

EARSeL Symposium 2007 – Bolzano –



„DeCOVER – Geo-Information Services to Update and Supplement Land Cover Data for German Decision Makers “

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EFTAS – DeCOVER Coordination –



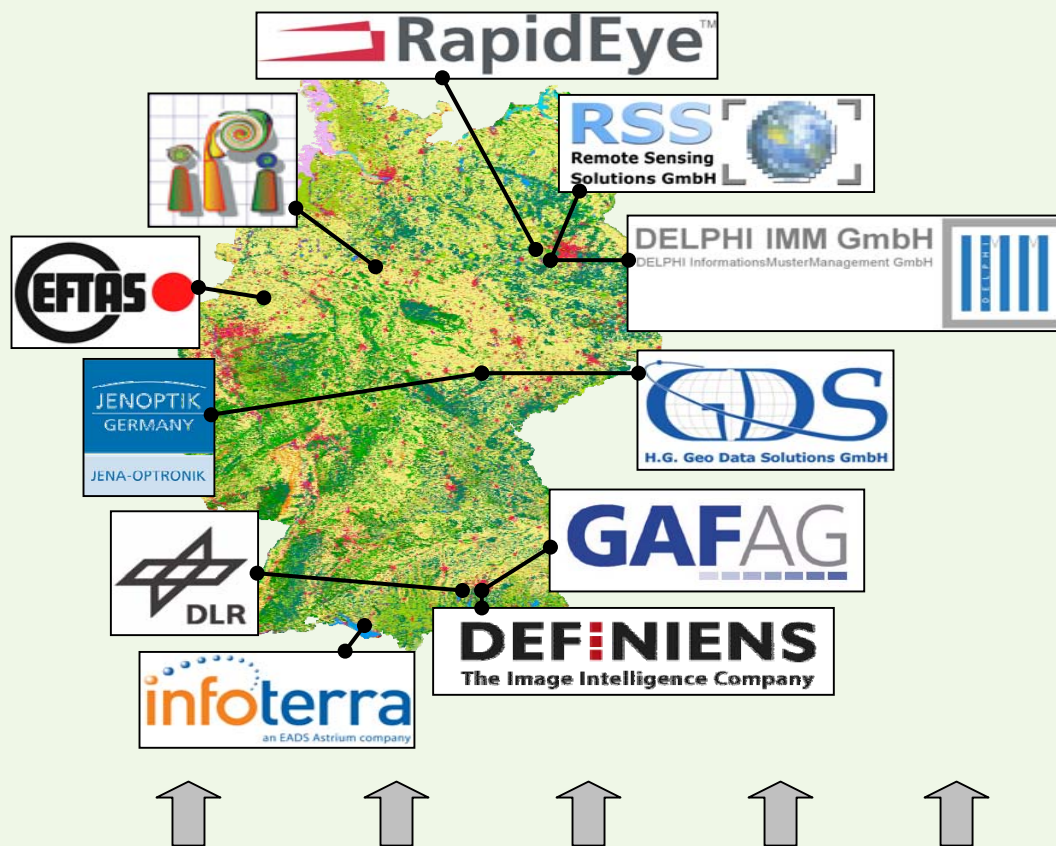
Co-Funded by the Federal Ministry of Economics and Technology (BMWi) via the German Aerospace Center (DLR e.V.)

Funding Numbers (FN) :
50EE0521, 50EE5022, 50EE5023,
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50EE5030

DeCOVER - a national German initiative

- Who and what is DeCOVER?
- Why the DeCOVER initiative?
- Where is DeCOVER in a European Context?
- The DeCOVER concept and architecture
 - Interoperability
 - Change detection
 - Data fusion
- Test implementation
- What next?

