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Larry Stanislawski
USGS, CEGIS

ICA Workshop on Generalisation and Multiple Representation, August 21

The International Cartographic Association (ICA) Commission on Generalisation and Multiple Representation held a very productive 18th workshop on Friday, August 21, at the State University in Rio de Janeiro, Brazil. The workshop was jointly coordinated with the ISPRS Working Group on Multiscale n-dimensional Spatial Data Representations, Data Structures and Algorithms. Nine papers were presented at this one-day workshop regarding three topic sessions: 'Generalisation of Map Series & Conflation', 'Network Generalisation', and 'Ontologies, Homogenisation, & Multimedia Summation'.

In the first session on Generalisation of Map Series & Conflation, Marion Dumont presented work beginning at IGN France to formulate an automated generalisation workflow for producing intermediate scale maps in a multi-scale pyramid. The additional scales are intended to eliminate or reduce user confusion caused by large scale jumps between maps. Next, Dan Lee presented an overview of tools and workflows being developed by Esri to automate conflation of datasets to help keep data harmonized and up-to-date. To end the session, Anna Vetter presented a synopsis of research by Esri Switzerland, the Swiss Topographic Office, and Vienna University of Technology to develop workflows using ArcGIS Desktop tools and models for automated generalisation of building polygons from the 1:10,000-scale Swiss Topographic Landscape Model to 1:50,000-scale.

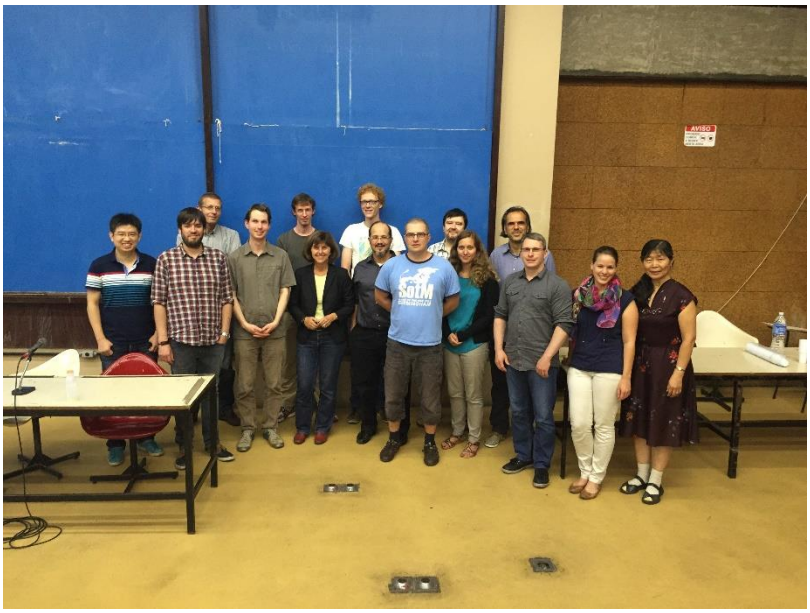
During the second session on Network Generalisation, Peter van Oosterom from Delft University in the Netherlands presented research collaborating with Radan Šuba and Martijn Meijers. Their work develops automated methods to generalise large scale polygonal road features to smaller scales by progressively collapsing the more significant polygon features to linear features while generalising to smaller and smaller scales. Ling Zhang of Nanjing University, China presented research with Eric Guilbert of Laval University, Canada to automatically subdivide drainage networks and identify drainage patterns. Their methods assist terrain classification and tailor generalisation operations for terrain or drainage network conditions. Last in this session, Larry Stanislawski presented preliminary research by United States Geological Survey (USGS) evaluating scale-dependent geometric characteristics of linear hydrographic features with respect to stream geomorphology in the conterminous United States. Through collaboration with Barbara Buttenfield of University of Colorado-Boulder and Paulo Raposo of Pennsylvania State University, the team is developing generalisation rules to render multiscale hydrographic representations that maintain natural drainage variations reflective of geomorphological conditions.

In the last session on Ontologies, Homogenization, & Multimedia Summation, Eric Guilbert of Laval University presented concepts and a framework for ontology design patterns for landform representations, which could assist users with generation and interpretation of map information. Bernard Moulin from Laval University is collaborating on this work. Next, Monika Sester presented research being done with Richard Guercke of Leibniz University Hannover to promote homogenization as a new generalisation operator, and demonstrate homogenization of building facades. Homogenization can reduce storage size and complexity of a dataset. The last presentation of the workshop was by Guillame Touya who compared generalisation techniques with text summarization techniques intending to find summarization concepts that may assist cartographic generalisation. From this work, Touya noted that generalisation could benefit from the following: machine learning

techniques; thorough definitions of importance, saliency and redundancy concepts; and more focus on generalisation assessment techniques with benchmark data.

In addition to the technical sessions, two short breakout sessions were coordinated to discuss important topics for future work. One group discussed the use of ontologies in a framework for automated mapping and generalisation. Discussion began with an overview of the workshop held March 26-27, 2015 in Paris regarding ontologies for generalisation and on-demand mapping. A common initiative is working towards a common generalisation ontology "GeneProcessOnto"available at web Protégé server (http://webprotege.stanford.edu). It was concluded that further discussion is needed and a second ontology workshop may be coordinated with the ISPRS conference that is being held in Prague in July 2016. The other group discussed research challenges in the next 5 years. Topics deemed important included managing and visualising big data, delivering knowledge and conditional parameterisations of generalisation to non-experts, 3D generalisation, conflation for change detection and database updates, incremental generalisation updates for map production, annotation generalisation, and harmonising data and generalisation results across jurisdictional boundaries.

The venue for the next meeting of the ICA Commission on Generalisation and Multiple Representation will be the 2nd ICA / EuroSDR NMA Symposium "Designing MRDB and multi-scale DCMs: Sharing experiences between mapping agencies and the outside world", December 3-4, 2015 in Amsterdam. The 19th ICA Workshop on Generalisation and Multiple Representation is planned to be held in Helsinki in association with the AGILE-conference in June, 2016.



Participants ICA Workshop on Generalisation and Multiple Representation, August 21, 2015 Rio de Janeiro