



EUROPEAN COMMISSION  
JOINT RESEARCH CENTRE

Institute for Environment and Sustainability  
Digital Earth and Reference Data Unit

**INSPIRE Community Forum on  
Software & Tools  
and  
Elevation, Orthoimagery, Reference systems & Geographical grids  
Phase 1 - 2020 activity report (Deliverable – D3)**

Author(s)	Jordi Escriu
Reviewed by	Vlado Cetl
Approved by	Vlado Cetl
Date of Approval	

Title	INSPIRE Community Forum on “Software & Tools” and “Elevation, Orthoimagery, Reference systems & Geographical grids”. Phase 1 – 2020 activity report (Deliverable – D3)
Creator	Jordi Escriu
Date of last revision	29.12.2020
Subject	
Type of Deliverable	Report
Status	Draft
Publisher	European Commission JRC
Description	Activity Report regarding the on-line facilitation and maintenance of the <i>Software &amp; Tools</i> and <i>Elevation, Orthoimagery, Reference systems &amp; Geographical grids</i> sections of the INSPIRE Community Forum. It corresponds to the Phase 1 – year 2020 activity report (Deliverable – D3). The report includes a summary of the whole activity carried out in the Forum during 2019 and 2020.
Contributor	
Rights	
Language	English
Distribution List	DG JRC, DG ENV, EEA
Identifier	INSPIRE Community Forum - Report



## Table of Contents

<b>1. STATE OF PLAY IN THE THEMATIC DOMAIN .....</b>	<b>4</b>
1.1. <i>Software &amp; Tools</i> forum.....	4
1.1.1. Relevant Initiatives, Technology, Projects, and Software Inventories .....	4
1.1.2. Selected / Most-Active Forum Contributions .....	6
1.1.3. Relevant Existing Applications and Services .....	8
1.2. <i>Elevation, Orthoimagery, Reference systems &amp; Geographical grids</i> forum.....	9
1.2.1. Relevant EU Projects, Technology and Software Activities .....	9
1.2.2. Selected / Most-Active Forum Contributions .....	11
1.2.3. Relevant Existing Applications and Services .....	13
1.2.4. Availability of thematic domain data sets in the European Geoportal .....	13
<b>2. OVERVIEW OF THE FACILITATOR’S ACTIVITY .....</b>	<b>21</b>
2.1. Overview of the facilitation activity.....	21
2.1.1. General activities to improve and promote the platform .....	21
2.1.2. <i>Software &amp; Tools</i> forum .....	25
2.1.3. <i>Elevation, Orthoimagery, Reference systems &amp; Geographical grids</i> forum .....	39
2.2. Facilitator’s activity in the INSPIRE Helsinki 2019 Technical Conference .....	50
2.3. Facilitator’s activity in the INSPIRE 2020 Online Conference .....	52
2.4. Presentation of INSPIRE Good Practice Candidates at the 63 <sup>rd</sup> MIG-T Meeting.....	55
2.5. INSPIRE Community Forum Webinar .....	56
2.6. Forum activities planned in the short term .....	57
<b>3. FACILITATOR’S SUGGESTIONS FOR IMPROVEMENTS.....</b>	<b>58</b>
3.1. Recommendations for the whole platform .....	58
3.2. Recommendations for content generation .....	59

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 4 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

## 1. STATE OF PLAY IN THE THEMATIC DOMAIN

This chapter provides an insight about the projects, activities, applications, tools, discussions topics, INSPIRE data and services and experiences shared throughout the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems and Geographical grids* group discussion of the INSPIRE Community Forum.

A selection of these contents and materials are provided below with the aim to give a brushstroke about the stay of play in both forums.

### 1.1. *Software & Tools* forum

During the 2019-2020 period most of the contents and discussions shared through this group of the INSPIRE Community Forum have been focused on questions and issues related the application of specific software tools in different steps of INSPIRE implementation (transformation, publication of services, metadata generation, validation), issues related to INSPIRE schemas, usage of alternative encodings and APIs envisaged for its application in the INSPIRE domain, usage of INSPIRE central components (INSPIRE Reference Validator, INSPIRE Registry), etc.

The following sections provides a selection of materials and topics that have been published in the forum during the period referred, corresponding to closing of Phase 1 at the end of 2020.

#### 1.1.1. Relevant Initiatives, Technology, Projects, and Software Inventories

This section provides an overview of relevant existing initiatives, technology, projects, software inventories, tools, and services, all of them sharing a technical background, which may be applicable in the implementation, exploitation, and usage of INSPIRE:

- **API4INSPIRE**

The **API4INSPIRE Project**, which is aimed at exploring the benefit of the introduction of the new OGC API-based standards, mainly into the INSPIRE domain. These standards are the **OGC API – Features** and the **OGC SensorThings API**.

<https://github.com/DataCoveEU/API4INSPIRE>

The project envisages the provision of several data nests, providing spatio-temporal sets of complementary data, openly available for experimentation with INSPIRE data provision via download services based on these new APIs.

- **GO-PEG (Generation of cross border Pan European Geospatial Datasets and Services)**

GO-PEG, standing for “*Generation of cross border Pan European Geospatial Datasets and Services*”, is a European Project developed under the Connecting European Facility (CEF) Telecom call on “Public Open Data”.

<https://www.go-peg.eu>

The project aims to generate cross-border, location-enabled services providing access to harmonised thematic open datasets and their corresponding metadata, with special focus on high value datasets, in areas such as environment, emergency and disaster management.

- **MIG Action 2017.2: Alternative encodings for INSPIRE data**

This INSPIRE MIG-T action was targeted to develop concrete proposals for alternative encoding rules for a number of selected application schemas, as well as define a template and procedure for proposing and endorsing additional encoding rules in the future. It is



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 5 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

also appointed to give recommendations on possible updates of the INSPIRE framework document on Encoding Guidelines (D2.7), and has additionally delivered a set of lessons learnt which could be applicable to other alternative or additional encoding rules.

<https://webgate.ec.europa.eu/fpfis/wikis/pages/viewpage.action?pageId=277742184>

The objective is to maximise the support for INSPIRE data for viewing and analysis purposes in mainstream GIS systems, as well as increase the usability of INSPIRE data.

The action, which counts with a [special page](#) in the INSPIRE Community Forum, has not only achieved **generic milestones**, such as a glossary for alternative encodings and a generic model for transforming INSPIRE encoded data for reducing its complexity, but also the **definition of specific rules and examples for providing INSPIRE data in GeoJSON format** (Definition of INSPIRE UML-to-GeoJSON encoding rules, theme-specific transformation rules in GeoJSON format and related sample GeoJSON data).

The Software & Tools forum has also maintained discussion topics related to the **potential use of the GeoPackage format in INSPIRE**. There is a preliminary work analyzing the possible use of this format in INSPIRE which has promoted discussion within MIG-T. An ad-hoc group has been also set up with several interested countries with the objective of continuing the work for proposing a candidate INSPIRE good practice in the future.

- **[INSPIRE in Practice \(Tools & Apps\)](#) – *Currently discontinued***

The INSPIRE in Practice was a collaborative platform bringing together in a single place the different players involved in INSPIRE to facilitate the exchange of practical knowledge while leveraging synergies amongst stakeholders. More specifically, was aimed to support the sharing of experience and expertise between INSPIRE implementers, software solution providers and end-user application developers. The platform helped to showcase each stakeholder's piece of knowledge, through contributions related to their experiences implementing INSPIRE or by registering SDI tools or apps in the platform.

The website, which unfortunately has been discontinued, was the result of the development of the prototype [ARE3NA Re3ference Platform](#). It helped to enable location interoperability across Europe as one of the goals of the [Interoperability Solutions for European Public Administrations \(ISA<sup>2</sup>\)](#) Programme.

This inventory of applications, tools and apps, which needed to be updated, was described through the [INSPIRE in Practice - Tools & Apps](#) special page, under section *SW & Tools for INSPIRE*.

- **Open-Source Observatory (OSOR)**

This Observatory serves as a place where the open-source software community can come together to publish news, find out about events, find relevant open-source software solutions, and read about the use of free and open source in public administrations across and beyond Europe.

<https://joinup.ec.europa.eu/collection/open-source-observatory-osor>

Its mission is to serve as middle-ground to connect European Public Administrations with the relevant stakeholders playing a role in Free and Open-Source Software (FOSS), by supporting a dynamic community and further promoting the use of software of this kind:

- Publishing information, experiences and best practices around the FOSS in public administrations. A [Knowledge Centre](#) gives access to key resources such as studies and guidelines.

