge that can be conveyed through this knowledge interoperability can be described as knowledge of an issue from spatial perspective to explain the issue. Furthermore, spatial perspective can be explained as a viewpoint that addresses questions by employing information about location, circumstances of a place, connections and comparison among places, cognizant of an area as a unit, hierarchical relationships of areas, recognition of patterns across areas, and insights into processes that spread spatial patterns across areas. In this aspect, geo-ontology that is placed within SDI can be used to enhance the interoperability of spatial data and consequently enable interoperability of geo-knowledge contained in the data. Currently SDI facilitates the sharing of geospatial data through a catalogue of metadata coupled with connected systems for data producers to register their data and for users of data to access the information. Using geo-ontology, interoperability can be achieved by utilizing the capability of Semantic Technology and the knowledge model in a geo-ontology to mediate the possible different meaning of schemas employed by different data producers in their classification of the geospatial data. A Semantic application with a geo-ontology can use this catalogue to achieve steps in data exploration in similar ways that a user would, with further functionality that it simulates a situation where the user knew about the composition of the schemas used by the different data producers for the various geospatial data contained in the catalogue. Hence within SDI, a geo-ontology can be used to exchange geospatial information unambiguously, to bring out further knowledge related to the geospatial data, and to enable integration of the knowledge with other information from various sources to analyze them using geospatial context.