

INSPIRE Thematic Clusters

State of the art



The screenshot shows the homepage of the INSPIRE Thematic Clusters website. The header features the INSPIRE logo and the text "INSPIRE Thematic Clusters" with a search bar. Below the header, there are navigation tabs for "News", "Events", "Categories", "Clusters", and "More". The main content area is divided into several sections: "About the INSPIRE Thematic Clusters Platform" with a grid of nine images; "Tag cloud"; "INSPIRE on Twitter" with a tweet from @INSPIRE_eu; "INSPIRE Website"; "INSPIRE GeoPortal"; "INSPIRE Conference 2015"; and "News".

FACILITADORES

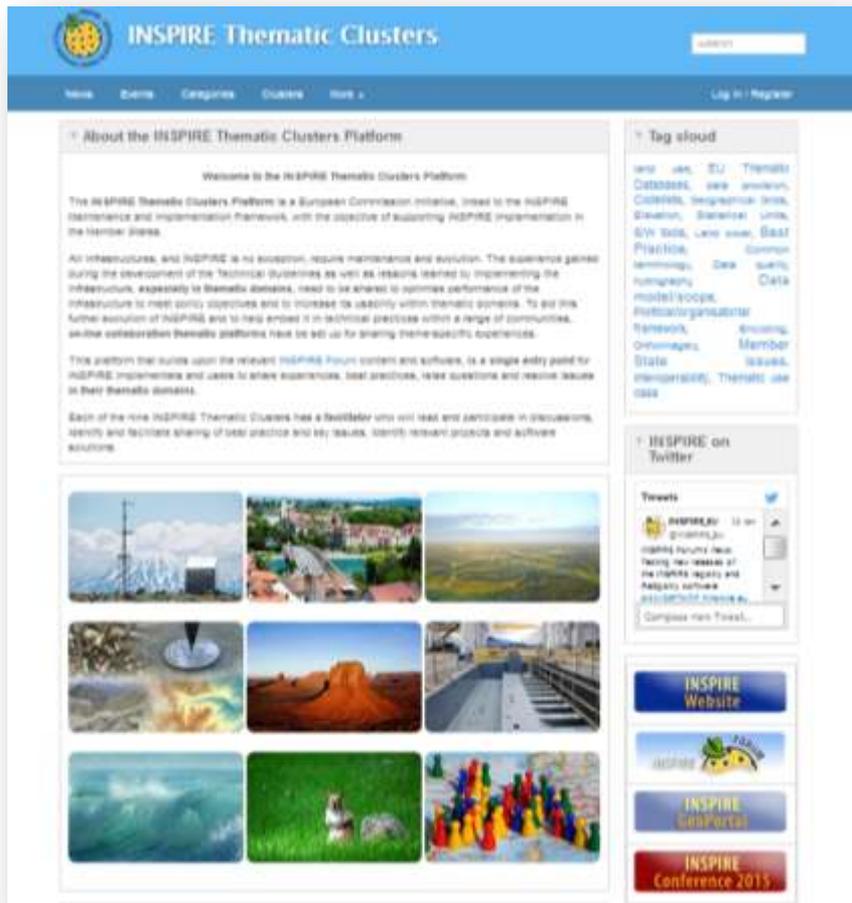
Introduction

Interoperability is better achieved



...sharing solutions in a collaborative way

New on-line collaboration platform INSPIRE Thematic Clusters



The screenshot shows the homepage of the INSPIRE Thematic Clusters platform. The header includes the logo and navigation links. The main content area features an 'About the INSPIRE Thematic Clusters Platform' section with introductory text and a grid of nine images representing various thematic clusters. On the right side, there is a 'Tag cloud' and a 'Tweets' section. At the bottom right, there are buttons for 'INSPIRE Website', 'INSPIRE GeoPortal', and 'INSPIRE Conference 2015'.

INSPIRE NEWS

<http://inspire.ec.europa.eu/index.cfm/newsid/11721>

Thematic Clusters

<https://themes.jrc.ec.europa.eu/>

[Launched in December 2014](#)

New on-line collaboration platform INSPIRE Thematic Clusters

Background:

- INSPIRE Forum

"Connecting people and sharing knowledge"

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



New objectives and requirements:

- Re-launch activity / participation
- Help Member States and Stakeholders in the implementation of INSPIRE
- Establish a common point of contact to solve thematic issues