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 6 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- Promoting FOSS community building by engaging actor in related activities, such as participation in events, social media, and production and publication of content.
- Providing information and ad-hoc legal support and assistance on the licensing of FOSS solutions in cooperation with the EUPL collection.

Other central INSPIRE technical components have been described in dedicated special pages – See information in Section 2.1.2.2 of this report.

### 1.1.2. Selected / Most-Active Forum Contributions

A list of selected, relevant discussion topics is provided below:

- **GeoServer configurations for INSPIRE Themes (11 replies)**

<https://inspire.ec.europa.eu/forum/discussion/view/267378/geoserver-configurations-for-inspire-themes>

This post was opened to share configurations to provide INSPIRE data using GeoServer for various themes, currently: Hydrography (Hydro network; Physical waters: Watercourse), Transport Networks (Water network), Area management / restriction / regulation zones and reporting units, Statistical Units (Vector), Natural Risk Zones (Hazard areas).

The configuration files have been developed in the context of the API4INSPIRE Project, where the main objective is to evaluate the OGC API - Features and OGC SensorThings API. However, the provided configuration files allow implementers to provide either the classical WFS 2.0 endpoint, or the endpoints using the mentioned new APIs.

- **API4INSPIRE Webinar (9 replies)**

<https://inspire.ec.europa.eu/forum/discussion/view/266488/api4inspire-webinar>

This post was opened to share with the community relevant events, progress and examples using the new OGC API - Features and OGC SensorThings API which has been evaluated within the context of the API4INSPIRE Project.

- **ISO AP 1.0.0 schemalocation to ISO website not available (8 replies)**

<https://inspire.ec.europa.eu/forum/discussion/view/264812/iso-ap-100-schemalocation-to-iso-website-not-available>

This discussion topic was open to warn about the situation that the ISO 19139 gmd.xsd schema, being referenced from the “csw/2.0.2/profiles/apiso/1.0.0/apiso.xsd” schema published in the opengis.net website (<http://schemas.opengis.net>), was not available any more in the ISO website (<http://standards.iso.org>).

This situation was causing problems in some tools, particularly when validating metadata in some editor tools.

As a result of the discussion in the thread it was put into knowledge of the community that the JRC is taking action with ISO in order to address this issue.

In the meantime, some alternative URLs to access the apiso.xsd schema has been identified.

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 7 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- **GeoNetwork 3.4 and THREDDS/ERDDAP server** (7 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/241977/geonetwork-34-and-threddserddap-server>

This discussion topic was opened to ask about available technical solutions for harvesting data from an ERDDAP metadata server into a GeoNetwork catalogue, to be used for storing and providing binary format datasets (e.g. NetCDF).

ERDDAP (as well as THREDDS) servers make uses of metadata according an ISO 19115-2 schema (gmi:MI\_Metadata), which is not recognized by GeoNetwork. Hence, second question was if any GeoNetwork plug-in exists to read such metadata format or the only solution was to convert it into ISO 19139 metadata (gmd:MD\_Metadata).

The discussion clarified that ISO 19115-2 schemas are not adopted by INSPIRE, and that the most feasible approach was installing a GeoNetwork plug-in based on the ISO 19115-3 schemas, which avoids loss of information and prevents having to map ISO 19115-2 metadata to ISO 19139 metadata (gmi2gmd schema conversion).

- **Semi-automatic transformation mapping from TG MD 1.3 to TG 2.0** (6 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/264985/semi-automatic-transformation-mapping-from-tg-md-13-to-tg-20>

This discussion topic was open for requesting about some existing experiences of machine processable implementations for mapping the requirements in previous versions of the technical guidelines on metadata to its new version 2.0.

As a result, an example XSLT transformation has been shared by the European Environment Agency (EEA) and the existence of a metadata converter ([RNDT metadata converter](#)) from the Agenzia per l'Italia Digitale has been identified.

- **Abnormal behaviour of GeoNetwork metadata editor when processing the 'operatesOn' metadata field** (6 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/263413/abnormal-behavior-of-geonetwork-metadata-editor-when-processing-the-operateson-metadata-field>

This discussion topic was open to alert about a possible bug of the GeoNetwork opensource metadata catalogue and editor application. When service metadata files containing the data-service linking *srv:operatesOn* field are imported into the catalogue, and they are open afterwards in the editor, the content of this metadata field disappears.

The discussion brought that this bug has been solved in the last versions of the GeoNetwork metadata catalogue. Additionally, workarounds have been found to solve the issue in the version of GeoNetwork throwing this issue.

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 8 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- **Migration of INSPIRE schemas from HTTP to HTTPS (3 replies)**

<https://inspire.ec.europa.eu/forum/discussion/view/269804/migration-of-inspire-schemas-from-http-to-https>

This post was opened to warn about the automatic redirection of INSPIRE schemas from HTTP to HTTPS by default as of March 2021.

There is transition period till March 2021 to test and adapt INSPIRE data and applications to the fact that INSPIRE schemas will be published under the HTTPS protocol.

During this period organisation may opt for three options:

- Do not take any action. All HTTP requests will be automatically redirected to HTTPS after March 2021. Schemas will still be accessible through HTTP protocol until then.
- Adapt INSPIRE data and applications to the schemas already available through HTTPS protocol, avoiding potential issues after the deadline in March 2021.
- Test INSPIRE data and applications according to the automatic redirection of INSPIRE schemas from HTTP to HTTPS.

As a conclusion, it is at least recommendable to use the last option to test how specific INSPIRE data and applications behaves with the automatic redirection.

### 1.1.3. Relevant Existing Applications and Services

One of the expected objectives of this forum is to help in identifying relevant and useful software applications that may help in the different processes to implement, exploit and use INSPIRE.

Most efforts have been focused on documenting special pages about central software components which play a crucial role in INSPIRE: the INSPIRE Reference Validator, the INSPIRE Registry, and the resources uploaded to the INSPIRE-JRC GitHub repositories.

Apart of this central INSPIRE technical components, efforts have been invested in identifying existing software inventories for tools and applications applicable in the INSPIRE context, delivering the following results:

- [INSPIRE in Practice - Tools & Apps](#) – It was an inventory of applications available in the market, which has unfortunately been discontinued due to lack of the necessary update. It was documented in a dedicated special page.
- [Open-Source Observatory \(OSOR\)](#) – An updated and community driven repository dedicated to share information about free and open-source software (FOSS) for their use in European Public Administrations, including promotion of the activity in the community and services to get support on legal aspects related to licensing.

Another of the expected objectives of this forum is to point users to existing experiences and examples of INSPIRE data, services, and emerging APIs.

At the moment, the following related sources are shared through the forum:

- APIs and resources produced in the context of the API4INSPIRE Project – Available at the [website of the project](#) and also in the [related discussion thread](#).
- [Additional discussion thread aimed at sharing existing examples](#) of INSPIRE WMS View services and ATOM Download services.

Other related resources could be found in the INSPIRE Community Forum by searching the tags related to good practices ('*TC-Good-practice*'), reference implementations ('*TC-Reference-implementation*') or implementation examples ('*TC-Implementation-example*').

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 9 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

## **1.2. Elevation, Orthoimagery, Reference systems & Geographical grids forum**

During the 2019-2020 period the sharing of discussion topics, activities, and implementation examples on INSPIRE coverage data and services has continued through the platform.

Additionally, other communities like UN-GGIM Europe and EMODnet Bathymetry has been reached in this phase and different materials on these areas have started to flourish in the forum.

The following sections provides a selection of materials and topics that have been published in the forum during the period referred.

### **1.2.1. Relevant EU Projects, Technology and Software Activities**

This section provides an overview of relevant European projects, forum activities, underlying technologies and/or software tools that may aid in the implementation of the themes in the scope of this forum.

A list of selected, relevant pages dedicated to such aspects is provided below:

- **UN-GGIM: Europe Working Group on Core Data.**

<https://inspire.ec.europa.eu/forum/pages/view/259194/un-ggim-europe-working-group-on-core-data>

UN-GGIM (United Nations initiative on Global Geographic Information Management) was launched by the Statistical Division of the United Nations in 2011. This was the starting point for several activities at global and regional levels. Among them, UN-GGIM: Europe decided to create a Working Group on core data (WG A).

