
Challenges in Geospatial Data Harmonisation

Workshop held in conjunction with the
12th International Conference on Geographic Information Science
AGILE 2008

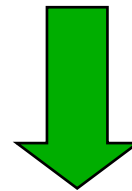
2nd June 2009
Hannover, Germany



Eva Klien (Fraunhofer IGD)
Astrid Fichtinger (Technical University of Munich)
Sisi Zlatanova (Technical University of Delft)
Christine Giger (ETH Zürich)

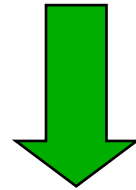
Workshop Motivation

- 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



Geospatial Data Harmonisation

“ 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. ”



research challenge for **facilitating** the harmonisation of geospatial data and metadata **by automating the necessary steps as far as possible.**

Topics of Interest

- Research in harmonisation processing for e.g. resolution, generalization, edge matching, multiple representation, schema translation
- Conceptual Schema Translation
 - Specification of the mapping process
 - Formal language for the specification
- Quality
 - Specification of quality evaluation processes for harmonisation
 - Metrics for quality evaluation of mapping processes
 - Investigating the impact of processing on the quality of data
- How to enable semantic interoperability?
 - Approaches with formal semantics, collaborative approaches, approaches from machine learning, ...
 - How to measure and express thematic accuracy?
- Handling gridded data (multidimensional grids) or dynamic data (e.g. mathematical models for forecasts)
 - Harmonisation issues
 - Harmonisation processes
- Automatic set up of data harmonisation process
 - Identification of existing heterogeneities such as semantic, geometric, resolution or others
 - Methods to automatically assign a specific harmonisation process to a detected heterogeneity?
 - How to handle specification and execution of workflows for web services to construct complex transformation services?

Programme Committee

- Rolland Billen, University of Liege, Belgium
- Marian de Vries, Technical University of Delft, The Netherlands
- Pasquale Di Donato, University of Rome, Italy
- Werner Kuhn, University of Muenster, Germany
- Lassi Lehto, Finnish Geodetic Institute, Finland
- Michael Lutz, Joint Research Centre, Italy
- Pier Giorgio Marchetti, European Space Agency, Italy
- Hardy Pundt, University of Applied Studies and Research, Hochschule Harz-Wernigerode, Germany
- Matthäus Schilcher, Technical University of Munich, Germany

Special Issue on Data Harmonisation

- International Journal of Spatial Data Infrastructures Research (IJS DIR)
 - 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 until September/October 2009
- Accepted Workshop Papers will be invited for extended paper submission

<http://ijsdir.jrc.it/>

09:15-10:30: The Warm-up

Session 1

Eva Klien

Welcome / Introduction

Keynote by Christine Giger

Challenges in Geospatial Data Harmonisation: Examples and Approaches from the HUMBOLDT project.

Sven Schade

Translation of Geospatial Data – Challenges, Solution and Vision.

10:30 – 11:00: Coffee Break

11:00 – 12:30: Semantics

Session 2

Marian de Vries, Thorsten Reitz

*Conceptual Schema Matching with the Ontology Mapping Language:
Requirements and Evaluation.*

Stephan Mäs

Harmonisation of Spatial Semantic Integrity Constraints.

Nathalie Abadie

Formal Specifications to Automatically Identify Heterogeneities.

12:30-14:00 Lunch Break

14:00 – 15:30: Experiences and Applications

Session 3

Gobe Hobona, Carmelo Attardo, Robert Laurini, Mike Jackson, Maria Pla, Stefania de Zorzi, Anette Breu, Catherine Roussey, Alina Kmiecik
Considerations for Harmonising Cross-Border Geospatial Datasets.

Claudia Gedrange, Marco Neubert, Myra Sequeira
Cross-Border Harmonisation of Spatial Base Data – An Example from a German-Czech project.

Marcus Richter, Barry Masterson, Tino Miegel
The sdi-suite Inspire Fusion Center Pilot.

15:30-16:00: Coffee Break

16:00-17:30: Sensor Web

Session 4

Holger Neuhaus, Michael Compton

The Semantic Sensor Network Ontology: A Generic Language to describe Sensor Assets.

Désirée Hilbring, Katharina Schleidt

Automatic creation of INSPIRE related metadata from Sensor Web Enablement Services.

Round Table Discussion and Wrap-up

Questions

- In the context of your work – what are the biggest challenges in geospatial data harmonisation?
- Organisational / Technical level?
- Do you have 3D harmonization issues?
- Handling gridded data (multidimensional grids)
- Handling dynamic data (e.g. mathematical models for forecasts)
 - Harmonisation issues
 - Harmonisation processes

Thank you

IceBreaker at 19:30 o'clock