The DeCOVER research project (2006-2008)

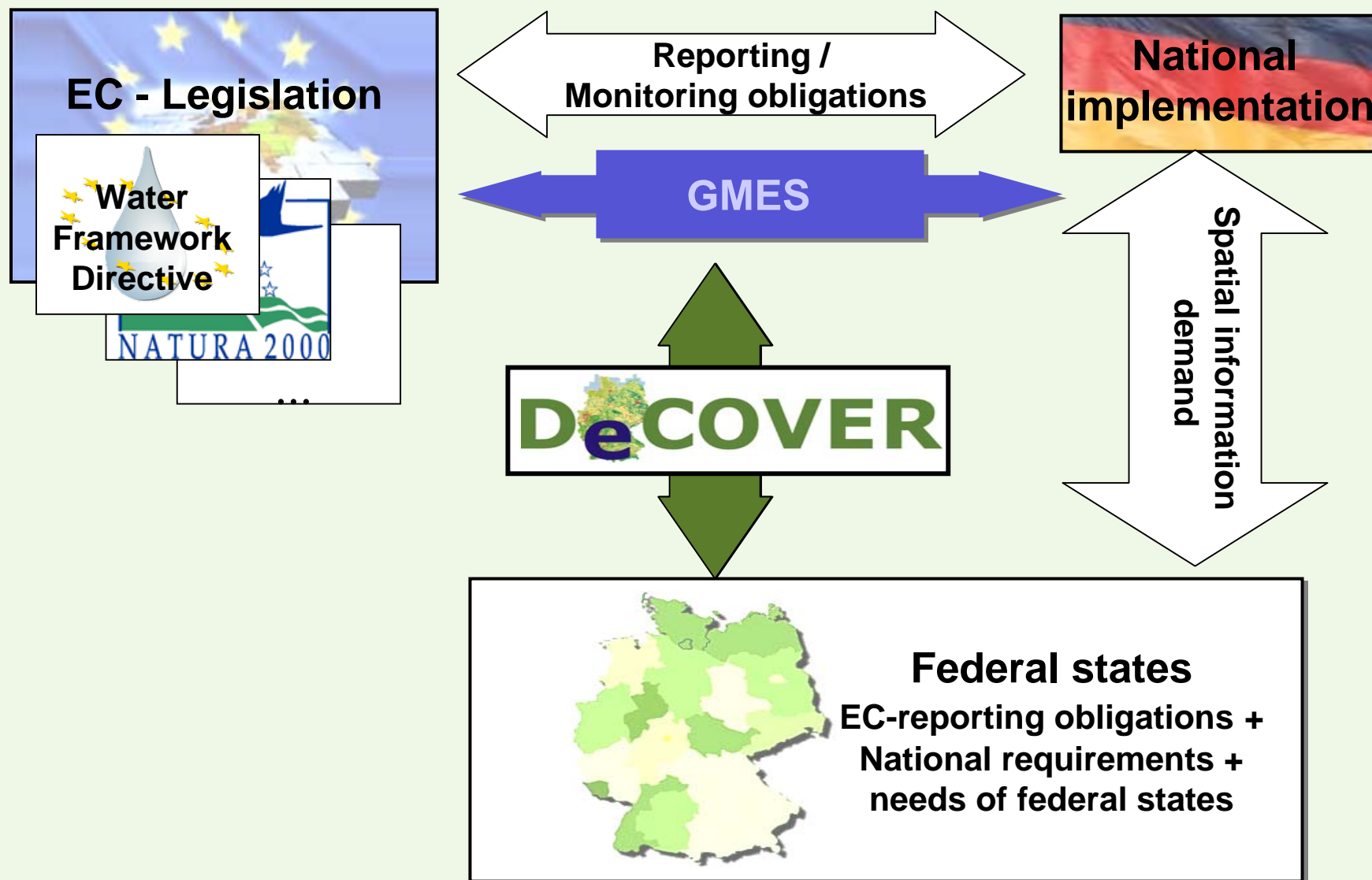


User support network of more than 20 national, regional and local Core Users

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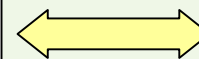
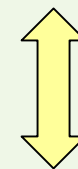
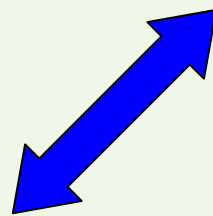
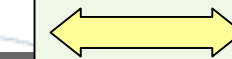
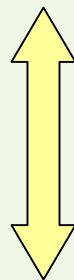
The need for DeCOVER



The European Context

**Geoinformation Services /
Data Acquisition**

**Spatial Data
Infrastructures**



DeCOVER and INSPIRE

- **INSPIRE Transposition Phase (2007-2009)**
 - Provision of reference material
 - Consultation and review process
 - Integration/ adaptation of IR rules in development process
 - Testing of draft Implementing Rules (IR)
(if applicable)
- **DeCOVER is a registered Spatial Data Interest Community (SDIC)**
- **Links to GMES and National SDI (GDI-DE)**

The DeCOVER Service Concept

Situation



Service Concept

Core Service:
nationwide land cover information. Support/supplement

- CLC/ FTS
- ATKIS
- BNTK



Set of Additional Services:
specific thematic land cover information, e.g.