Core Data has been defined as the geospatial data the most useful to analyse, achieve or monitor the Sustainable Development Goals (SDGs), either directly or indirectly. Main purpose of the working group on core data is to define priorities for production of new data or enhancement of existing ones.

In a starting phase, WG A selected 14 core themes among the 34 INSPIRE themes. In a second phase, WG A is elaborating “Recommendations for content” for the selected themes.

These recommendations for content are based both on user requirements (with focus on SDG related use cases) and on existing standards, mainly the INSPIRE Data Specifications. Core data recommendations for content include a list of expected feature types and attributes, selection of relevant levels of detail and a few key quality requirements.

In practice, INSPIRE supplies common terminology and a list of candidate feature types and attributes. Core content is generally a selection of the INSPIRE key concepts but some extensions or modifications may also occur, if this is considered necessary.

In 2019, UN-GGIM: Europe has shared through the in the INSPIRE Community Forum the documents concerned to the “Recommendations for content” for the core themes Orthoimagery and Elevation, additionally requesting the members of the forum for providing comments to these deliverables in due date.

- **EMODnet Bathymetry community.**

<https://inspire.ec.europa.eu/forum/pages/view/263017/emodnet-bathymetry>

The EMODnet Bathymetry portal is the result of a European long-effort project which started in June 2009 with the aim of providing interoperable access to European bathymetry data sets. It is operated and further developed by a European partnership. This comprises members of the SeaDataNet consortium together with organisations from

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 10 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

marine science, the hydrographic survey community, and industry. The partners combine expertise and experiences of collecting, processing, and managing of bathymetric data together with expertise in distributed data infrastructure development and operation and providing OGC services (WMS, WFS, and WCS) for viewing and distribution.

SeaDataNet is a leading infrastructure in Europe for marine & ocean data management, initiated and managed by the National Oceanographic Data Centres (NODC's). It is actively operating and further developing a Pan-European infrastructure for managing, indexing and providing access to ocean and marine data sets and data products, acquired via research cruises and other in-situ observational activities. SeaDataNet aims for an extensive coverage of available data sets for the various marine environmental disciplines.

At the end of December 2016, the EMODnet Bathymetry project was succeeded by the EMODnet High Resolution Seabed Mapping Project (HRSM) as part of the third phase of the project.

This new project continues to collect bathymetric data with an extra focus on European coastal waters. In addition, satellite derived bathymetric data is included to experiment with empty areas. This data provides input for producing a DTM with a resolution of 1/16 arc minutes (approximately 115 m).

Furthermore, local DTMs with higher resolutions are produced, where the level data and data suppliers allow this goal. The higher resolution DTMs are used to determine the best estimate of the European coastline for a range of tide levels (HAT, MHW, MSL, Chart datum, LAT).

EMODnet is mainly interested in assuring INSPIRE compliance for the EMODnet HRSM CDI files, which is one of the most important challenges for this community. The presentation "*EMODnet Bathymetry – INSPIRE compliance for bathymetric data*", explaining how EMODnet projects are being based on on-line up-to-date available INSPIRE web services was offered during the Session "*INSPIRE Reference Data – Ready to take off?*" hold on 10<sup>th</sup> June 2020 during the INSPIRE 2020 Online Conference – See Section 2.3 for more details.

- **Workshop "*INSPIRE Coverages, Demystified*"**. – INSPIRE 2020 Online Conference.

<https://inspire.ec.europa.eu/forum/pages/view/270426/workshop-%E2%80%9Cinspire-coverages-demystified%E2%80%9D-inspire-2020-online-conference>

Section 2.3 of this report explains the objectives and results of this forum activity, as part of the activities offered in the INSPIRE 2020 Online Conference.

- **Good practice for the provision of interoperable INSPIRE Coverage data and services.**

<https://inspire.ec.europa.eu/forum/pages/view/265454/an-effective-good-practice-to-boost-interoperable-provision-of-raster-inspire-coverage-data-and-services>

A dedicated page has been published describing the results of two key workshops for the proposal of this good practice as an INSPIRE good practice candidate:

- [Workshop "\*Feel the power of INSPIRE WCS / WCPS in your hands\*"](#), hold in the INSPIRE Helsinki 2019 technical event.
- [Workshop "\*INSPIRE Coverages, Demystified\*"](#), hold in the INSPIRE 2020 Online Conference – already stated above.



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 11 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

A demonstration WCS service offering INSPIRE-like raster sample data for several themes (Elevation, Orthoimagery, Land cover), based on a set of proposed amended INSPIRE xsd schemas solving the main issues identified for INSPIRE coverage data, has been set up in the context of this activities: <https://inspire-wcs.eu/>

This page offers sample request to the service, which help in showing the power of WCS/WCPS raster data analytics and the benefits could deliver for INSPIRE.

See Sections 2.4 and 2.6 devoted to the presentation of this proposal as an INSPIRE good practice candidate and subsequent path for its final endorsement by MIG, respectively.

- **MIG-2016.4 - Change proposals for MIG-T.**

<https://inspire.ec.europa.eu/forum/pages/view/37708/mig-20164-change-proposals-for-mig-t>

This page provides access to all proposals for change that have been gathered through the INSPIRE Community Forum (formerly known as INSPIRE Thematic Clusters) till the date.

### 1.2.2. Selected / Most-Active Forum Contributions

A list of selected, relevant discussion topics is provided below:

- **Which is the correct encoding of gml:sequenceRule axisOrder & gml:axisLabels for GeoTIFF in EPSG 3035 delivered through WCS?** (17 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/202766/which-is-the-correct-encoding-of-gmlsequencerule-axisorder-gmlaxislabels-for-geotiff-in-eps-3035-delivered-through-wcs>

This discussion topic was started to post a question about the axis order to be used within an INSPIRE compliant Elevation coverage, once having found different approaches in existing documentation and threads from various sources. Particularly, the question was how the elements *gml:domainSet* and *gml:coverageFunction* should be correctly encoded for a GeoTIFF file provided via WCS using EPSG 3035 as Coordinate reference system.

The discussion brought to light that there are differences on how CIS1.0 (implementation standard selected by INSPIRE) and CIS1.1 (new version of the OGC standard) define the axis order for coverages. Additionally, there is room for improving the coverage encoding example included as part of the current version of the Elevation data specifications.

- **Which are the issues on inspire compliance of EMODNET bathymetry CDIs?** (7 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/264053/which-are-the-issues-on-inspire-compliance-of-emodnet-bathymetry-cdis>

This discussion topic was open in order to establish synergies between the provision of EMODNET bathymetry data already, which effectively provides interoperable data between bathymetry stakeholders in Europe, and the need to deliver this kind of data in the scope of the INSPIRE Directive.

The aim is to minimise the efforts to be devoted to the transformation of EMODNET bathymetry data for the purpose of INSPIRE, by identifying the main issues and barriers the members of this community may find during the process.

As a result of this engagement, a presentation was offered during the INSPIRE 2020 Online Conference – See the information on paragraph “EMODnet Bathymetry community” above in this section.

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 12 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- **Is it necessary to set up services for the Coordinate Reference Systems (RS) and the Geographical Grid Systems (GG) data themes?** (7 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/261694/is-it-necessary-to-set-up-services-for-the-coordinate-reference-systems-rs-and-the-geographical-grid-systems-gg-data-themes>

This topic discusses about the suitability / need for Member States to provide data and services on the Coordinate Reference Systems and the Geographical Grid Systems INSPIRE themes, which may facilitate the work of public and private data producers at least at national level.

A totally similar topic was brought to and discussed in the 29<sup>th</sup> Meeting of the INSPIRE MIG-T (Ispra, 19<sup>th</sup>-20<sup>th</sup> April 2016) in a "Question & Answer about CRS & GGS" short session. The conclusion was that the INSPIRE RS and GG Technical Guidelines only establish requirements and recommendations related to the provision / organization of INSPIRE data sets from other INSPIRE (data) themes. In other words, RS and GG themes govern the rules for providing, accessing and visualizing data sets in the scope of INSPIRE, but they do not mandate the provision of themes-specific data themselves.

- **Which ISO 19115 metadata attribute should hold the CV\_InterpolationMethod information?** (5 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/241592/which-iso-19115-metadata-attribute-should-hold-the-cv-interpolationmehod-information>

This discussion topic was posted to ask a question on how to provide metadata information concerning to the recommended interpolation method to be used to exploit the raster data included in an Elevation grid coverage. The current version of the data specifications proposes to use a metadata structure according ISO 19115 as part of the additional information included in the metadata hook of the coverage, foreseen by OGC. The question was particularly focused on which metadata element within this ISO 19115 structure should be used to inform about the recommended interpolation method.

