

Selected Papers from FOSS4G 2013: OSGeo's Global Conference for Open Source Geospatial Software

1 Introduction

Over the past decades, geospatial information technology has reached a significant level of maturity and is widely implemented in industry as well as public agencies. Lately, we have witnessed the rise of free and open source software in this area, flanked by open standards and the open data movement.

This special issue of *Transactions in GIS* includes five research articles selected from the submissions to the Academic Track of FOSS4G 2013, the global conference for Open Source Geospatial Software, which took place in Nottingham (UK), 17–21 September 2013.

The FOSS4G conferences, billed as “the annual gathering of Open Source Geospatial Developers, Users and Leaders”, are certainly not an exclusively academic endeavor. Since the first edition in 2006, the core audience has been the people who make up the open source communities: the people that develop, create and craft the open source geospatial software. The actual applications are the glue which binds the community together; the aim of the FOSS4G community is to enable and enfranchise anyone to harness the power of geospatial software, regardless of their economic status.

Since that first edition, which took place in Lausanne, Switzerland, the conference has been growing steadily, both in the number of delegates and in the breadth of the audience it attracts. Apart from the core audience of developers, the conference organizers nowadays reach out to existing and potential end-users, educators, students and policy makers. Academic institutions and scientists always have been part of this growing audience, whether as developers of the open source software, collaborators in the design of open standards, disseminators of open source by education, or collectors and hosts of freely available geo-data.

The FOSS4G 2013 Academic Track was aimed at bringing together researchers, developers, users and practitioners carrying out research and development in the geospatial and the free and open source fields. With the Academic Track motto “Science for Open Source, Open Source for Science”, the organizers tried to attract academic papers describing both the use of open source geospatial software and data, in and for scientific research, as well as academic endeavors to conceptualize, create, assess, and teach open source geospatial software and data. There was an effort to specifically attract contributions from “early stage researchers” (PhD students, PostDocs) to give them an opportunity to aim for a high-ranking publication and present their work to a large audience of focused professionals.

The presentations of the papers were not scheduled in separate academic sessions during the conference, but were clustered with other, non-academic papers based on the subject matter. This was done on purpose, so as to not create an isolated, exclusive part of the conference, but instead to generate attention for academic input in the community and to cross-pollinate with industry, developers and users.

The five articles in this special issue were picked from the 19 contributions selected for the FOSS4G 2013 Academic Track. There was a two-step (double-blind) reviewing process: first, a review of full papers, in which the reviewers were requested to judge papers on their suitability for presentation, and publication in the proceedings in the on-line *OSGEO Journal*. And from this selection, the reviewers were then asked for suggestions for articles to be published in *Transactions in GIS*.

2 The Articles

Mario Härtwig, Matthias Müller, and Lars Bernard (Dresden University of Technology, Germany) describe “A Generic Web Service for ad-hoc Statistical Spatio-Temporal Aggregation”. The article depicts the workflow and the components of a framework to support service-based, statistical, spatio-temporal aggregation using standardized web-based geo-processing in Spatial Data Infrastructures.

In their article “Semantically Enriching an Open Source Sensor Observation Service Implementation for Accessing Heterogeneous Environmental Data Sources”, Desiree Hilbring, Anastasia Moutzidou, Jürgen Moßgraber, and Stefanos Vrochidis (from the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation, Germany and the Centre for Research and Technology Hellas, Greece) describe an approach to combine data from sensor observation services and serving environmental information, via an ontological approach, to users.

In large research projects, especially with different research disciplines, the sharing and publishing of the data is essential, and part of good scientific practice. According to the German Research Foundation (1998), primary data as the basis for publications should be securely stored. Christian Willmes, Daniel Kürner and Georg Bareth (University of Cologne, Germany) address this need in their article “Building Research Data Management Infrastructure using Open Source Software”. The approach aims to overcome timely, technical, social, and psychological issues hampering the sharing and proliferation of scientific data. Using open source technologies researchers can upload and publish their research data as part of a geospatial research environment, i.e. some kind of spatial data infrastructure.

The quality and reliability of Volunteered Geographic Information (VGI) is the topic of a range of scientific publications. Anita Graser, Markus Straub, and Melitta Dragaschnig (Austrian Institute of Technology, Austria) contribute to this in their article “Towards an Open Source Analysis Toolbox for Street Network Comparison: Indicators, Tools and Results of a Comparison of OSM and the Official Austrian Reference Graph” documenting their open source-based approach to support the analysis of the quality of OpenStreetMap data by comparison with reference data. Implemented as geo-processing models in the Sextante for QGIS framework, the toolbox can be applied by researchers for different regions and for other data sets as well.

Supporting sustainable development by online-collaboration and collective problem solving using open source tools is the main focus of the article “Virtual Coast Guard: An Open and Crowdsourced GIS Portal for Stewardship of India’s Coast” (Alpesh Gajbe, Adya Shankar, Sudarshan Rodriguez from the Tata Institute of Social Sciences, India). The authors demonstrate how digitized spatial information can be generated and shared with what the authors term “sophisticated simplicity” providing a good example of the usage of open source and open data for environmental management.

All in all the articles form a representative cross-cut of the academic work presented during FOSS4G 2013. The editors are particularly grateful to the reviewers for their excellent work and their valuable suggestions.

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Reference

German Research Foundation 1998 *Proposals for Safeguarding Good Scientific Practice: Recommendations of the Commission on Professional Self-Regulation in Science*. Weinheim, Germany, Deutsche Forschungs-Gemeinschaft