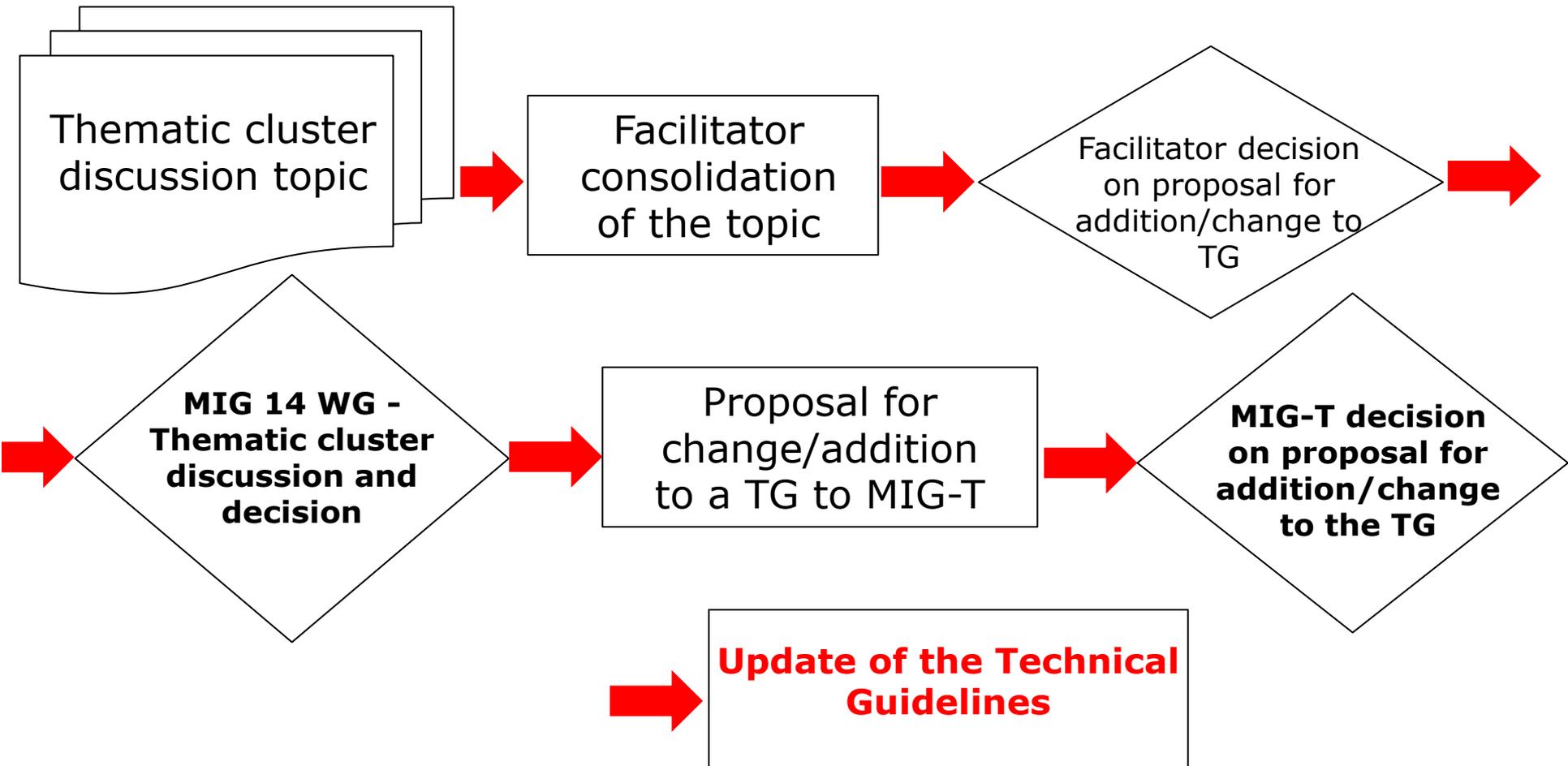
INSPIRE Thematic Clusters Collaboration Platform

Specific objectives:

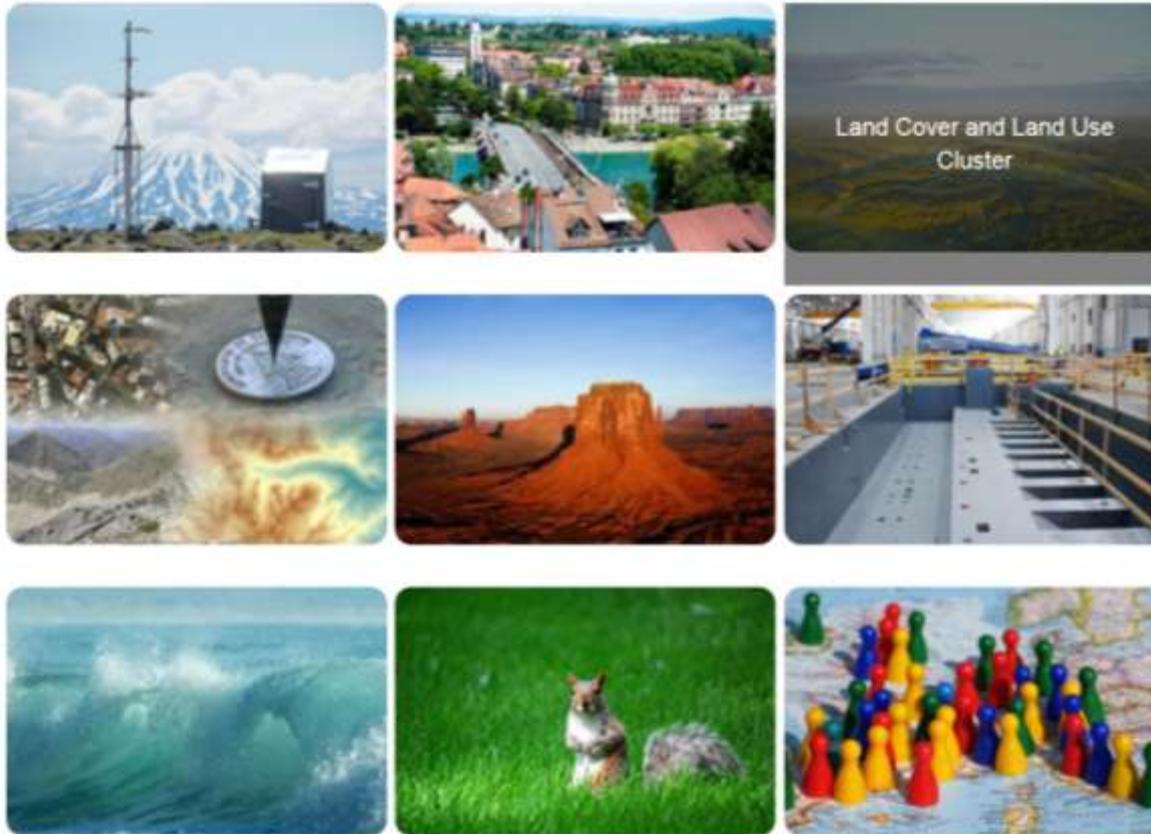
- To build and support thematic communities in implementing INSPIRE.
- To identify and resolve thematic issues.
- To get a better overview of the status of implementation per theme.
- To support the work of the INSPIRE Maintenance and Implementation Group (MIG).

