

Mid-Term Theme Report

Title of Theme:	Spatial Semantics for Automating Geographic Information Processes
Theme Leaders:	Femke Reitsma, Werner Kuhn, Alia Abdelmoty
Start Date of Theme:	01/01/07
Report Date:	15/06/07
Elapsed Time:	6 of 12 months
Target Audience:	Geoscientists, Geographic Information Scientists, Information Scientists

Objectives:

The original objective was to express the semantics of geographic features and their spatial relationships in order to automate geographic information processes.

Three use cases were identified for undertaking this research:

- Data and Resource Integration
- Modelling Interoperability
- Data Harmonisation

Chronology of Events:

(A list of meetings and workshops organised and attended, and invited visitor dates with links to any reports, papers, wikis or other outputs arising. Please include a date, title and *brief* description for each event. Also include the number of attendees and append any exit survey reports – this will be done by admin.)

Visits:

03.03.07-09.03.07	Prof. Werner Kuhn (University of Münster)
14.05.07-07.06.07	Prof. Werner Kuhn (University of Münster)
06.03.07-09.03.07	Dr. Alia Abdelmoty (Cardiff University)
14.05.07-26.05.07	Dr. Alia Abdelmoty (Cardiff University)
22.05.07-01.06.07	Dr. Kristin Stock (Nottingham University)

Talks:

eSI Public Lecture: Why on Earth do we need spatial semantics?
Dr. Femke Reitsma.
e-Science Institute, 1 March 2007
<http://www.nesc.ac.uk/action/esi/contribution.cfm?Title=759>

eSI Visitor Seminar: Semantically-Aware Spatio-Temporal Data Analysis for Humanitarian and Natural Crisis Management
Dr. Kristin Stock.
e-Science Institute, 31 May 2007
<http://www.nesc.ac.uk/action/esi/contribution.cfm?Title=802>

eSI Theme Lecture: Abstraction Requirements in Geospatial Applications]
Prof. Werner Kuhn.
e-Science Institute, 1 June 2007
<http://www.nesc.ac.uk/action/esi/contribution.cfm?Title=757>

eSI Public Lecture: Spatiotemporal Queries for Environmental Monitoring with Wireless Geosensor Networks
Dr. Matt Duckham.
e-Science Institute, 18 June 2007

Workshops:

Workshop 1 – European Geoinformatics Workshop
Comment: this was co-organised with John Laxton from the BGS
Date: 07.03.07 - 09.03.07
Event page: <http://www.nesc.ac.uk/esi/events/712>
Slides and output from breakout groups:
http://wiki.esi.ac.uk/Spatial_Semantics_for_Automating_Geographic_Information_Processes

Research Outputs:

Papers:

Submitted research note to Computers and Geosciences: “Semantics, ontologies and eScience for the GeoSciences: reporting on the European Geoinformatics Workshop” Femke Reitsma, John Laxton, Stuart Ballard, Werner Kuhn, Alia Abdelmoty (April 07)

Submitted paper to Computers and Geosciences: “Developing a geoscience knowledge framework for a national geological survey organization” Andrew S Howard, Bill Hatton & Femke Reitsma (April 07)

Proposals:

Submission to EPSRC Basic Technology: Call 7. PI is Femke Reitsma and CoIs are Krisitin Stock, Alia Abdelmoty, and Werner Kuhn

Title: KnowledgeScope: a knowledge infrastructure for science

Outline: The objective of the proposed research is to create and implement a web-based software framework, called KnowledgeScope, which allows scientists to tag existing knowledge components and relate them to other elements of the scientific process. We will build on existing semantic web and Web 2.0 technologies, where meaningful tags are dynamically organised and made available through a web interface. Through this interface scientists can explore a network of knowledge along a range of dimensions such as geographic space, time and spatialised theme.

Currently working on proposal for the JISC Capital programme for e-Research: e-Infrastructure. PI is EDINA and CoIs are Werner Kuhn, Kristin Stock, Femke Reitsma

Title: compass (COastal Marine Perception Application for Scholarly Science)

Outline: The goal is to investigate how to bring together distributed information resources, services (data and processing), repositories etc by using a knowledge infrastructure to locate, access, link and use information and data. Specifically, the project will look at the domain of coastal marine environments.

Other:

Vespucci Institute Summer School: Werner Kuhn is co-leading the first week which is on Geospatial Ontology (<http://vespucci.org/>)

Main Section – Progress to Date:

The theme properly began with the first workshop, which consolidated our ideas for research, allowed us to make valuable connections to relevant individuals and formed the basis for the two papers mentioned above. The initial objectives have changed slightly, being refocused at the first workshop following extended debate contrasting the value of standards versus Web2 developments. Guided by the work presented and discussed at workshop 1, we have shifted focus to the representation of semantics of geoscientific resources in support of the research lifecycle. However this still forms a significant step in automating geographic information processes, which was a part of the original objective.

There is much potential for follow on activity, particularly given the start-up time needed to get the theme going. Types of activity include the development of a FP7 proposal building on ideas of a

knowledge infrastructure for eGovernment and further opportunities for visiting scientists to come to Edinburgh for longer periods of time to strengthen collaborative links and execute a piece of research.

Future Activity:

17.07.07-18.07.07	Workshop 2: Knowledge Infrastructures for the Geosciences
23.07.07	Talk by Dr. Femke Reitsma as part of Theme 6 conference
09.07.07-25.07.07	Visit by Prof. Werner Kuhn (University of Münster)
07.07	Visit by Dr. Boyan Brodaric
07.07	2 Phd students from Muenster will begin work on software development..
26.11.07 - 27.11.07	Workshop 3 to be held at the Welsh eScience Centre in Cardiff.

Any Other Observations:
