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Spatial data infrastructures, standards, open source and open data for geospatial (SDI-Open 2015)

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Foreword

The discovery, access, exchange and sharing of geographic information and services among stakeholders from different levels in the spatial data community is facilitated through *a spatial data infrastructure (SDI)*. *Standards* are key for the quality and development of interoperable geographic information and geospatial software. The drive for access to geographic information has led to its publication as *open data*, i.e. freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. According to a report by the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), the use of *open source* solutions is likely to increase significantly in the future as a viable alternative to proprietary suppliers. Open source software for geospatial, geographic information standards and open data policies are therefore significant for SDI development and implementation.

SDI resarchers and practitioners were invited to submit extended abstracts that describe SDI case studies where

- open source software for geospatial is used in the technical implementation; and/or
- geospatial standards are implemented; and/or
- geographic information is accessible as open data.

Original contributions in English were reviewed by members of the organizing ICA Commissions. Upon acceptance, a revised abstract had to be submitted for inclusion in the workshop proceedings. One of the authors presented the abstract at the workshop. Not all submitted abstracts are included in the proceedings.

The proceedings of this workshop represent a variety of SDIs: there are examples of national (Behr 2015; Belgun et al. 2015; Bermudez et al. 2015; Borba et al. 2015) and international SDI initiatives (Lehto 2015); of an SDI in the hydrographic domain (Carballini and Mandarino 2015) and SDI initiatives in academia (Iosifescu-Enescu et al. 2015; Ramos and Ferreira 2015; Smyth 2015). Finally, Wendel et al. (2015) and Ota (2015) focus on technical solutions in the SDI context.

Borba et al. (2015) describe the activities leading to the decree that established the Brazilian National SDI and conclude with a critical reflection of the pros and cons of using open source and open standards in an SDI. According to Belgun et al. (2015), the Australian National Map's easy-to-use spatial standards-based web browser interface for sharing and exploring data from many different sources and in many different formats has facilitated the publication of open geospatial data. Carballini and Mandarino (2015) describe IHO standards-based database-driven cartographic production in a marine SDI.

Smyth (2015) and Iosifescu-Enescu et al. (2015) each present an academic SDI with a technical implementation comprising a mix of open source and proprietary components. Ramos and Ferreira (2015) make a case for universities to become producers of spatial (research) data in an SDI. Lehto (2015) describes the implementation of a specialization of the Web Feature Service (WFS) standard that aggregates data in real-time from multiple services. Behr (2015) aims to analyse the geoportal sites of German federal states with a focus on the INSPIRE Directive, license issues and open access to data, while Bermudez et al (2015) present a case study of an open source geoportal implementation for the Uruguay Ministry of Transport and Public Works.

Ota (2015) focuses on capacity building, an issue also raised by other authors, and describes a tool that can be used to teach geographic information standards. The proceedings are concluded with the interesting experiments conducted by Wendel et al. (2015). They significantly reduced the processing time of large lidar point clouds by implementing a message passing interface (MPI) in order to achieve parallel processing.

The motivations for using open source software in the SDI initiatives vary: maturing open source geospatial technologies are mentioned (Iosifescu-Enescu 2015; Smyth 2015), while the opportunity to extend open source software through novel research is particularly attractive in academic SDIs (Iosifescu-Enescu 2015). Borba et al. (2015) and Smyth (2015) comment on the challenge of finding a sustainable business model in the world of open source and open data.

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