



Framework of semantic interoperability using geospatial ontologies

Sumit Sen, Dolphy Fernandes, G. Arunachalam, Sri Ram Gupta and N.L. Sarda

CSE, IIT Bombay, Mumbai 400 076 India

{sumitsen, dolphy, arunachalam, sriram, nls}@cse.iitb.ac.in

(Received 5 September 2007, in final form 30 November 2007)

Abstract: Semantics of geospatial information is necessary to ensure its interoperability and correct usage. Geospatial ontologies enable encoding such knowledge and enable reasoning mechanisms to estimate interoperability. The framework of interoperability for geospatial information using ontologies, presented in this paper, supports (i) building of ontologies, (ii) semi-automated, ontology-based mapping of geospatial databases, (iii) logic based elimination of inconsistent mappings, and (iv) consequent semantic translation of data across heterogeneous databases. The paper discusses the extension of this approach to facilitate interoperability of web feature services employed in spatial data infrastructures.

Keywords: Interoperability, Ontologies, Geospatial-databases, Web-services, Semantic translation