


INTRODUCTION TO SPATIAL DATA INFRASTRUCTURES IN EUROPE

Assoc. Prof. Dr. Tomáš ŘEZŇÍK, PhD.


Fall 2014



Laboratory on Geoinformatics and Cartography

About the course


- Z8210 Introduction to spatial data infrastructures in Europe
- Language: English
- Extent and intensity: 2/0, 5 credits
- Type of Completion: k (colloquium)
 - an academic seminar
 - theory as well as practice
 - broad discussion
 - each student will present one topic (from the list advertised by the teacher) during the course



Laboratory on Geoinformatics and Cartography

About the course


- Assessment methods
 - assessment of student's presentation;
 - assessment of student's activity during discussion throughout the semester.



Laboratory on Geoinformatics and Cartography

Syllabus


1. Motivations and benefits of the European spatial data infrastructures (ESDI).
2. Metadata as the founding stone for linking between ESDI components.
3. Discovery processes, searching for spatial data and Web services.
4. View processes, preview of discovered spatial data.
5. Download processes, ordering and download of desired data.
6. Data models, understanding the UML diagrams and other formalised descriptions.
7. Map compositions on the Web, OGC Web Map Context.
8. Data sharing, use limitations and other licensing issues.



Laboratory on Geoinformatics and Cartography

Literature

- **required literature**
 - CRAGLIA, M. et al. 2012. Digital Earth 2020: towards the vision for the next decade. In International Journal of Digital Earth, Volume 5, Issue 1. 20 pages.
 - <http://inspire.ec.europa.eu>
 - NOGUERAS-ISO J., MURO-MEDRANO P.R., ZARAZAGA-SORIA F.J. *Geographic information metadata for spatial data infrastructures :resources, interoperability and information retrieval*. 1st ed. New York: Springer, 2005. xxi, 263 p. ISBN 3-540-24464-6.
- **recommended literature**
 - ANNONI A., CRAGLIA M., EHLERS M., GEORGIADOU Y., GIACOMELLI A., KONEČNÝ, M., ÖSTLAENDER N., REMETÉY-FULOPP G., RHIND D., SMITS P., SCHADE S. A European perspective on Digital Earth. *International Journal of Digital Earth*, Abingdon, Oxon, UK: Taylor and Francis, 2011, July 2011, 4/4, p. 271-284. ISSN 1753-8947. doi:10.1080/17538947.2011.582888.
 - *UML modeling languages and applications :UML 2004 Satellite Activities, Lisbon, Portugal, October 11-15, 2004 : revised selected papers*. Edited by Nuno Jardim Nunes. 1st ed. New York, NY: Springer-Verlag Berlin Heidelberg, 2005. xiv, 294 s. ISBN 3-540-25081-6.
 - KAMBA V. *Tvorba systémů a komponent podle specifikace UML*. Brno, 2002. 61 CD.



Laboratory on Geoinformatics and Cartography

1. MOTIVATIONS AND BENEFITS OF THE EUROPEAN SPATIAL DATA INFRASTRUCTURES

Why European spatial data infrastructures?

- Initiative/legislation/framework to **discover** available spatial data, to evaluate their suitability for the purpose and to know the conditions applicable to their use.

Laboratory on Geoinformatics and Cartography



Why such emphasis on discovery process?

- Have you ever heard about the PSI directive?
 - DIRECTIVE 2003/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 November 2003 on the **re-use of public sector information**
- **How could be any information re-used when we do not know that it exists?**

Laboratory on Geoinformatics and Cartography

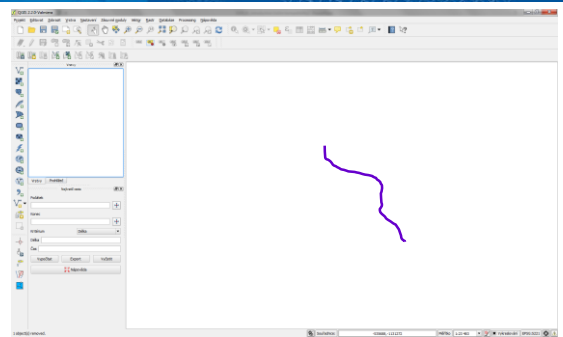


Why European spatial data infrastructures?