Proposals for the MIG

Thematic additions/changes to the Technical Guidelines



INSPIRE Thematic Clusters collaboration platform structure



Nine Thematic Clusters

One sub-group per
INSPIRE theme

Nine facilitators



INSPIRE Thematic Clusters

People to be involved

- Producers, users, domain experts, implementers
- EC ISA, Copernicus ... Communities
- EU, **National** project members
- EU umbrella organization: EuroGeographics, EuroGeoSurvey, EEA, ...
- OGC/ISO/CEN thematic WGs
- EC **Thematic EGs** (WFD, FD ...)
- JRC **thematic pilots** contacts (e.g. Human Health)
- INSPIRE MS CPs, SDICs/LMOs
- SMES INSPIRE
- SW vendors, open source communities





INSPIRE Thematic Clusters

Content to evaluate

- INSPIRE relevant TG Documents (esp. annexes, additional documentation)
- INSPIRE Forum Groups
- **EU projects**
- EU related knowledge sharing groups (KEN)
- INSPIRE website (INSPIRE conferences ...)
- Are3na Joinup (SW Tools)
- **INSPIRE Monitoring and Reporting**
- **INSPIRE pilots**
- Social media groups (LinkedIn)

INSPIRE Thematic Cluster on Topographic and Cadastral Reference Data

Highlights of the activity in TC #6

Anja Hopfstock – Facilitator

anja.hopfstock@bkg.bund.de



Cluster level (134)

	Administrative Units	(26)
	Addresses	(24)
	Buildings	(25)
	Cadastral Parcels	(19)
	Geographical Names	(15)
	Hydrography	(18)
	Transport networks	(34)

TC on Topographic & Cadastral reference data

Main concerns of implementers

Categories

- ▲ Topographic and Cadastral Reference Data Categories
 - Thematic use case 6
 - Data model/scope 12
 - Common terminology 5
 - Encoding 3
 - Data quality 1
 - Evolution - Thematic extensions 2
 - Portrayal 1
 - EU Thematic databases 1
 - S/W tools 9
 - Member State issues 8
 - Platform utilisation 1
 - Political/organisational framework 2
 - Codelists 1
 - Best Practice 10
 - Interoperability 9
 - Data provision 5
 - Data used for e-reporting 0
 - Recommended Implementation Examples 1

- Overall 53 discussion topics
- Implementation of Annex I themes

Most popular tags in this group:

Data model/scope, buildings, Transport networks, cross-cluster, Best Practice, Administrative units, Cadastral parcels, Geographical names, hydrography, Interoperability, addresses, S/W tools, Member State issues, Thematic use case, Data provision, Common terminology, cross-border, Encoding, Elevation, Orthoimagery, implementation, topographic data, inspire-ken, eurogeographics, validation, ETS, conformity, reference data, Coordinate reference systems, Geographical grids, Evolution - Thematic extensions, Political/organisational framework, natural identifiers, download service, ArcGIS, Recommended Implementation Examples, temporal aspects, unique identifier, registry, testing, import schemas, database, network, Linear referencing, webinar, CP, BU, Portrayal, Data quality, Adresses, INSPIRE-GWF 2015, inspire conference 2015, INSPIRE GWF 2015, workshop, Statistical Units, Land cover, land use, classification, settlements, observation, sea regions, hydrogeology, marine, services, project, Platform utilisation , EU Thematic databases, infomobility, hackathon, Codelists

TC on Topographic & Cadastral reference data

Most relevant discussions

Update of INSPIRE Network model

- Linear referencing
- Road link positions on road sequences

<https://themes.jrc.ec.europa.eu/discussion/view/13413/update-of-the-inspire-network-model>

Administrative Units, Cadastral Parcels

- Common unique ETRS89 coordinate are crucial for cross-border data harmonization