- Cross Compliance
- NATURA 2000 ...





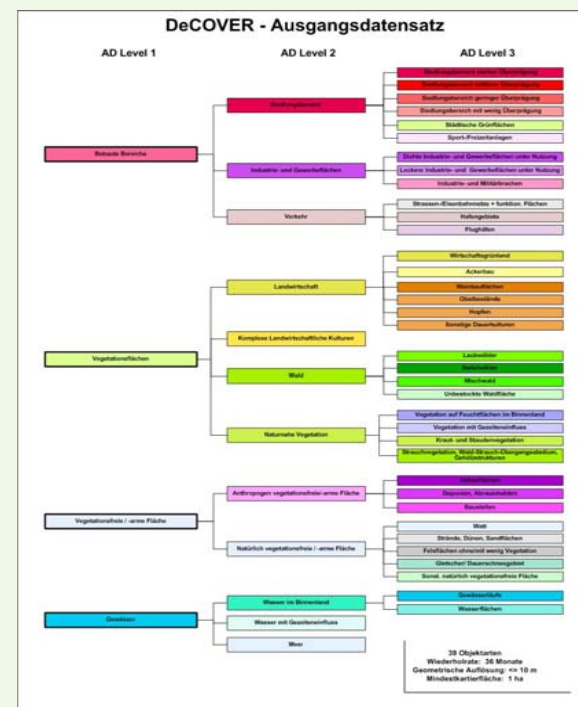
The DeCOVER Core Service Specifications

■ Design and Definition of Object Classes

- Extensive User Requirements Analysis
- Synergies to CLC, ATKIS, BNTK

39 LC/LU classes

- Geometric resolution = 5-10 m
- Update frequency 3 years
- MMU = 1ha
- Working scale 1:25 000