Laboratory on Geoinformatics and Cartography



Why European spatial data infrastructures?

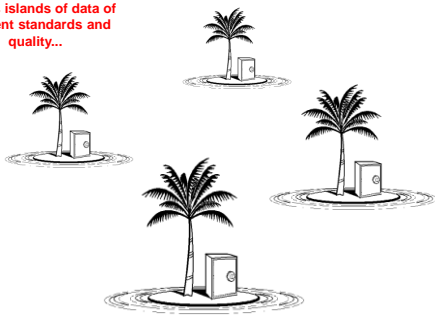


Laboratory on Geoinformatics and Cartography



“Spatial data islands”

EU has islands of data of different standards and quality...



Laboratory on Geoinformatics and Cartography



Why European spatial data infrastructures?

Google
UK

Google Search I'm Feeling Lucky

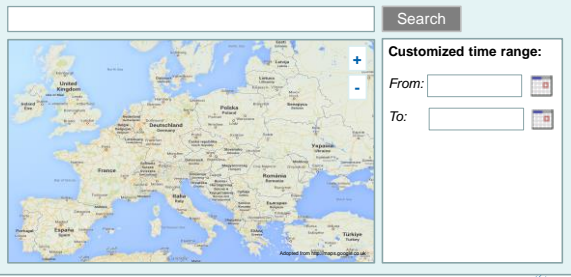
Adapted from <http://google.co.uk>

Laboratory on Geoinformatics and Cartography



Why European spatial data infrastructures?

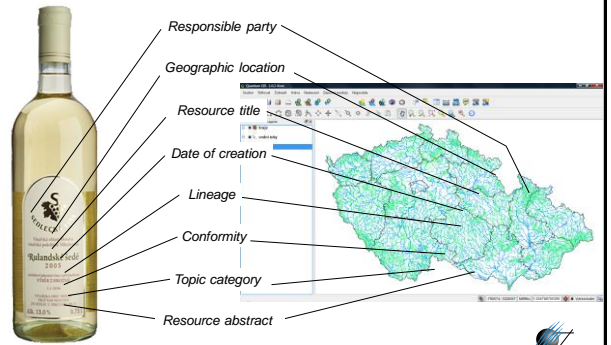
DISCOVERY SERVICE FOR SPATIAL DATA AND SERVICES



Laboratory on Geoinformatics and Cartography



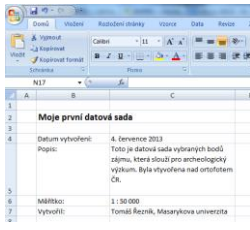
INSPIRE metadata



Laboratory on Geoinformatics and Cartography



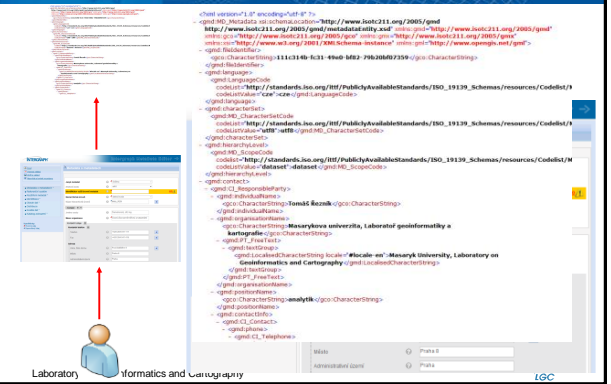
A metadata editor?