<https://themes.jrc.ec.europa.eu/discussion/view/21536/common-etr89-coordinates-on-the-state-borders>

TC on Topographic & Cadastral reference data

Most relevant discussions

Buildings

- Request for publishing the extended 2D building schema
<https://themes.jrc.ec.europa.eu/discussion/view/31556/buildingextendedbase-and-buildingextended2d-xsd-schemas>
- Detailed information for number of floors above and below ground is not available but total number of floors
<https://themes.jrc.ec.europa.eu/discussion/view/31575/total-number-of-floors>



TC on Topographic & Cadastral reference data

Message to the audience

Looking for

- **Best practice examples** – EU projects, INSPIRE pilots, applications, geoportals, re-usable SW tools
- **Key implementation issues, constraints and challenges** encountered by national working groups, thematic experts in the domain, other interested stakeholders (organizations, professionals)
- **Proposals for addition/changes** of TGs
- **Participation:** INSPIRE implementers and Users

INSPIRE Thematic Cluster on Elevation, Orthoimagery, Reference systems and Geographical grids

Highlights of the activity in TC #3

Jordi Escriu – Facilitator

jordi.escriu@icgc.cat



Cluster level (97)

	Elevation	(24)
	Orthoimagery	(27)
	Coordinate reference systems	(17)
	Geographical grid systems	(13)

TC on Elevation, Orthoimagery, Reference systems and Geographical grids

Main concerns of implementers

- Requests for providing more guidelines / explanations in the TGs.
- As well as implementation examples.
- How to encode raster data in INSPIRE (coverages) with GMLCOV, different options allowed.
- Experiences implementing Elevation and Orthoimagery INSPIRE data sets and WCS.
- Questions on the CRS / map projections to be used in the INSPIRE context.
- Discussions on the use and usability of the LAEA and Zoned Geographic Grids.

TC on Elevation, Orthoimagery, Reference systems and Geographical grids

Most relevant discussions

- Encoding of EL and OI coverages in GML – GMLCOV
- How to encode the spatial extent of coverages - domainExtent vs. gml:boundedBy
- Usability of the 'Zoned Geographic Grid'
- Use of the 'Equal Area Grid'
- Need more guidance for Elevation encoding - Examples based on GMLCOV schema
- Existing validation rules
- TM projections allowed - ETRS89-TMzn and raster data for OI and EL
- Usefulness of Contour Lines transformed to EVRS from a national height reference system
- Inconsistencies/errors found in the INSPIRE TGs on Orthoimagery.

TC on Elevation, Orthoimagery, Reference systems and Geographical grids

Message to the audience

- **Lack of people from the satellite-imagery and bathymetry communities.**
- Looking for:
 - Best practices (services, geoportals, etc.).
 - Experiences on implementation of WCS.
 - Issues identified in the TGs.
- **We have some useful recommended implementation examples and documented experiences available.**
- Share yours!

INSPIRE Thematic Cluster on Land Cover and Land Use

Highlights of the activity in TC #2

Lena Hallin-Pihlatie – Facilitator

lena.hallin-pihlatie@ymparisto.fi



Cluster level (98)

 Land Cover (38)

 Land Use (23)

TC on Land cover & Land use

Main concerns of implementers

- How should Inspire data look like when being according to the LC/LU application schemas?
- How to understand the TG on LC regarding code lists and documentation of the nomenclature?

Which options/requirements are there?

- How to name different layers in a web service to meet the requirements of INSPIRE?
- Identification of issues to be resolved.

TC on Land cover & Land use

Most relevant discussions

- The Association role 'Member' exist in both in LC and LU between the dataset and units, but it has been modeled differently
 - LC: week aggregation
 - LU: bidirectional
- There are two ways to encode this Member Association role to be compliant with the LC vector application schema:
 - Examples of both encoding provided (GML files: embedded, referencing)
 - One considered best practice (referencing using xlink:href)
- Some challenges regarding the LC vector application schema have been brought forward:
 - For building WFS, and
 - For use in GIS software

Discussion topics related to previous slide

- <https://themes.jrc.ec.europa.eu/discussion/view/48703/the-association-role-%E2%80%99member%E2%80%99-in-land-cover-and-land-use>
- <https://themes.jrc.ec.europa.eu/discussion/view/42989/land-cover-gml-files-not-correctly-displayed-in-gis-environment-a-matter-of-mapping>
- <https://themes.jrc.ec.europa.eu/discussion/view/43639/associating-landcoverunit-instances-to-their-parent-landcoverdataset-instances-for-wfs-filtering>

