

Introduction to Special Issue: Analytical Geospatial Web Services

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Analysis other than simple access and visualization is the emerging trend within the web community (Berners-Lee 2007). With the rapid development of the Internet and web technologies, “the traditional approach to publishing maps on the Internet ‘by GIS experts, for GIS experts’ is outdated, ineffective and unusable as Web mapping becomes more and more mainstream” (van der Vlugt & Stanley 2005). Over the last few years, we have seen more and more traditional GIS functions being integrated into web mapping/GIS applications in a way transparent to users, using distributed analytical and geoprocessing services coordinated by well-defined workflows (Yang & Raskin 2009). Web service technology has played one of the key roles in this transition. As the service-driven paradigm continues to dominate web mapping and GIS development, web-based geospatial analytical services have drawn the attention of many in the field, hoping to build such services on top of more mature basic data services. Given the complex nature of analytical services, including modeling, simulation, function and visualization services, the orchestration of web mapping and geoprocessing services from different sources becomes increasingly important.

The trend towards analytical geospatial web services continues with intelligent analytical capability, which involves in-depth study on dynamic geospatial service composition, for example. It is also expected that intelligent analytical services will be enhanced with further developments in Geographic Knowledge Discovery (GKD), spatial data mining techniques and tools, web-based modeling and simulation, augmented reality applications, agent-based systems and paradigms (Hutchinson & Veenendaal 2011), etc.

The articles included in this special issue contribute to the capacity building towards analytical geospatial web. The three feature articles selected for this special issue touch on web geoprocessing, visualization and thematic mapping tool.

The issue begins with the article authored by Eberle and Strobl, *Web-based geoprocessing and workflow creation for generating and providing remote sensing products*. The authors describe the development of web-based processing and workflow creation to generate and provide remote sensing products, based on web processing service (WPS) and service chaining using a web content management system. The work explores some additional efforts such as adding domain-specific profiles to improve WPS specifications.

Towards a framework for designing spatial and non-spatial visualizations for communicating climate change risks by David J. Lieske presents a theoretical framework to guide the development and assessment of risk visualization tools, with reference to a case study involving coastal flooding in south-

east New Brunswick, Canada. The paper suggests that visualizations have a potentially significant role to play in communicating information about climate change risks, and that public risk communication be paired with the presentation of adaptation plans already possessed by people.

Kilibarda and Bajat's paper, *plotGoogleMaps: the R-based web-mapping tool for thematic spatial data*, addresses the development of plotGoogleMaps, a tool for creating and visualizing vector and raster data and map features, choropleth maps, and proportional symbols. Although the paper is technically oriented, we believe such a development is useful for the rapid building of web-based visual analysis solutions.

While the objective of this special issue is to offer an introduction to a wide range of topics under "analytical geospatial web services", the three selected papers only cover some limited aspects of the whole spectrum. However, we hope that their contribution to this rapidly developing field will provide useful insights and stimulate more focused scientific discussions.

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