Laboratory on Geoinformatics and Cartography



INSPIRE-compliant metadata



Laboratory on Geoinformatics and Cartography



Metadata publication

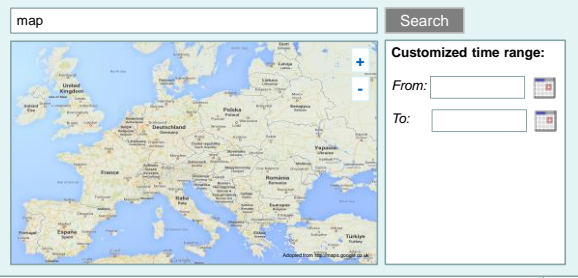


Laboratory on Geoinformatics and Cartography



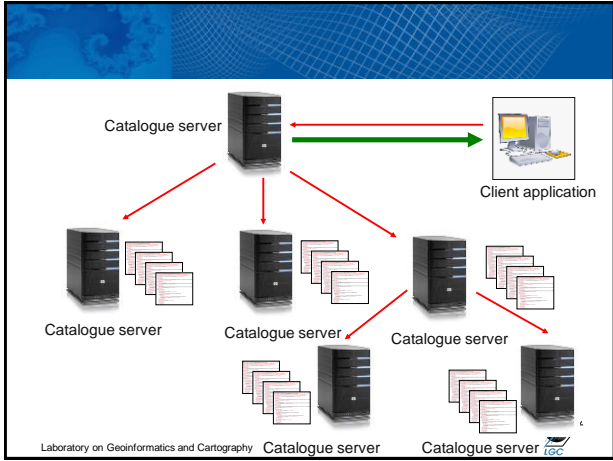
Why European spatial data infrastructures?

DISCOVERY SERVICE FOR SPATIAL DATA AND SERVICES



Laboratory on Geoinformatics and Cartography





Why European spatial data infrastructures?

DISCOVERY SERVICE FOR SPATIAL DATA AND SERVICES

map

displaying 1 to 10 out of 129488 results

< 1 | 2 | 3 | ... | 12948 | 12949 | >

- [UK] [dataset] Commercial Land and Property
Barrow Councils Commercial Land and Property that is available ... [\(show more\)](#)
- [UK] [dataset] Post Offices
Dataset showing Post Offices located with the Councils admin ... [\(show more\)](#)
- [UK] [dataset] Saved Local Plan Policy A12 - Energy Schemes
Sites allocated for energy schemes under the Saved Local Pla ... [\(show more\)](#)
- [UK] [dataset] Map based index (GeotIndex) geological memors
This layer of the map based index (GeotIndex) shows areas cov ... [\(show more\)](#)
- [UK] [dataset] Countryside Survey Environmental Zones
The Environmental Zones are aggregations of ITE Land Classes ... [\(show more\)](#)
- [UK] [dataset] Map based index (GeotIndex) onshore borehole
samples
This layer of the Map based index (GeotIndex) shows the local ... [\(show more\)](#)
- [UK] [dataset] Dentslots
Dataset showing Dentslots located with the Councils administ ... [\(show more\)](#)

time range:

Laboratory on Geoinformatics and Cartography IGCC

Why European spatial data infrastructures?

(UK) - Commercial Land and Property

Jack Member Jack Ewing **Date Added** 2013-11-21T23:01:20

Appliances Appliances

Keywords Barrow Borough Council, E-mail: gr@barrowc.gov.uk

Geographical Area Barrow Borough Council, E-mail: gr@barrowc.gov.uk

Director Barrow Borough Council, E-mail: gr@barrowc.gov.uk

Author www.inspire.gov.uk

Provider www.inspire.gov.uk

Public Sector End User Licence - INSPIRE
<http://www.inspire.gov.uk>

Usage agreements www.inspire.gov.uk

Source www.inspire.gov.uk

[View Map Data Map](#)

Name Zdrzje **Time** Promerovicki Dat

Commercial Land and Property **Isaracki Karyogre**

Pilovinskih Sotaste

Abracki Zdrzje
 Barrow Councils Commercial Land and Property that is available for rent. Areas shown as a mixture of both polygon and point. Upon accessing this Licensed Data you will be deemed to have accepted the terms of the Public Sector End User Licence - INSPIRE.