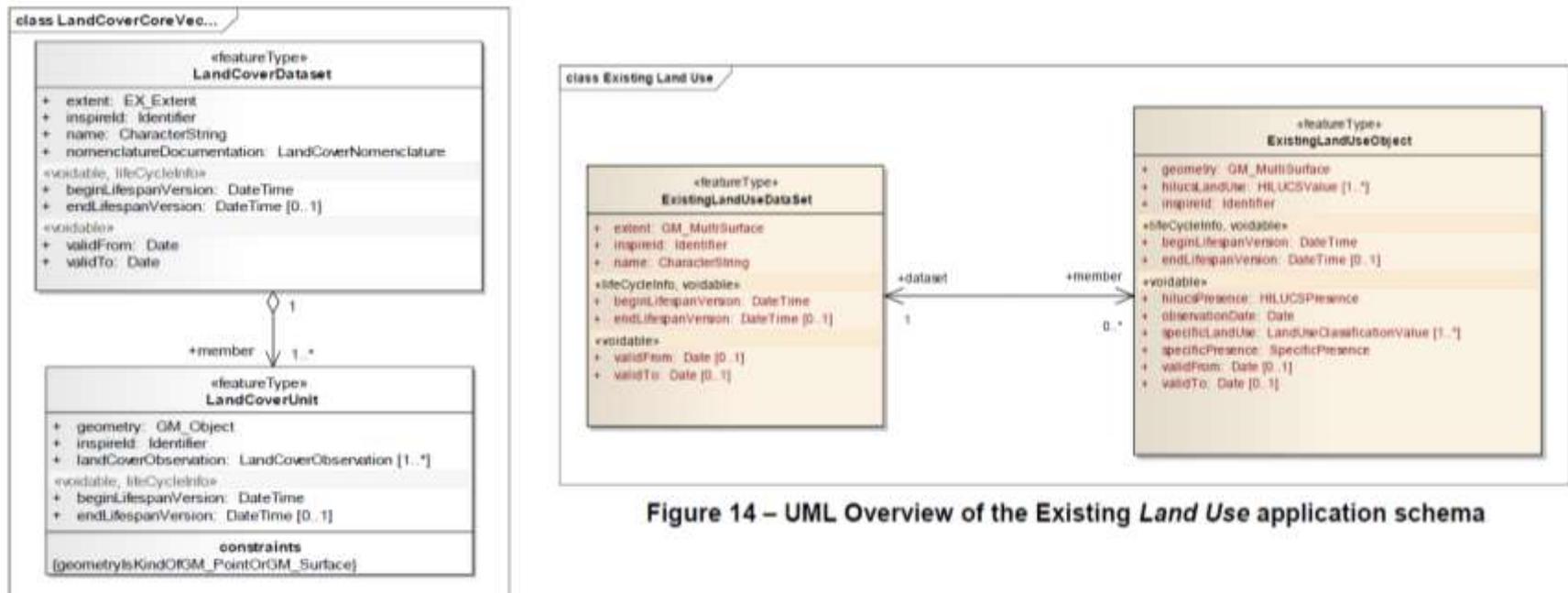


Figure 14 – UML Overview of the Existing *Land Use* application schema

TC on Land cover & Land use

Message to the audience

What we need

- **More experiences from building up WFS.**
- **Experiences from working with LC/LU extensions.**
- Coverage (raster) encoding experiences/examples.
- **Involvement from the Planned Land Use community** (spatial planners).
- **Discussion on how to deal with deal with Duality?** LC and LU data often contain both LC and LU elements/attributes. For example the Land Parcel Identification System (LPIS) is reported as a LC in some countries and as LU in other. Both are correct. Solution: Community agreement? Linkage of LC and LU information to the same spatial objects?

INSPIRE Thematic Cluster on Earth Science

Highlights of the activity in TC #1

Amelia Baptie – Facilitator

ajpi@bgs.ac.uk



Cluster level (132)

	Energy resources	(26)
	Mineral Resources	(39)
	Soil	(29)
	Natural risk zones	(31)
	Geology	(54)



TC on Earth Science

Main concerns of implementers

- Earth Science cluster covers 5 Annex II and Annex III Inspire data specifications: Geology, Natural risk zones, Soil, Mineral resources and Energy resources.
- Currently most activity within Geology (Annex II) and Mineral Resources (Annex III).
- Focus on the best way to implement the data specifications, best practice and code lists. Example:

<https://themes.jrc.ec.europa.eu/discussion/view/26366/implementation-of-the-inspire-data-modelsMost>



TC on Earth Science / Geology

Most relevant discussions

- Various discussions around 'Data model/scope', 'Best Practice', 'Thematic use case', 'Codelists', 'Portrayal' and 'Encoding'.
- Excellent discussion on WMS layer naming.

<https://themes.jrc.ec.europa.eu/discussion/view/13952/layer-naming>

- Many questions posted and answered in relation to best practice.

<https://themes.jrc.ec.europa.eu/discussion/view/49184/inspire-ge-data-model-implementation-in-portuguese-geological-survey-lneg>

<https://themes.jrc.ec.europa.eu/discussion/view/11231/country-by-country-state-of-play-in-the-geology-data-specification-at-the-start-of-this-collaboration-january-2015>

- Much activity has been focused on the converting existing **OneGeology-Europe** web services to INSPIRE web services.

[This activity's recommendations and best practice will be published on the cluster shortly.](#)

TC on Earth Science / Mineral resources

Most relevant discussions

- Focus on 'Data model/scope' and 'Encoding'.
- Discussions on Calculating values, Symbols and Attributes, respectively:

<https://themes.jrc.ec.europa.eu/discussion/view/3570/is-it-obligatory-to-recalculate-the-values-in-cubic-meters-into-tons-using-some-general-formulas>

<https://themes.jrc.ec.europa.eu/discussion/view/13507/recommended-symbol-for-building-raw-materials>

<https://themes.jrc.ec.europa.eu/discussion/view/12686/earthresource-attribute>

- Much activity within the **Minerals4EU project** which has been implementing the data specifications.