During the post it was clarified that this information may be provided in the "supplementalInformation" metadata element from ISO 19115.

- **Availability of Orthoimagery data in the inspire thematic viewer** (4 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/265370/availability-of-orthoimagery-data-in-the-inspire-thematic-viewer>

This discussion topic has been opened to share views with the community on the current availability of Orthoimagery data for achieving the purpose of INSPIRE.

It describes the revision and assessment - included in Section 1.2.4 of this report - on the Orthoimagery and Elevation data sets offered through the INSPIRE Thematic Viewer (INSPIRE Geoportal) during the period 2018 - 2020.

The objective of the discussion is to help in identifying existing barriers to achieve the goal of providing conformant data for the INSPIRE Directive.

- **Availability of Elevation data in the inspire thematic viewer** (3 replies)

<https://inspire.ec.europa.eu/forum/discussion/view/265361/availability-of-elevation-data-in-the-inspire-thematic-viewer>

This discussion topic is totally similar to the previous one, in this case focused on the Elevation theme.



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 13 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- **European national population grid data in 2011 from Eurostat based on the ETRS-LAEA Grid** (0 replies – Recent post)

<https://inspire.ec.europa.eu/forum/discussion/view/270371/european-national-population-grid-data-in-2011-from-eurostat-based-on-the-etsr-laea-grid>

This discussion thread was opened to inform about the possibility to download data of the European national population in 2011 in CSV format from the [Eurostat website](#), based on grid data with 1 Km<sup>2</sup> cells.

This data set can be referenced to the Equal Area Grid (ETRS-LAEA Grid) in Shapefile format by using a GIS application, grid which was created according to the INSPIRE data specifications for European grids. It constitutes a realization of the ETRS-LAEA Grid at this level of resolution.

### 1.2.3. Relevant Existing Applications and Services

This section highlights a selection of relevant schema sources, software applications and services shared through the forum which may help in the INSPIRE implementation in the scope:

- Implementation experiences documented in the forum till the date.

<https://inspire.ec.europa.eu/forum/pages/view/48834/implementation-experiences-elevation-orthoimagery>

This page provides access to the implementation experiences that have been documented through the INSPIRE Community Forum till the date.

- INSPIRE WCS demonstration service (already reported in Section 1.2.1) and related coverage data and metadata examples forming part of the “OGC compliant INSPIRE Coverage data and service implementation” INSPIRE good practice candidate.

<https://inspire-wcs.eu>

NOTE: Also available from the [web page describing the related workshop in Helsinki 2019](#).

This demonstration service uses the amended INSPIRE Coverage (metadata) schemas enumerated below:

- Orthoimagery: <https://schema.datacove.eu/OrthoimageryMetadata.xsd>
- Elevation: <https://schema.datacove.eu/ElevationGridCoverageMetadata.xsd>
- Land cover: <http://test.datacove.eu/LandCoverRasterMDExt.xsd>

Section 2.2, 2.3 and 2.6 provide more details on this INSPIRE good practice candidate.

- INSPIRE Elevation and Orthoimagery WMS View services shared as part of the examples in [this discussion thread](#).

### 1.2.4. Availability of thematic domain data sets in the European Geoportal

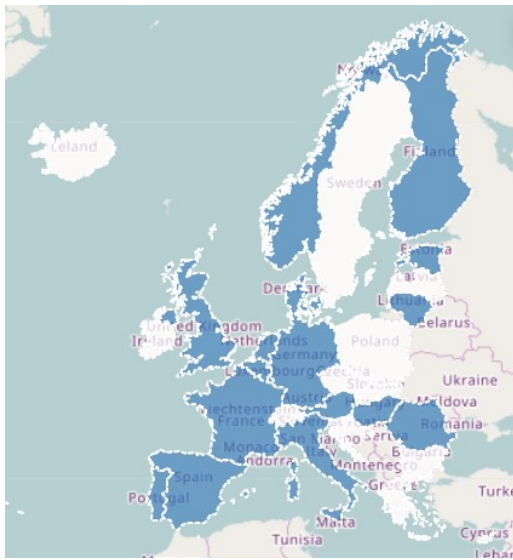
This section provides an overview assessment of the availability of thematic domain data sets in the European Geoportal, including a number of conclusions.

This report presents the status on 28<sup>th</sup> November 2020, comparing to the analysis already presented in previous deliverables.

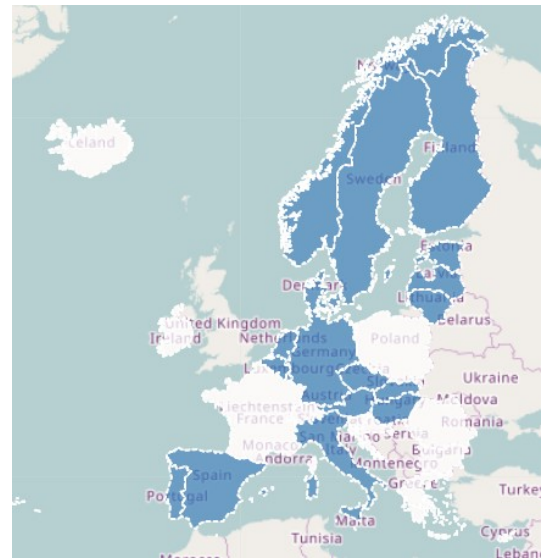
### 1.2.4.1. Assessment

On 28<sup>th</sup> November 2020 the [INSPIRE Thematic Viewer](#) counts with:

- **4852 metadata records** related to **Elevation** resources (3799 on 15<sup>th</sup> April 2020; 4646 on 20<sup>th</sup> November 2019; 3874 on 22<sup>nd</sup> June 2018):
  - **284 of them being viewable data sets** from countries – Provided by Austria (9), Belgium (10), Cyprus (1), Czech Republic (1), Denmark (3), Estonia (2), Finland (1), France (25), Germany (45), Hungary (1), Italy (142), Latvia (1), Liechtenstein (1), Lithuania (1), Luxembourg (6), Malta (3), the Netherlands (5), Norway (7), Portugal (11), Romania (1), Slovakia (1), Spain (5) and Sweden (1).
  - **44 of them having National coverage**, belonging to 15 out of 31 countries.
  - Cyprus, France and Romania started to provide viewable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.
  - Iceland lost their viewable data sets in the from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.



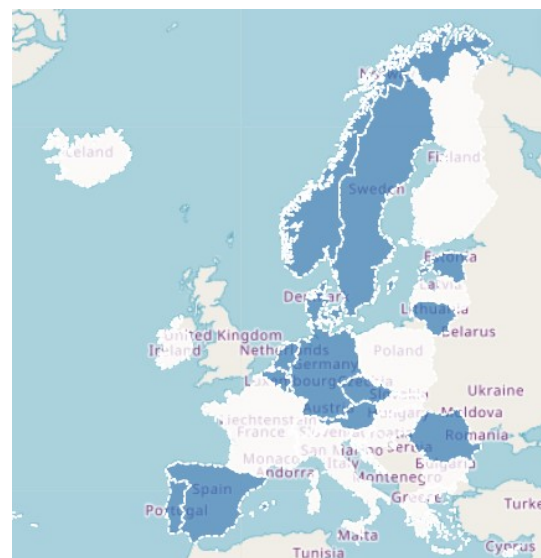
273 viewable / 4646 EL data sets  
20<sup>th</sup> November 2019



115 viewable / 3799 EL data sets  
15<sup>th</sup> April 2020



284 viewable / 4852 EL data sets  
28<sup>th</sup> November 2020



44 viewable National coverage / 4852 EL data sets  
28<sup>th</sup> November 2020

- **108 of them being downloadable data sets** from countries - Provided by Austria (6), Belgium (7), Cyprus (1), Czech Republic (1), Finland (1), France (5), Germany (29), Hungary (1), Iceland (1), Italy (24), Latvia (1), Lithuania (1), Luxembourg (6), Malta (1), the Netherlands (1), Norway (12), Portugal (8), Romania (1) and Spain (1).
- **27 of them having National coverage**, belonging to 10 out of 31 countries.
- Cyprus, Czech Republic, France, Iceland, Romania and Spain started to provide downloadable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.
- None of the countries lost their downloadable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.



