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Supporting spatial data harmonization process with the use of ontologies and Semantic Web technologies

M. Strzelecki, A. Iwaniak, J. Łukowicz, and I. Kaczmarek
Wrocław University of Environmental and Life Sciences, Wrocław, Poland

Abstract. Nowadays, spatial information is not only used by professionals, but also by common citizens, who uses it for their daily activities. Open Data initiative states that data should be freely and unreservedly available for all users. It also applies to spatial data. As spatial data becomes widely available it is essential to publish it in form which guarantees the possibility of integrating it with other, heterogeneous data sources. Interoperability is the possibility to combine spatial data sets from different sources in a consistent way as well as providing access to it. Providing syntactic interoperability based on well-known data formats is relatively simple, unlike providing semantic interoperability, due to the multiple possible data interpretation. One of the issues connected with the problem of achieving interoperability is data harmonization. It is a process of providing access to spatial data in a representation that allows combining it with other harmonized data in a coherent way by using a common set of data product specification. Spatial data harmonization is performed by creating definition of reclassification and transformation rules (mapping schema) for source application schema. Creation of those rules is a very demanding task which requires wide domain knowledge and a detailed look into application schemas. The paper focuses on proposing methods for supporting data harmonization process, by automated or supervised creation of mapping schemas with the use of ontologies, ontology matching methods and Semantic Web technologies.

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