[This activity will be published on the cluster shortly](#)

TC on Earth Science / Soil

Most relevant discussions

- Most discussion around 'Codelists'.
- Discussions on Extending the parameter lists and How to avoid duplication of values, respectively:

<https://themes.jrc.ec.europa.eu/discussion/view/26781/technical-questions-regarding-and-examples-for-the-handling-of-registries-and-their-entries>

<https://themes.jrc.ec.europa.eu/discussion/view/26810/avoiding-duplication-of-parameter-list-entries>

***Question! – would it be beneficial to the soil community if JRC were to agree to extend the registry?**

<https://themes.jrc.ec.europa.eu/discussion/view/51649/jrc-codelists-registry-%E2%80%93-would-the-option-to-extend-this-be-useful-to-the-soil-community>

- **Very keen for staff of EU organizations involved in soil data provision data or use to engage in the cluster.**

TC on Earth Science / Natural risk zones

Most relevant discussions

- Work is ongoing for members to check whether their data is in the scope of NZ and focus is on 'Best Practice' and 'Data model/scope'
- Discussion on the EU funded 'eENVplus project undertaking a trial implementation of INSPIRE risk zone data.

<https://themes.jrc.ec.europa.eu/discussion/view/5375/is-your-data-within-the-scope-of-nz>

- A discussion was started pointing to a paper on the usefulness and application of the Data Specification to the domain,

<https://themes.jrc.ec.europa.eu/discussion/view/5135/are-you-using-the-data-specification>

- The **eENVplus project** will deliver at least one implementation shortly and it is hoped this will encourage others to populate datasets/encourage activity on the cluster.

TC on Earth Science / Energy resources

Most relevant discussions

- Not at lot of activity at this point.
- Facilitator has tried to showcase existing INSPIRE services:

<https://themes.jrc.ec.europa.eu/pages/view/6006/showcase-of-existing-inspire-services>

- **Very keen to engage with the wider community who are implementing the Energy Resources data specification.**



TC on Earth Science

Message to the audience

- Earth Science groups are quite separated and are still working out the right way to implement things.
- But we are working hard and that work will continue to be shared on the cluster.
- **If you are involved in implementing the Earth Science INSPIRE data specifications please share your questions, and your experiences – good and bad!** - with us on the cluster.
- We look forward to collaborating with you in the future.

INSPIRE Thematic Cluster on Facilities, Utilities and Public Services

Highlights of the activity in TC #5

Angel López – Facilitator

alopezalos@yahoo.es



Cluster level (59)

	Utility and Governmental Services	(24)
	Production and Industrial Facilities	(10)
	Agricultural and Aquaculture Facilities	(12)

TC on Facilities, Utilities and Public Services

Main concerns of implementers

- Effort to be compliant with Metadata and Data Services
- Currently 59 experts registered in the Cluster, **very few actively participating on the platform.**
- **However, there are on-going discussion out of the platform.**
- **Domain specific communities still don't understand much about INSPIRE** scope, procedures and implications.
- **How INSPIRE match with on-going activities, discussions and existing reporting obligations** within the thematic communities.
- INSPIRE Concepts, Documents ... and Benefits still not easy to understand for thematic communities out of the core of INSPIRE.

TC on Facilities, Utilities and Public Services

Most relevant discussions

Cluster level

- Inspire in the context of PRTR/IED (Industrial Emissions Directive)
- Code List extensions for classification of Activity Complexes (ie. IPPC).
- Fisheries Data
- Do you understand the scope of Activity Complex Generic Model?
- Data-mapping to INSPIRE - energy resources
- Tracing-algorithm

“Utilities and Governmental Services” Group

- Encoding a RelatedParty object in a UtilityNetwork in GML.
- UtilityNetwork has constraint that cannot be satisfied.
- CrossTheme utility network type missing
- An GML Example for Water Network
- How to manage object referencing according to INSPIRE Generic Network Model - An example using HALE.
- Wastewater treatment

TC on Facilities, Utilities and Public Services

Message to the audience

- **INSPIRE/SDI are long term initiatives** and must be understood and addressed as such. **Switch your mind to a new paradigm!**
- Don't get stuck waiting for close answers or guidelines - **Your problem is perhaps the first part of the solution!**
- **Start implementing and share your problems,** doubts, comments and proposals openly with others - This is the only way to reach the real data interoperability.
- **Don't wait for others to show you how... Let's take the initiative** becoming an INSPIRE expert and lecturer yourself !

INSPIRE Thematic Clusters on Environmental Monitoring and Observations

Highlights of the activity in TC #7

Alessandro Sarreta – Facilitator

alessandro.sarreta@gmail.com



Cluster level (77)



Environmental Monitoring Facilities

(31)



Observations and Measurements

(25)

TC on Environmental monitoring & Observations

Main concerns of implementers

- Most active discussions are related to technical implementation of O&M standard (ISO 19156) and SWE/SOS issues.
- Other users ask questions on which INSPIRE thematic data model should be used for specific types of data, especially when observational data are involved.
- Due to the cross-cutting nature of both EF and OM themes, there are a dome discussions shared with other clusters, where issues on common approaches or data model scopes are raised.
- Other questions: Scope / Thematic identifiers / Life cycle attributes / Code lists (domain and extensibility).