113 downloadable / 4646 EL data sets  
20<sup>th</sup> November 2019



79 downloadable / 3799 EL data sets  
15<sup>th</sup> April 2020



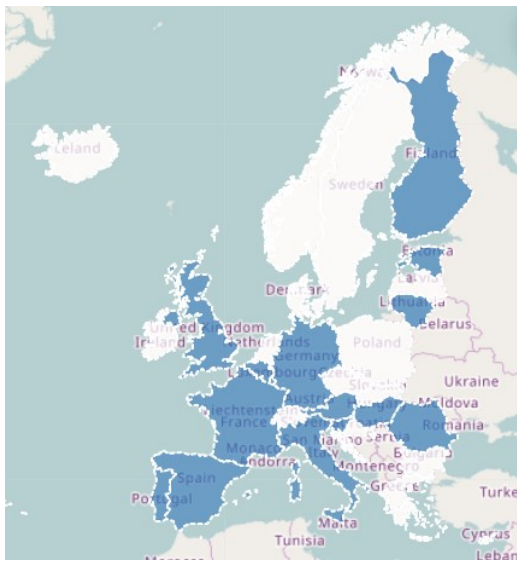
108 downloadable / 4852 EL data sets  
28<sup>th</sup> November 2020



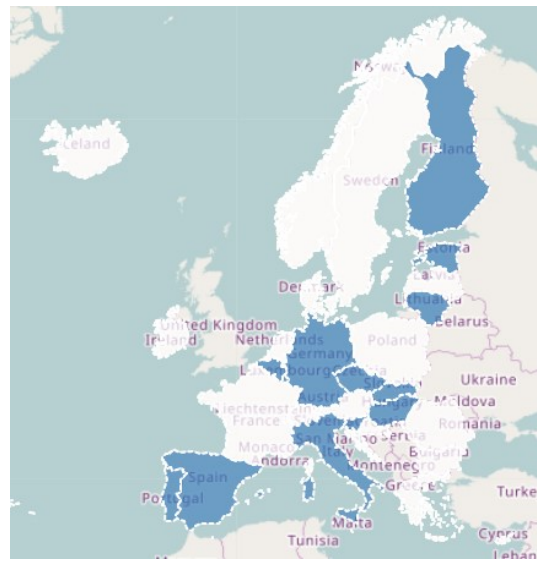
27 downloadable National coverage / 4852 EL data sets  
28<sup>th</sup> November 2020



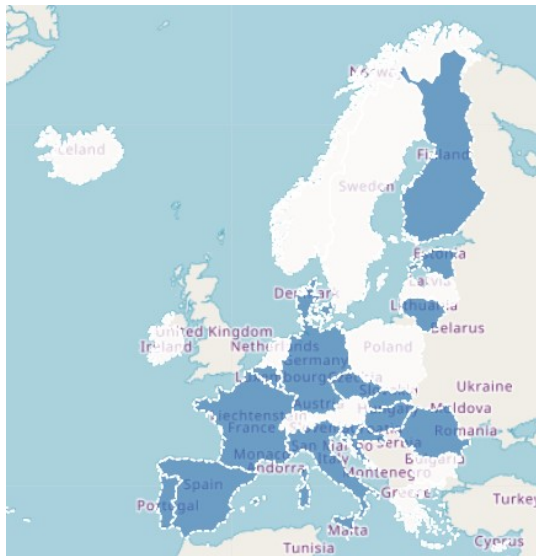
- **2247 metadata records** related to **Orthoimagery** resources (1201 on 15<sup>th</sup> April 2020; 2211 on 20<sup>th</sup> November 2019; 865 on 22<sup>nd</sup> June 2018):
  - **200 of them being viewable data sets** from countries - Provided by Belgium (27), Croatia (1), Czech Republic (1), Denmark (1), Estonia (1), Finland (3), France (114), Germany (14), Hungary (7), Italy (8), Liechtenstein (2), Lithuania (1), Luxembourg (11), Malta (1), Portugal (2), Romania (1), Slovakia (1), Slovenia (1) and Spain (2).
  - **23 of them having National coverage**, belonging to 11 out of 31 countries.
  - Croatia, Denmark, France and Romania started to provide viewable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.
  - None of the countries lost their viewable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.



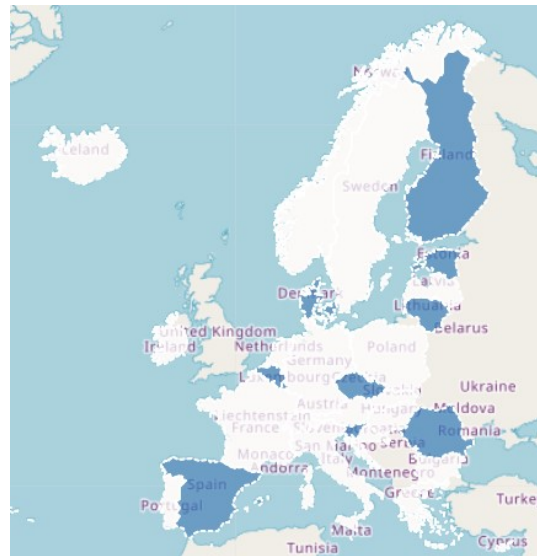
190 viewable / 2211 OI data sets  
20<sup>th</sup> November 2019



96 viewable / 1201 OI data sets  
15<sup>th</sup> April 2020



200 viewable / 2247 OI data sets  
28<sup>th</sup> November 2020



23 viewable National coverage / 2247 OI data sets  
28<sup>th</sup> November 2020



- **72 of them being downloadable data sets** from countries - Provided by Belgium (21), Cyprus (1), Finland (3), France (23), Germany (3), Hungary (7), Italy (1), Lithuania (1), Luxembourg (11) and Romania (1).
- **16 of them having National coverage**, belonging to 4 out of 31 countries.
- Cyprus, France, Italy and Romania started to provide downloadable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.
- None of the countries lost their downloadable data sets in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020.



93 downloadable / 2211 OI data sets  
20<sup>th</sup> November 2019



47 downloadable / 1201 OI data sets  
15<sup>th</sup> April 2020



72 downloadable / 2247 OI data sets  
28<sup>th</sup> November 2020



16 downloadable National coverage / 2247 OI data sets  
28<sup>th</sup> November 2020

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 19 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

#### 1.2.4.2. Conclusions

##### Elevation

The assessment is also published online in the INSPIRE Community Forum with the aim of collecting new views, real direct experiences and examples showing the main drawbacks hindering interoperability of European Elevation data.

<https://inspire.ec.europa.eu/forum/discussion/view/265361/availability-of-elevation-data-in-the-inspire-thematic-viewer>

The main basic conclusions derived from these statistics are enumerated below:

- Elevation data sets reported considerably improved in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020, with an important increase of 27.7% (from 3799 to 4852).

It could be produced by refinements of the criteria used to select Elevation data sets to be reported. Additionally, because countries are informing more Elevation datasets due that the deadline for providing data compliant to the Implementing Rule on Interoperability of Spatial Data Sets and Services has already expired for this spatial data themes (as for all INSPIRE themes) according to the roadmap of the INSPIRE Directive.

- Reporting of Elevation viewable data sets has been more than doubled, increasing in a 147.0% from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020 (from 115 to 284).

With this increase, this statistic has returned to levels gained by end of 2019, with a slight improvement.

- Reporting of Elevation downloadable data sets has experimented a relevant increase of 36.7% from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020 (from 79 to 108).

This is positive but clearly not enough, taking into account that the deadline for providing conformant download services is already expired (October 2020). In fact, the INSPIRE Geoportal is not able to read WCS services, and deepening in the issues, the coverage based INSPIRE data models currently in force are not suitable for an OGC standardised WCS service.

Note that the most interesting indicator here would be the conformance of such downloadable data sets according the Directive. Hopefully available in short in the INSPIRE Geoportal.

- Only 15 out of 31 countries seems to have National coverage of viewable INSPIRE Elevation data sets, which represents a 48.4% of all of them. The statistic shows a very slight increase compared to the result obtained on 15<sup>th</sup> April 2020 (45.2%).
- Only 10 out of 31 countries seems to have National coverage of downloadable INSPIRE Elevation data sets, which represents only a 32.3% of all of them. The statistic shows an increase compared to the result obtained on 15<sup>th</sup> April 2020 (25.8%).
- At the moment, there is no information about the difference in availability of land-elevation and bathymetry data, which would be very relevant.