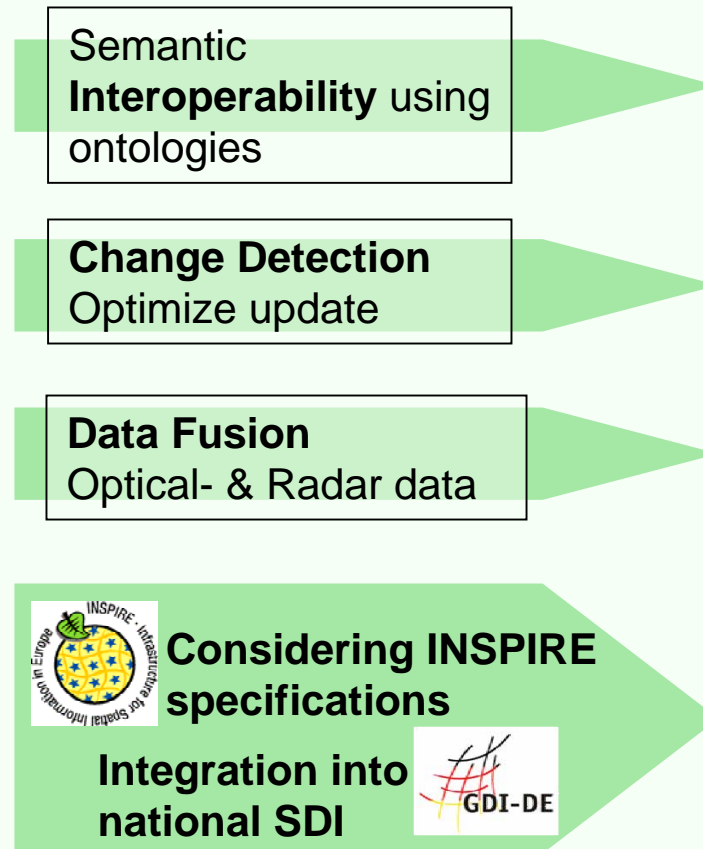


The DeCOVER Methods

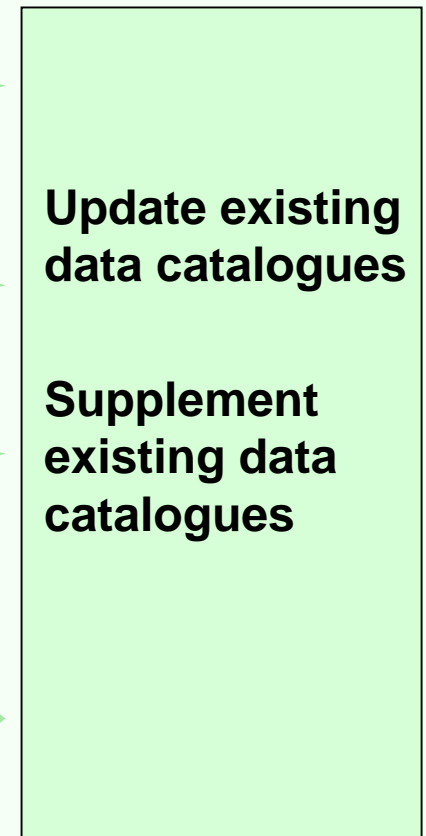
Situation



Approach



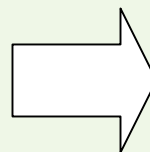
Result



Semantic Interoperability of Object Classes

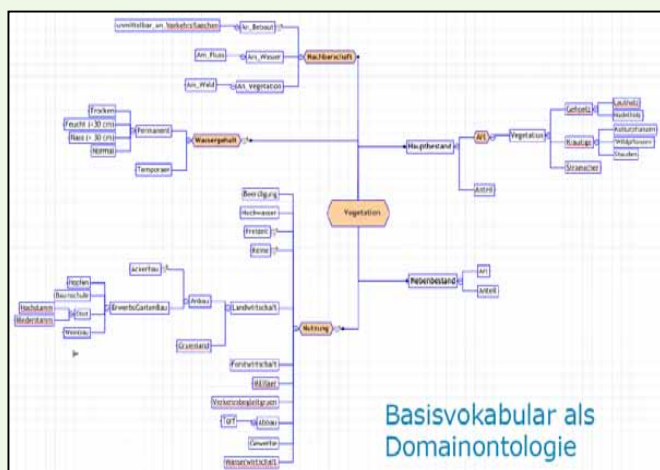
■ Semantic Descriptions

- Unified basis vocabulary for defining LC/LU classes
- Each LC class is described through an Application Ontology

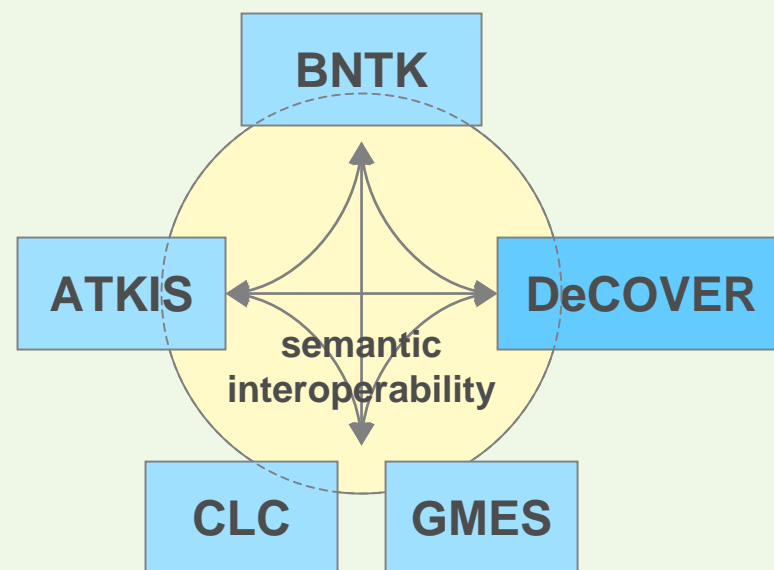


■ Synergies for data updates

- Information for object transfer (Object similarity)
- Optimize query for geoinformation



Application Ontologies



Data fusion

- designing a pre-processing chain and methods to co-register optical and radar data