TC on Environmental monitoring & Observations

Most relevant discussions

- Technical questions on services:
 - WFS vs. SOS: Which Features are provided by which download service?
 - GetObservationById
- How to encode Feature of Interest - Examples (discussion)
- Extensibility of code lists – Common to other INSPIRE TGs (discussion 1 / discussion 2 / discussion 3)
- Domain of code lists - PurposeOfCollectionValue
- Thematic observations - scope of DS

TC on Environmental monitoring & Observations

Message to the audience

- The cross-thematic nature of **EF and OF** seems to have **no established community** to discuss with: **which are the EF and O&M reference communities in Spain?**
- Difficult to have non-expert / first implementers asking “simple” questions.
- **We need implementers from different domains dealing with observations and networks of monitoring facilities** (we know there are many).
- Software and tools **dealing with O&M and SOS** are less mature than other “standard” services.
- But they are coming and **case studies, data, users and testers are welcome and needed!**

INSPIRE Thematic Clusters

Marine and Atmosphere cluster

Highlights of the activity in TC #7

Keiran Millard – Facilitator

keiran.millard@gmail.com



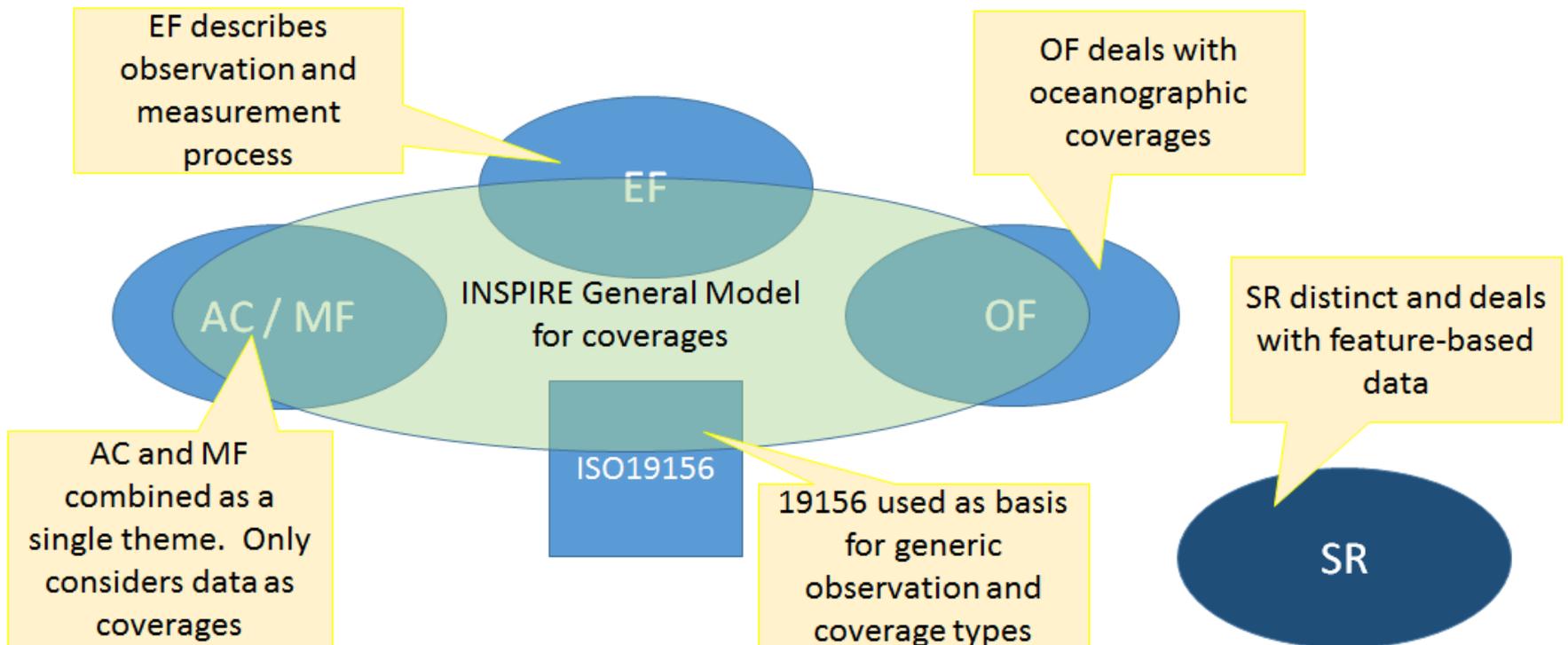
Cluster level (61)

-  Meteorological Geographical Features (14)
-  Atmospheric conditions (11)
-  Sea regions (11)
-  Oceanographic Features (17)

INSPIRE Thematic Clusters

Marine and Atmosphere cluster

Relation with EF / Observations & Measurements





Marine & Atmosphere cluster

Main concerns of implementers

- How INSPIRE fit with existing legislation and reporting obligations.
- Strong communities behind with well defined Standards, Data Formats and Requirements (GRIB, NetCDF, ...).
- How to deal with huge volumes of data? GML is not an option.
- ISO 19156 Observations and Measurement at the core of EF, OF, AC/MF.
- WCS Discussion on-going.
- Copernicus Services as framework for implementation.
- How to manage Code Lists and extensions.