##### Orthoimagery

The assessment is also published online in the INSPIRE Community Forum with the aim of collecting new views, real direct experiences and examples showing the main drawbacks hindering interoperability of European Orthoimagery data.

<https://inspire.ec.europa.eu/forum/discussion/view/265370/availability-of-orthoimagery-data-in-the-inspire-thematic-viewer>

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 20 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

The main basic conclusions derived from these statistics are enumerated below:

- Orthoimagery data sets reported nearly doubled in the period from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020, increasing an 87.1% (from 1201 to 2247).

This clearly indicates a sustained improvement of Orthoimagery data sets reported, and theoretically accessible, since mid-2018.

- Reporting of Orthoimagery viewable data sets has been also improved, increasing in a 108.3% from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020 (from 96 to 200).

With this increase, this statistic has returned to levels gained by end of 2019, with a slight improvement.

- Reporting of Orthoimagery downloadable data sets has experimented a major increase of 53.2% from 15<sup>th</sup> April 2020 to 28<sup>th</sup> November 2020 (from 47 to 72).

This indicates a sustained improvement of Orthoimagery data sets ready to be downloaded since mid-2018. However, a lot of work is still to be done in order to reach the INSPIRE obligations regarding conformant download services due to the October 2020. The reasons stated here for the Elevation theme also applies to Orthoimagery.

Additionally, the most interesting indicator here would be the conformance of such downloadable data sets according the Directive. Hopefully available in short in the INSPIRE Geoportal.

- Only 11 out of 31 countries seems to have National coverage of downloadable INSPIRE Orthoimagery data sets, which represents a 35.5% of all of them.
- Only 4 out of 31 countries seems to have National coverage of downloadable INSPIRE Orthoimagery data sets, which represents only a 12.9% of all of them. This figure remains totally stable since mid-2020.
- At the moment, there is no information about the difference in availability of traditional RGB terrestrial orthophotos and multi-band data from satellites or other types of sensors, which would be very relevant.

#### General remarks

- The rate and status of implementation of both themes across Europe is improving but not enough. However, it is expected that the potential adoption of the Good Practice candidate on INSPIRE coverage data will (see Sections 2.4 and 2.6) boost interoperability of Elevation and Orthoimagery services, and quill help to meet the obligations on INSPIRE conformant download services.
- The conformance rate for those data sets available through the INSPIRE Geoportal would be a better indicator about the progress in the implementation of the Directive across Member States. The specific metadata records / fiches in the geoportal do neither specify the INSPIRE conformity. This should be improved in the Geoportal soon.
- Sharing of examples and experiences related to the mentioned good practice candidate will be promoted in 2021, hopefully together with its full endorsement my INSPIRE MIG-T.

NOTE: The statistics presented in this analysis, related to the Elevation and Orthoimagery themes, were gathered from the INSPIRE Thematic Viewer on 28<sup>th</sup> November 2020, 15<sup>th</sup> April 2020, 20<sup>th</sup> November 2019 and 22<sup>nd</sup> June 2018.

Statistics currently available in this viewer are regularly updated over time.



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 21 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

## 2. OVERVIEW OF THE FACILITATOR'S ACTIVITY

This section provides an overview of the content published in both on-line forums in the scope of this report and describes basic statistics of the activity which has taken place in them.

In summary:

- Activities for promoting the forums.
- Type of resources contents in the forums: number of discussion topics (still open or already closed), content pages and special pages, files shared, change or good practice proposals, new stakeholders reached.
- Activity registered from members in the forums, through their responses and participation in the discussion topics (number of replies and views).
- A summary of the facilitator's activity in these events: INSPIRE Helsinki 2019, INSPIRE 2020 Online Conference, 63<sup>rd</sup> MIG-T Meeting and INSPIRE Community Forum Webinar.

### 2.1. Overview of the facilitation activity

This chapter provides a summary of the activity of the facilitator in the on-line platform for the two forums or discussion groups in the scope of this report.

#### 2.1.1. General activities to improve and promote the platform

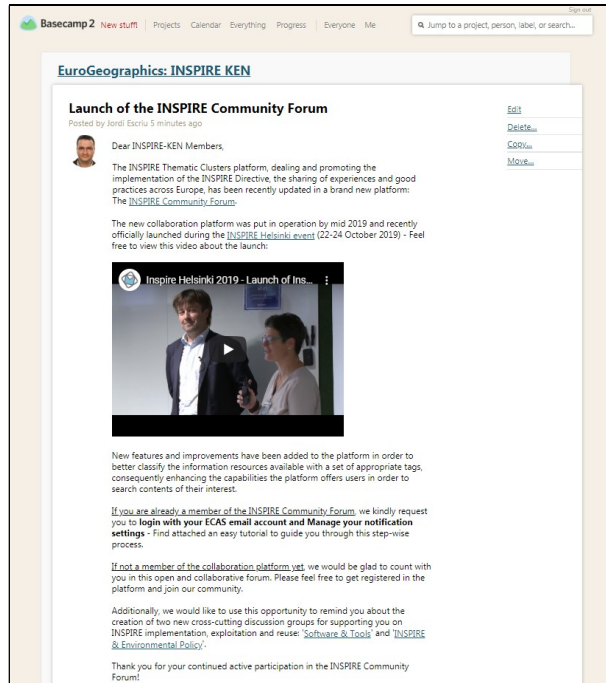
General activities for improving and promoting the new INSPIRE Community platform has been performed by the facilitator:

In 2019

- A **new completed version of the controlled tags list (*List of TAGS version 0.5*)** was sent to JRC on 16/07/2019. See section A.1 in **Error! Reference source not found.** of Deliverable D2, dated on 19<sup>th</sup> April 2020.
- This version of the list of controlled tags was accompanied with a **proposal for assigning tags and/or group of tags to different content sections and discussion groups of the platform**, in order to control the contents appearing in each of them.

Concretely, it was proposed to untie controlled tags under the *INSPIRE Knowledge Base Categories* and *Typology of posting issues* virtual views from any sections and/or discussion groups of the platform. The reason behind this proposal, which was adopted by the facilitators group, was that these specific controlled tags are functional just for filtering contents, while other controlled tags should determine the classification of contents (e.g. a specific discussion topic, new post, etc.) in the platform.

- By mid-November 2019 **communications were sent to the EuroGeographics INSPIRE-KEN community** (through the EuroGeographics Basecamp platform) **and the EMODnet community** (through appropriate contacts) **in order to make them aware of the recent launch of the INSPIRE Community Forum** during the recent INSPIRE Helsinki 2019 Technical Conference. The opportunity was leveraged for requesting members for active participation and revision of the notifications and the privacy settings of the platform, as well as promoting further enrolment of contacts.



- Finally, a similar communication was sent through the news post channel in both, the [Software & Tools](#) and the [Elevation, Orthoimagery, Reference systems & Geographical grids](#) discussion group forums.

#### In 2020

- A **revision of the controlled tags currently used in the platform** was carried out by mid-April 2020. As a result, a number of uncontrolled additional tags following the 'TC-' tag naming convention were identified to be in use in the INSPIRE Community Forum platform, without previous agreement between the JRC and the facilitators in order to appropriately classify the contents in the platform.

These tags were included in section A.2 in ANNEX A of Deliverable D2, dated on 19th April 2020. The main purpose of this analysis was to discuss and decide on their potential agreement and adoption in upcoming teleconferences between the JRC and the facilitators.

- A **proposal to adopt a short list of the tags identified during the process** was also included in **Section A.2** of the mentioned Annex of Deliverable D2.

Identification of new controlled tags is understood as part of the knowledge management tasks, the evolution of activities in the community and the maintenance of the system chosen for classifying contents in the platform.

- See above the related activities performed during year 2019 for improving the classification of contents in the platform.
- **Proposal for the future of the INSPIRE Community forum.**

A proposal to build a renewed platform for the INSPIRE Community Forum was requested by the Joint Research Centre after the summer 2020.

The idea was to rethink the platform, continuing the support to the implementation of the INSPIRE Directive across Europe by building a new INSPIRE Helpdesk, adapting it to the new context, communication trends and real needs, taking into account:

- Adaptation of the INSPIRE Maintenance and Implementation Framework to new

strategic goals (EU Strategy for data, Green Data Space, EU Green Deal, GreenData4All) and technical evolution (alternative encodings, Open and new APIs).