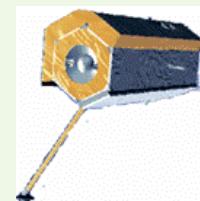
Optical
Data

&

Radar-
data

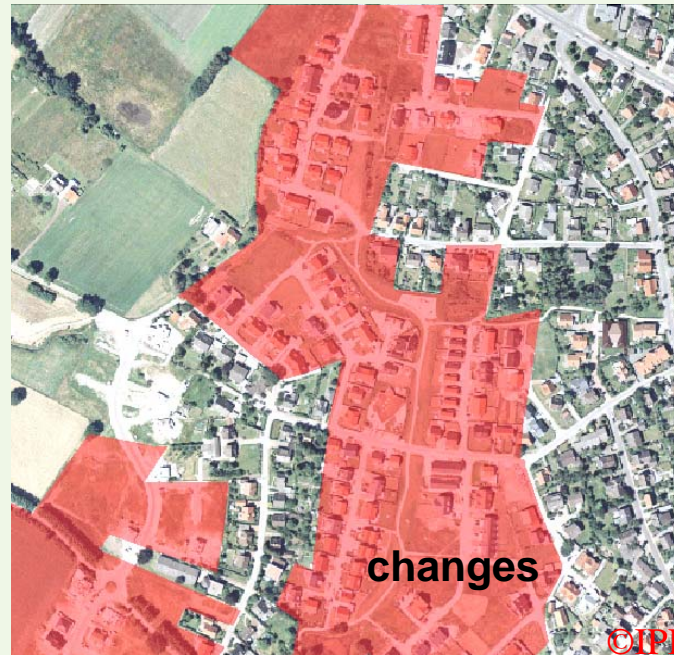
→ increased
information
depth

- integrate new sensor data
optical data (e.g. RapidEye
and TerraSAR-X)



Change detection

- Develop Change detection algorithms
- Draw from experiences of the WIPKA-System

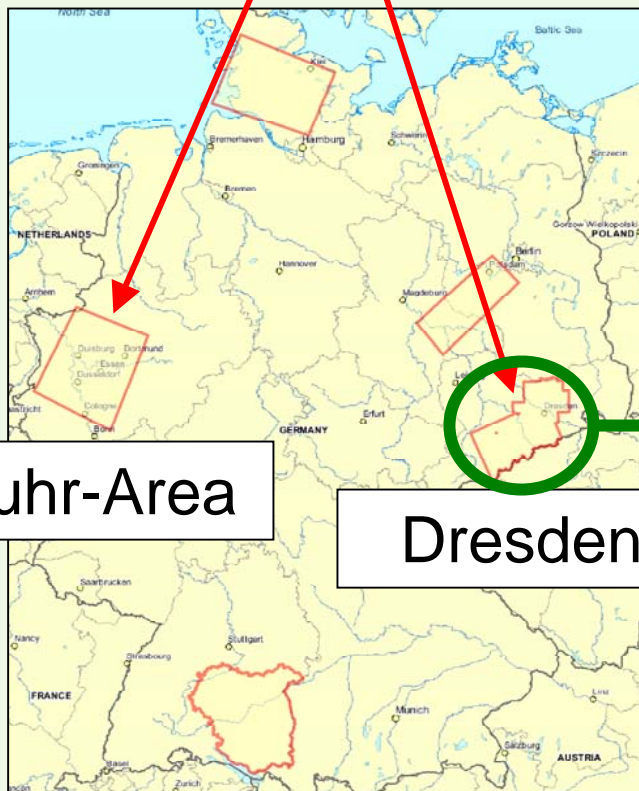


→ detection of land cover changes to target the update of existing land cover data sets