Marine & Atmosphere cluster

Most relevant discussions

Main Cluster - Marine and Atmosphere

- How in practice do I ensure INSPIRE compliance using the data specifications?
- Does EMODNET and MyOcean deliver Inspire compliance for Member States?
- Where to publish external radiation dose & radioactive fallout measurements in INSPIRE

Marine Subgroup

- SO2 Emissions from ships
- Modelling Shoreline Segments
- Modelling Marine Extent
- Data in Image Formats
- OF Data Specification - Use of code lists
- EMF and Marine Strategy Framework Directive

INSPIRE Thematic Cluster on Biodiversity & Management Areas

Highlights of the activity in TC #8

Brian McSharry – Facilitator

brian.macsharry@unep-wcmc.org



Cluster level (72)

	[PS] Protected sites	(31)
	[BR] Bio-geographical regions	(12)
	[HB] Habitats and biotopes	(12)
	[SD] Species distribution	(18)
	[AM] Area management / restriction / regulation zones & reporting units	(13)



TC on Biodiversity & Management areas

Main concerns of implementers

- Scope and overlaps between themes.
- INSPIRE and e-reporting.
- Validation of data sets (ETS & schematron rules).
- Experiences implementing the data specifications and working practices within countries. How to implement certain aspects.
- Clarify what is meant by some of the wording in the TG.
- Questions on how to match existing attributes, such as established unique identifiers into the schema.
- Correction of bugs in application schemas.

TC on Biodiversity & Management areas

Most relevant discussions

- Use of reference to standard grid for distribution maps in the context of Nature Directives reporting
- Dependence between HB (Habitats and biotopes) and SD (Species distribution).
- Schematron library / Availability of schematron files
- Correcting 'percentageUnderDesignation' bug in Protected Sites Simple xml schema? (archaeological user group).
- Experience implementing the Species Distribution Schema
- How to accurately map and protect subterranean features (The Netherlands).

TC on Biodiversity & Management areas

Your message to the audience

- **Looking for users with real world experience of biodiversity and cultural data sets**, for their completion.
- E.g. from delineating the boundary to managing the boundary or analyzing a boundary – It will be invaluable.
- It is only when we seek to apply these **standards** that we **see where the strengths and weaknesses are**.
- This is their **opportunity to shape the standards**.

INSPIRE Thematic Clusters Statistical Cluster

Highlights of the activity in TC #9

Mirosław Migacz – Facilitator

m.migacz@stat.gov.pl



Cluster level

(49)



[SU] Statistical Units

(15)



[PD] Population distribution (demography)

(12)



[HH] Human health and safety

(16)

Statistical cluster

Main concerns of implementers

- The cluster comprises themes from Annex III, therefore there are not much implementation examples that are fully compliant with data specifications.
- There is a need to alter the Population Distribution model to make it more usable (which will be processed with INSPIRE MIG-T).
- There is a need for explained examples of GML files encoded according to data specifications.

Statistical cluster

Most relevant discussions

- The statistical community is already quite well “INSPIRE aware” and experienced with dissemination of spatially referenced statistical data.
- There are pan-European initiatives and projects that resulted in harmonized datasets that are in the scope of the cluster, e.g. 1x1km grid with population data for 31 countries (EU, EFTA + Kosovo & Albania).

<https://themes.jrc.ec.europa.eu/pages/view/5034/european-population-grid-from-the-geostat-project>



Statistical cluster

Message to the audience

- **Statistical Units and Population Distribution themes are quite well covered in the cluster.**
- Member States are implementing them in somewhat similar manner.
- **But expertise from the field of Human Health and Safety would be most welcome.**
- **There is still time to work on the Annex III themes that are in the scope of this cluster.**
- Discussion and cooperation is crucial in order to find an efficient, usable, common way to implement INSPIRE.



Final Message to the audience

- In general **we need experiences, opinions and feedback from experts, implementers and users.**
- **Share them to discuss and formulate mature change proposals to TG**, that could help in the implementation and use of INSPIRE data and services.
- No reason to be afraid of publishing doubts and questions.
- This may be the first step to identify the existence of certain problems.
- Either if you are successfully implementing INSPIRE or struggling with it, **please JOIN the cluster.**
- **This is the only way to push efficient solutions forward.**

Final Message to the audience

**“Implementer there is no
Implementation,
Implementation is made ... by
implementing ... ”**

INSPIREd version for
“Caminante no hay camino,
se hace camino al andar..”)

Looking for your participation...



INSPIRE Thematic Clusters

<https://themes.jrc.ec.europa.eu/>



Open platform where implementers can ***build communities, share experiences, best practices, raise questions and resolve issues...***

Over 542 collaborators!

- 316 discussion topics
- 673 responses
- 199 files uploaded
- 57 news items

**JOIN & PARTICIPATE
IN THE
THEMATIC CLUSTERS**