- Get geospatial, thematic data in the INSPIRE Geoportal and combine them to generate Pan-European and High-value datasets serving real use cases (e-Reporting, GO-PEG project).
- Engagement of communities becoming increasingly important in INSPIRE: developers, software providers and users of different thematic communities.
- Continuous support of European Commission to implementers in Member States.

It was jointly prepared in the second half of October 2020 by the facilitator of the *Software & Tools and Elevation, Orthoimagery, Reference systems and Geographical grids*, and the facilitator of the *INSPIRE & Environmental Policy* sections of the forum.

The proposal was presented in a regular videoconference of the INSPIRE Community forum Working Group on 27<sup>th</sup> October 2020, being well-received by all participants.

## Proposal for the future of the INSPIRE Community Forum

What is next?

Stefania Morrone ([s.morrone@epsilon-italia.it](mailto:s.morrone@epsilon-italia.it)) / Jordi Escriu ([jordi.escriu@icgc.cat](mailto:jordi.escriu@icgc.cat))

### Migration scenario proposal

- **Contribution to the Autumn Newsletter of the INSPIRE Community Forum.**

The facilitator of the *Software & Tools and Elevation, Orthoimagery, Reference systems and Geographical grids* sections of the forum actively contributed to the Autumn newsletter with a piece of news on the INSPIRE Good practice on the implementation of INSPIRE coverage data.

The newsletter is available online here: [Autumn newsletter](#)

- **Lead of the Winter Newsletter of the INSPIRE Community Forum.**

The facilitator of the *Software & Tools and Elevation, Orthoimagery, Reference systems and Geographical grids* sections of the forum take the lead for editing and managing the compilation of all contributions to the Winter newsletter of the forum, and prepared two pieces of news on the “New INSPIRE good practice candidates for MIG-T endorsement” presented in the 63<sup>rd</sup> MIG-T meeting and on the upcoming “INSPIRE Community Forum webinar” foreseen for 11<sup>th</sup> December 2020 were also prepared by the facilitator.

**INSPIRE Forum Newsletter --- Winter 2020**



INSPIRE Monitoring and Reporting 2020  
Report

### INSPIRE Monitoring and Reporting (M&R) 2020

Recent Geoportal and Validator activities

The new version of the INSPIRE Geoportal, including the new features for the INSPIRE Monitoring and Reporting (M&R) period, all interested INSPIRE stakeholders (e.g. from data providers and other implementers) could test the software, available to answer questions and correct the bugs reported. The final version of the Geoportal to be used for the M&R above is available here:

In line with the release plan, the latest version of the INSPIRE Reference Validator (v2020.3) was released on September v2020.2.0 of the bulk validation tool for metadata. The version v2020.3 of the INSPIRE Reference Validator is the one conformance classes for MD TG 1.3, since the transition period to migrate to TG 2.0 ended in December 2019.



OSGeoLive 13

### Re3gistry on OSGeoLive

OSGeoLive is an educational project of the Open Source Geospatial Foundation (OSGeo) and consists of a Linux-based installed and ready to use. It offers a great way to familiarize with new software tools without the need of installing and test it without the need to install it from scratch. The upcoming OSGeoLive distribution will also feature an overview here for version 13.0) has been also revised and extended for the upcoming version 14.0. It will be translated in multiple



### New INSPIRE good practice candidates for MIG-T endorsement

During the 63rd INSPIRE MIG-T meeting celebrated on 13th-14th October 2020, four new good practices proposals from process which may potentially end with their possible endorsement.

- Building one access point to dispersed data sources

Proposal to create a proxy service for integrating local services providing data for a common dataset.

- Making spatial data downloadable via WMS services

Proposal to use view services as an easy alternative to download INSPIRE datasets by providing metadata and downloads

- Coverage data and service implementation

The newsletter is available online here: [Winter newsletter](#)

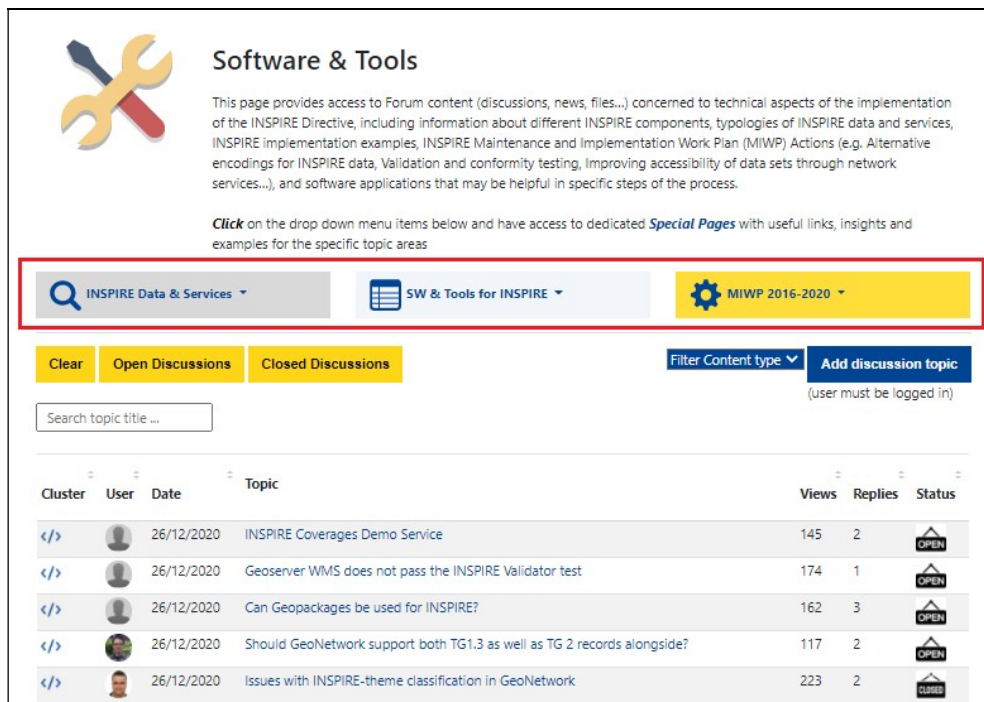
### 2.1.2. Software & Tools forum

The [landing page of the INSPIRE Community Forum](#) provides access to the *Software & Tools* content section through the following URL:

<https://inspire.ec.europa.eu/forum/tcc>

The previous content section allows users to identify any discussion topics of the platform which are related to technical aspects, discussions, issues or focused on software applications and tools for implementing, exploiting and/or using INSPIRE data and services.

As explained in Section 2.1.2.2 *Content – Special Pages*, this landing page also provides easy access to a set of so-called special pages by means of 3 different buttons, highlighted with visual-impact icons.



Additionally, there is a landing page of this forum located at this URL:

<https://inspire.ec.europa.eu/forum/groups/profile/215867/software-tools>

This forum landing page only provides access to the discussion topics opened in the *Software & Tools* discussion group, allowing platform users to open new discussion threads on it.

It also includes 3 similar buttons for providing easy access to the special pages of the forum.

### Overview of facilitator's work

The *Software & Tools* forum was created in 2019, within the re-structuring of the INSPIRE Community Forum.

#### In 2019

The main facilitation tasks during the year were focused on the **design of the forum to structure its contents** as well as preparing these new contents from scratch.

The structuring work was carried out in collaboration with the Joint Research Centre (JRC) and consist in the preparation of the structure and the icons / buttons for providing access to **special pages**. The facilitator mainly conceived the most relevant special pages to accomplish the objectives of this forum taking into account the set of agreed controlled tags which classifies all

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 26 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

contents of the platform. And finally thought up the best way to group them, in the buttons referred above.

As a second step, the work of **preparing the initial contents for the set of special pages** took a long time in this phase.

### In 2020

The content already obtained in the platform in 2019 were improved in the first part of 2020 and have been maintained till the end of the year.

Rest of efforts were spent in **promoting and facilitating the forum**, while creating an initial group of members for starting the activity, which is quite active in the INSPIRE Community Forum as per the number of discussion topics opened since the creation of this group.

This has been **complemented with other online activities** carried out during the year with the community, outlining the following:

- **Participation in the INSPIRE 2020 Online Conference** (See more details in Section 2.3), mainly including the following two activities:
  - [Workshop “INSPIRE Coverages demystified”](#) (abstract) and [publication of the final results](#). This **technical and software-related activity** celebrated on 10<sup>th</sup> June 2020 is also linked to the *Elevation, Orthoimagery, Reference systems & Geographical grids* forum due to its direct applicability to INSPIRE elevation, Orthoimagery and Land cover. However, it is additionally applicable to other 10 themes with coverage data in their scope.