e.g. ATKIS urban areas

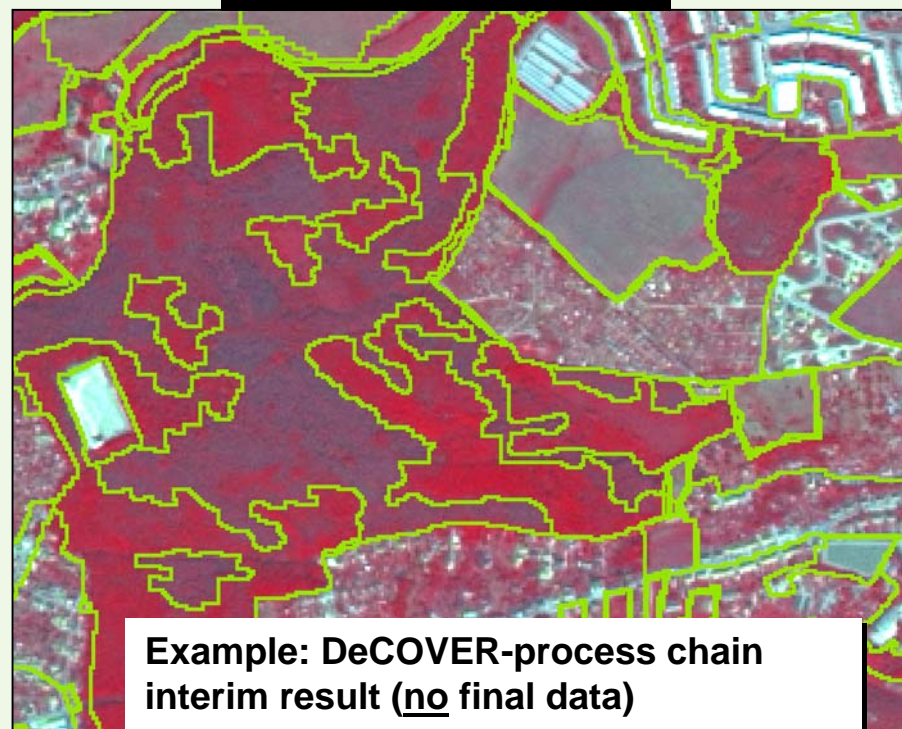
Core Service test implementation

First demonstration data on two selected **test sites**



Ruhr-Area

Dresden



Example: DeCOVER-process chain interim result (no final data)

Key aspects processing chain (I)

- Decentralized production through various partners with specific knowledge
- Centralized steering, Production messages and notifications are exchanged via XML Notifications
- Division of mapping area into “patches”, formed by significant natural or man-made structures (rivers, roads)

Key aspects processing chain (II)

■ Sequential processing

➤ Urban areas



➤ Water



➤ Forest



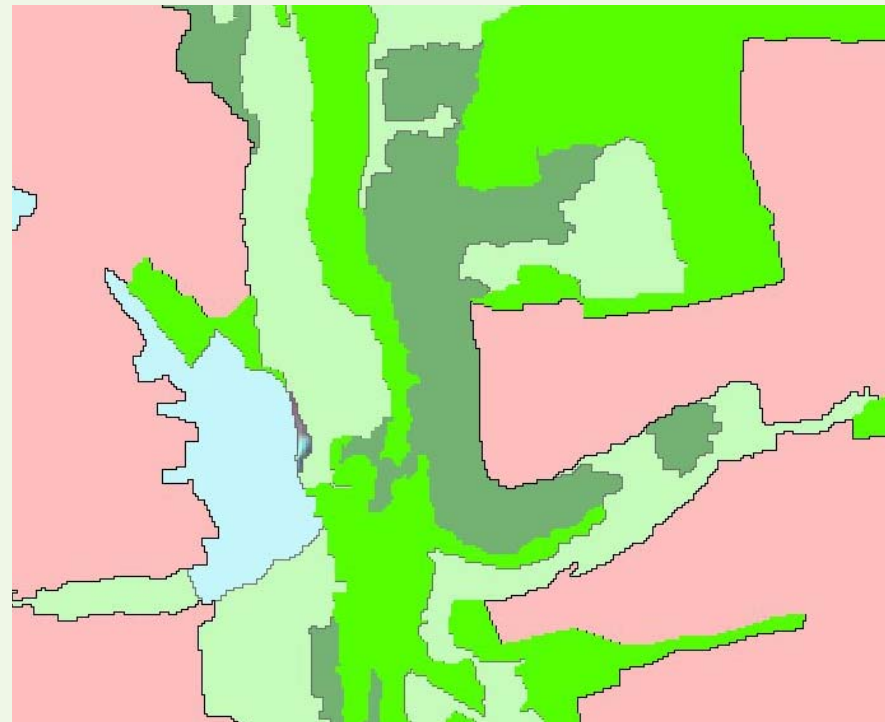
➤ Agriculture



➤ Natural Environment



➤ Final integration



What next?

- User validation of Core Service
- Further development of Additional Thematic Services and test implementations
- Concretize and further implement Data Fusion and Change Detection work



Information and Communication Web-portal:

www.DeCOVER.info

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