Interoperability of Geospatial Data

Andrea Lopes Iescheck*, Cleomir Paolazzi*

*Federal University of Rio Grande do Sul – UFRGS, Institute of Geoscience, Department of Geodesy. Porto Alegre - RS, Brazil.

Abstract. Due to difficulties concerning the integration and dissemination of spatial data between its different federal institutions, and the society as a whole, the Brazilian Government started systematic studies aiming at the standardization of these data. The first steps in this direction were taken through the establishment of the Interoperability Standards for Electronic Government (e-PING) which defines a minimal set of policies and technical specifications to regulate the use of Information and Communication Technologies. The lack of interoperability between systems that store geographic information is a problem faced very often by public and private institutions. The challenge of data exchanges is related to the diversity of conceptual models available in geographic information system (GIS) software, which results in a heterogeneous environment that affects these exchanges. In order to solve this problem, the Brazilian Government set up the National Spatial Data Infrastructure (INDE). This paper analyzes and applies the concepts and standards set by INDE in relation to the acquisition, organization and publication of geospatial data, focusing on the main available technologies for the publication of geographic information acquired and stored in an interoperable server. In order to perform the intended analysis we implemented a spatial data server, in accordance with the INDE standards, that allows users to access geospatial information through the services established by the Open Geospatial Consortium (OGC). Using these geoservices, one can access the information in a dynamic way and in real time, through remote applications in desktop-GIS software (like ArcGis and QGIS) or through a web browser (Mozila). The results show that the use of desktop-GIS software and web browser to access geospatial information, through Web Map Service (WMS) and Web Feature Service (WFS), is a feasible alternative, allowing the user to perform analysis and to generate maps and reports in real time.

Keywords: Interoperability, Data exchanges, Geospatial data