Challenges in Geospatial Data Harmonisation

Workshop held in conjunction with the
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AGILE Workshop 'Challenges in Geospatial Data Harmonisation'

- Motivation:
  - European Spatial Data Infrastructures (ESDI) integrate the diversity of geospatial data available for a multitude of European organisations

    → context for implementation: initiatives like INSPIRE, GMES and SEIS

    →requires that the organisations document, publish and harmonise their geospatial data and support users in accessing this information in a suitable way
- DataHarmonisation:
  - creating the possibility to combine data from heterogeneous sources into integrated, consistent and unambiguous information products, in a way that is of no concern to the end-user
- Peer-reviewed short paper submissions (14 submissions / 9 acceptances)
- Workshop Website (all presentation will be available in short time): http://www.esdi-humboldt.eu/events/agile2009.html

Core Issues from the Presentations + Discussion (I)

- Describing the limits of the existing methods for (semantic/geometric) geodata harmonisation
- Capturing and formalizing domain knowledge on the specification level
  - E.g. by semantic annotation
  - processing of natural language specifications
- Defining the mappings between two schemas
  - Different mapping languages used (XSLT, OML, OWL, WSML)
  - Inference of mapping rules
  - Make assumptions explicit that lead to a definition of a mapping
  - Sometimes classifications are so different that conciliation is not really possible/useful, which has to be documented
  - Use of common target models and publication of mappings to these common models
- Detecting heterogeneities
  - Partial automatization
  - Level for checking for heterogeneities: class level / instance level
- Finding out which issues can be resolved automatically due to legal constraints

Core Issues from the Presentations + Discussion (II)

- Objective measures and their use for the quality evaluation of the harmonisation results are required
  - Validation is missing from current approaches, either automatic or human-lead
  - Modification of geometry or alphanumeric attributes has consequences and has to be documented
  - Transparency about applied rules/assumptions in software required
- Geometric Harmonisation challenges
  - Transformation to a common reference system/projection
  - Different geometric modeling of homologue objects
- What impact does INSPIRE compliant data provision and usage of INSPIRE compliant services have on existing business processes?
- Issues coming up in the handling of sensors:
  - UoM management
  - Expressing and comparing uncertainty/accuracy (often a function of influencing factors)
  - Different SOS use different URNs for phenomena with identical semantics
- Harmonisation of Metadata for search etc purposes

Special Issue on Geospatial Data Harmonisation

- International Journal of Spatial Data Infrastructures Research (IJSDIR, http://ijsdir.jrc.it/)
  - peer-reviewed journal published exclusively on line by the Joint Research Centre of the European Commission
  - published free of charge and adheres to the Open Archives Initiative, which aims to facilitate the dissemination of electronic content
- Open Call for Papers planned (open until September/October 2009)
- Accepted Workshop Papers will be invited for extended paper submission