EuroSDR project

Research on state-of-the-art of generalisation

Progress report to ICA Commission on Generalisation and MR
2 August 2007
Content

- Explanation of the project
- What did the project team do
- Time path
- Today’s meeting
EuroSDR generalisation project

- To establish by a small set of controlled tests the state-of-the-art in generalisation
Project team

- NMAs:
  - IGN, France
  - ICC, Catalonia
  - KMS, Denmark
  - Ordnance Survey, Great Britain
  - TD Kadaster, the Netherlands
  - IGN, Spain

- Research institutes:
  - University of Zurich, Switzerland
  - University of Hanover, Germany
  - ITC, Enschede
Content

- Explanation of the project
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What did we do?

- Meetings of project team:
  - October 2006, Enschede
  - January 2007, Paris
  - April 2007, Zurich

- Further defined scope of the project

- Preparation of documents for the tests
Definition of scope of the project

- Generate midscale map from large scale topographic database using automatic generalisation
- The project will gain insight into:
  - Generalised data sets
  - Generalisation processes
  - Generalisation systems
- Demarcation of:
  - Test data sets
  - Test procedure
  - Evaluation procedure
## Scope of the project (1/3): test data sets

<table>
<thead>
<tr>
<th>Test case</th>
<th>Type of area</th>
<th>Including at least</th>
<th>Target data set</th>
<th>Source data set</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>Urban area</td>
<td>relief</td>
<td>1:25k</td>
<td>1:1250</td>
</tr>
<tr>
<td>France</td>
<td>Mountainous area</td>
<td>village, river, land use</td>
<td>1:50k</td>
<td>BD Topo (~1:10k)</td>
</tr>
<tr>
<td>NL</td>
<td>Rural area</td>
<td>small town, land use, mozaic</td>
<td>TOP50NL</td>
<td>TOP10NL</td>
</tr>
<tr>
<td>Catalonia</td>
<td>Costal area</td>
<td>village, land use (not mosaic), hydrography, islands</td>
<td>1:50k</td>
<td>1:25k</td>
</tr>
</tbody>
</table>
Scope of the project (2/3): test procedure

- Systems to be evaluated:
  - Clarity (1Spatial)
  - ArcGIS (ESRI)
  - Typify/Change/Push (University of Hannover)
  - Axes systems
- Tests will be based on constraints definition
- Project team will perform tests on *commercially available* software:
  - Three tests per system
  - All generalisation test cases
- Software suppliers do parallel tests on any software they want
Scope of the project (3/3): evaluation procedure

Source data set

Specs of target data set

Evaluation I

Evaluation II

Evaluation III

Result 1

Result 2
Preparation of input for the tests

- Compiled several templates to:
  - Formally describe target data set as set of constraints
  - Capture information of generalisation process and system in uniform way, examples:
    - How did tester express constraints?
    - What did (s)he do?

- NMAs:
  - Sourced starting data sets
  - Compiled initial formal description of target of generalisation: resulted in appr. 250 constraints
Sourcing test data sets

- ICC data set (costal area)
- TDK data set (rural area)
- OSUK data set (urban area)
Constraints formalisation

- Shared first experiences in January, 2007
- Meeting to analyse different constraint sets (April, Zurich) to
  - Define a typology of constraints
  - Derive general principles for cartographic constraints formalisation
  - Improve constraints description
Generic approach for constraint definition

- Harmonisation of constraints is necessary to:
  - Compare different constraint sets
  - Define one set of constraints for the ‘topographic map’ case
  - Ease insertion of constraints
  - Ease automatic evaluation (to avoid that evaluation of every constraint needs to be implemented)

- Compiled a generic list of constraints
Time path

- NMAs have redefined their constraints as generic constraints
- Software suppliers have made/will make designs
- Tests started from 1st of June
- Tests expected to be ready by November 2007
- Evaluation from November; procedures will be prepared before
- Final report Spring 2008
What is expected from testers:

- **For every test case:**
  - **Processing template:**
    - to record every action of the tester (installing the software, reading the manuals, input of data, pre-processing etc)
  - **Constraints template:**
    - a) to record how the tester implemented the specific constraint and b) to see if and how the system evaluated and solved the constraint
  - **More constraints:** if the tester concludes that a constraint is missing
  - **Generalisation output:**
    - Vector data set
    - Raster data set (300 dpi)
    - Paper map (plot)
  - Any logging information that is produced by the system

- **For every system:**
  - System template, describing general information on the functionalities and performance of the system
Today’s meeting

- Using opportunity to inform others and exchange experiences
- Update on the tests
- Discuss any pending issues
Update on the tests

- All information available for testers (except: IGN data set and OSUK constraints) on: plone.itc.nl/eurosdrgen -> information for testers
- Request to NMAs to distribute paper maps
- ESRI:
  - Software installed, most testers are testing or will start latest by September, symbolised data sets available?
- AXES:
  - installation still needs to be done any news?
- Clarity:
  - Software has been distributed and installed?
  - Symbolised data sets have been provided: specific treatment of area symbols! No roundabouts available?
- CHANGE/PUSH/TYPIFY:
  - Software has been installed on almost all locations
  - Monika Sester has performed tests on 3 data sets
Thank you for your attention...

More information: http://plone.itc.nl/eurosdrgen