Point
 The data shows polygons and points that were created over Ordnance Survey MasterMap base data.

Isaracki Sotaste
Specifitace www.inspire.gov.uk **Isaracki Sotaste** www.inspire.gov.uk

Isaracki Sotaste
[View Map Data Map](#)

Isaracki Sotaste
[View Map Data Map](#)

Laboratory on Geoinformatics and Cartography IGCC

Why European spatial data infrastructures?

Laboratory on Geoinformatics and Cartography IGCC

Why European spatial data infrastructures?

Laboratory on Geoinformatics and Cartography IGCC

Why European spatial data infrastructures?

Laboratory on Geoinformatics and Cartography IGCC

For which themes may I search?

Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

Annex II

1. Elevation
2. Land cover
3. Orthoimagery
4. Geology

Laboratory on Geoinformatics and Cartography



For which themes may I search?

Annex III

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Statistical units 2. Buildings 3. Soil 4. Land use 5. Human health and safety 6. Utility and governmental services 7. Environmental monitoring facilities 8. Production and industrial facilities 9. Agricultural and aquaculture facilities 10. Population distribution — demography | <ol style="list-style-type: none"> 11. Area management/restriction/regulation zones and reporting units 12. Natural risk zones 13. Atmospheric conditions 14. Meteorological geographical features 15. Oceanographic geographical features 16. Sea regions 17. Bio-geographical regions 18. Habitats and biotopes 19. Species distribution 20. Energy resources 21. Mineral resources |
|---|--|

Laboratory on Geoinformatics and Cartography



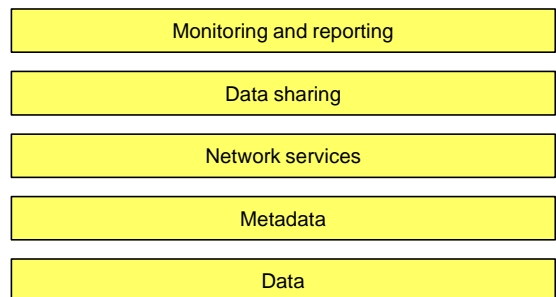
INSPIRE spatial data themes

- Exactly those themes that any student should choose and present its content to the audience.

Laboratory on Geoinformatics and Cartography



Building blocks of any spatial data infrastructure



Laboratory on Geoinformatics and Cartography



Who is obliged to create such SDI building blocks in the European Member States?

- So-called Legally Mandated Organisations (LMOs)
- Generally defined by the European directive 2007/2/EC
 - English version: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32007L0002&from=EN>
 - Versions for all 24 official European languages: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32007L0002>
- In detail written in the appropriate legislation of each Member State, such as Zákon č. 123/1998 Sb. (CZ) or Zákon č. 3/2010 Z.z. (SK)

Laboratory on Geoinformatics and Cartography



Which data shall be published under INSPIRE?

- Fulfilling the following conditions (see Article 4)
 - they relate to an area where a Member State has and/or exercises jurisdictional rights;
 - they are in electronic format;
 - they are held by or on behalf of any of the following:
 - (i) a public authority, having been produced or received by a public authority, or being managed or updated by that authority and falling within the scope of its public tasks;
 - (ii) a third party to whom the network has been made available in accordance with Article 12;
 - they relate to one or more of the themes listed in Annex I, II or III.

Laboratory on Geoinformatics and Cartography



Deadlines

- See also <http://inspire.ec.europa.eu/index.cfm/pageid/44>

Implementation	Article	Description
15 May 2010	23(1) 23(2)	Implementation of provisions for monitoring and reporting
01 Dec 2010	6(5)	Metadata available for spatial data sets and services corresponding to Annex I and II
09 May 2011	14	Member States shall provide the Discovery and View Services with initial operating capability
19 Oct 2011	17(1)	The EC establishes and runs a geo-portal at Community level
09 Nov 2011	14	Implementation of Regulation on regards the access to spatial data sets and services of the Member States to Community institutions and bodies under harmonised conditions for new arrangements
28 Jun 2012	14	Discovery and view service operational
28 Jun 2012	14	Member States shall provide the Download Services with initial operating capability
23 Nov 2012	7(3), 9(6)	Implementation of Regulation on regards the access to spatial data sets and services of the Member States to Community institutions and bodies under harmonised conditions for new arrangements
28 Dec 2012	14	Download services operational
28 Dec 2012	14	Transformation services operational
04 Feb 2013	7(3), 9(6)	Implementation of Commission Regulation (EU) No 102/2013 of 4 February 2013 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
19 Oct 2013	17(1)	Implementation of Regulation on regards the access to spatial data sets and services of the Member States to Community institutions and bodies under harmonised conditions for existing arrangements
03 Dec 2013	6(5)	Metadata available for spatial data sets and services corresponding to Annex II
22 Oct 2013	7(3), 9(6)	Access cancelled and externally restricted Annex I and II spatial data sets available
19 Nov 2017	7(3), 9(6)	Implementation of Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services for other Annex I spatial data sets still in use at the date of adoption
04 Feb 2018	7(3), 9(6)	Implementation of Commission Regulation (EU) No 102/2013 of 4 February 2013 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services for other Annex I spatial data sets still in use at the date of adoption
21 Oct 2020	7(3), 9(6)	Other Annex I and II spatial data sets available in accordance with 3(a) for Annex I and II

Laboratory on Geoinformatics and Cartography

Feedback from the Member States

- Public consultations and testing
- 6554 comments** related to the data specifications in 2011
 - Each comment has to be answered and if appropriate, then also addressed

Country	Comments
DE	1581
ES	1141
FR	1041
IT	7
NL	7
PT	7
Other	11
BE	11
GR	11
IE	11
LU	11
PL	11
RO	11
SE	11
UK	11
Other	11
AT	11
CY	11
DK	11
FI	11
HU	11
MT	11
SI	11
SK	11
TR	11
Other	11

Laboratory on Geoinformatics and Cartography

At the end there is more than 6'000 pages...

Legally binding

INSPIRE directive (2007/2/EC)

- Commission Regulation No. 1205/2008 (metadata)
 - Technical Guidelines for Metadata (1)
- Commission Regulation No. 1089/2010 (data)
 - Data Specifications (34)
- Commission Regulation No. 976/2009 (services)
 - Technical Guidelines for Network Services (4)

Laboratory on Geoinformatics and Cartography

INSPIRE objectives (purpose of all the 6'000 pages...)

Make relevant, harmonised spatial data available for Community Environmental Policy (formulation, implementation, monitoring and evaluation) and for the citizen ...

... through the establishment of integrated spatial information services, based upon a distributed network of databases, linked by common standards and protocols to ensure compatibility.

Laboratory on Geoinformatics and Cartography

INSPIRE document repository

- <http://inspire.ec.europa.eu>

Laboratory on Geoinformatics and Cartography

INSPIRE Geoportal

- <http://inspire-geoportal.ec.europa.eu>

Laboratory on Geoinformatics and Cartography

Czech national INSPIRE geoportal

• <http://geoportal.gov.cz>

Vítejte na stránkách Národního geoportálu INSPIRE

- INSPIRE** - Vytvořte svůj vlastní plán a sledujte...
- POSKYTOVATEL** - Přidat nové služby a poskytovatele...
- VALIDATOR** - Ověřte si správnost údajů...
- GEOREPORTY** - Přidat nové georeporty...
- E-SHOP** - Zakoupit služby a produkty...



Laboratory on Geoinformatics and Cartography