It provided the **final push to the long-effort activities to clarify the implementation of INSPIRE coverage data**. It consisted of a hand-on practical workshop on the usage of the [WCS demonstration service](#) and the formal presentation of a good practice discussion document to be distributed through the INSPIRE MIG-T, which was the previous step for presenting it as an INSPIRE good practice candidate.

- [Session “INSPIRE Reference Data – Ready to take off?”](#) (abstract) jointly organised with the Topographic, Cadastral and Reference data group, and celebrated on 10<sup>th</sup> June 2020. This opportunity was used to increase the **engagement of software companies and users of INSPIRE data** in the community of the *Software & Tools* forum with the view of providing an update about the most used applications for implementing INSPIRE.

Four presentations on this matter were offered in total as part of this session:

- [“5.000 data sets later: What INSPIRE in the cloud changes”](#).
- [“INSPIRE services with GeoServer and HALE, where are we?”](#).
- [“The rasdaman Datacube Engine: INSPIRE Coverages at Your Fingertips”](#).
- [“Feeding Data to a tool for European container-freight routing”](#).

- **Follow-up on software and technical-related activities** in order to inform through the forum. This is considered a priority, particularly in the area of alternative encodings for INSPIRE data. **Those activities pushed by MIG-T and the progress of related MIWP Actions are of special interest in this area:**



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 27 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- **Presentation of the [“OGC compliant INSPIRE Coverage data and service implementation” candidate INSPIRE good practice in the 63<sup>rd</sup> MIG-T Meeting](#)**, on 13<sup>th</sup> October 2020. During the meeting, the MIG-T voted positively for its endorsement as a candidate INSPIRE Good Practice according to the [established procedure](#). This good practice is directly applicable to INSPIRE Elevation, Orthoimagery and Land cover data, apart from other 10 themes dealing with raster data in the form of coverages - See more details in Sections 2.3 and 2.4.
- The [API4INSPIRE Project](#), introduced in Section 1.1.1 of this report.

The project is targeted to exploring the benefit of the introduction of the new OGC API-based standards, mainly into the INSPIRE domain. These standards are the **OGC API – Features** and the **OGC SensorThings API**. Additionally, it envisages the provision of INSPIRE data openly available for experimentation via download services based on these new APIs.

An evaluation methodology has been defined for assessing the costs and benefits incurred in introducing these new technologies. A deployment plan has been carried out during 2020, which has ended up with the final **proposal of both new APIs as candidate INSPIRE Good practices on the 63<sup>rd</sup> MIG-T Meeting** hold on 13<sup>th</sup> October 2020, and further endorsement by MIG as INSPIRE good practices according to the [established procedure](#), after the foreseen outreach webinars:

- **[“OGC API Features as an INSPIRE Download service” - 6<sup>th</sup> November 2020.](#)**

The final “OGC API – Features as an INSPIRE download service” document approved as INSPIRE good practice is [available here](#).

- **[“ELISE Workshop: SensorThings API brings Dynamic Data to INSPIRE” - 9<sup>th</sup> November 2020.](#)**

The final “OGC SensorThings API as an INSPIRE download service” document approved as INSPIRE good practice is [available here](#).

Both activities were attended by the facilitator of the *Software & Tools* forum to properly inform about the whole process in the INSPIRE Community Forum platform.

- The [GO-PEG Project](#), introduced in Section 1.1.1 of this report.

The project aims to generate cross-border, location-enabled services providing access to harmonised thematic open high value datasets and their corresponding metadata, in areas such as environment, emergency and disaster management.

The starting point are spatial datasets discoverable in the INSPIRE Geoportal and in the spatial data infrastructures from the Member States. The datasets will be harmonised in terms of data content, level of detail, data structure, vocabularies, and license conditions, which will be finally published on the European Data Portal through appropriate APIs and documented through metadata. In the scope of the project also the development of ETL (Extract, Transform, Load) processes for significantly automating data harmonisation, which will be reducing the burden for data providers in bringing their resources to open platforms.

A selection of relevant use cases assures applicability and usability of the GO-PEG services, and the active participation stakeholders involved in the project, based on Member States but also involving European-level ones such as the Joint Research Centre (JRC).

The facilitator of the *Software & Tools* forum participated in the 2<sup>nd</sup> workshop of the project “[GO-PEG workflows and data requirements for data harmonisation: A step towards High Value Datasets](#)”, which took place on 29<sup>th</sup> October 2020, order to properly inform about the whole process in the INSPIRE Community Forum platform.

### 2.1.2.1. Members

Due to aspects related to the compliance to the General Data Protection Regulation (GDPR), facilitators are not currently able to monitor the number of members subscribed to a specific discussion group forum of the platform.

JRC may trace membership over time extracting data from the server logs where the platform is operating. Particularly, the “*TC-SW\_Tools\_Services*” controlled tag, which identifies this forum.

### 2.1.2.2. Content

This section provides statistics about the discussion topics, pages, files uploaded and news posts currently available in the *Software & Tools* forum platform.

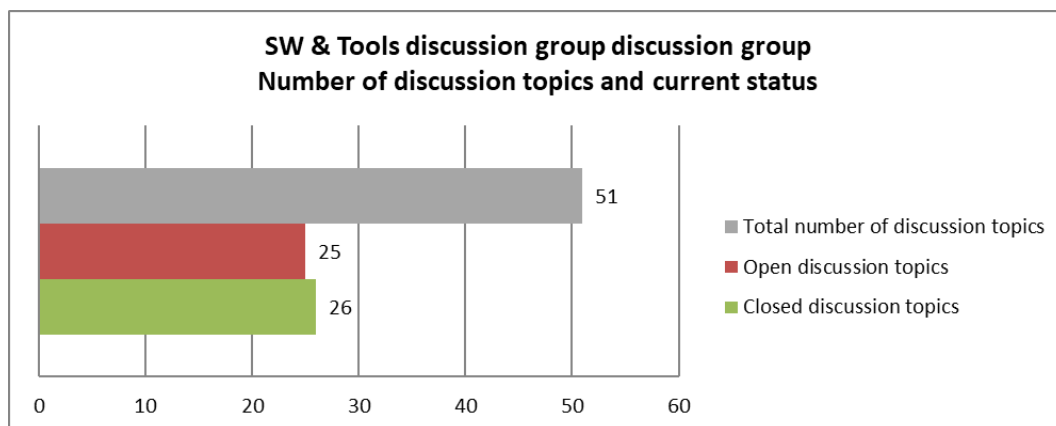
#### Discussion topics

At the end of December 2020, the *Software & Tools* discussion group forum counts with a total of **51 discussion topics**, experimenting an increase in a 70.00% from mid-April 2020 (when the forum had 30 discussion topics).

Open discussions represent threads where the discussion is still on-going, or a specific question remains open and waiting for feedback or new contributions in the platform. Additionally, they may correspond to threads which just collect experiences, opinions and feedback from participants, rather than being issues itself. These threads may remain open longer.

On the other hand, closed discussions correspond to threads where active participants arrived at an agreed and mature solution to a specific issue through the platform, where a question got a proper and acceptable answer from other members. Closed threads may also correspond to discussion which collected enough materials and feedback related to the topic, or inactive threads after a long period of time.

As shown in the graphic below, the current number of closed discussion topics is 26, which corresponds to a 51.0% of the topics.





- List of relevant Discussion topics in the period 2019 - 2020:

Discussion topic (Name & URL)	Total Number of Views	Total Number of Replies	Status
<a href="#">GeoServer Configurations for INSPIRE Themes</a>	179	11	Closed
<a href="#">API4INSPIRE Webinar</a>	187	9	Closed
<a href="#">ISO AP 100 schemalocation to iso website not available</a>	179	8	Closed
<a href="#">GeoNetwork 3.4 and THREDDS/ERDDAP server</a>	505	7	Closed
<a href="#">Semi-automatic transformation mapping from TG MD 1.3 to TG 2.0</a>	242	6	Closed
<a href="#">Abnormal behaviour of GeoNetwork metadata editor when processing the 'operatesOn' metadata field</a>	161	6	Closed
<a href="#">INSPIRE at PostgreSQL/PostGIS</a>	151	4	Open
<a href="#">GeoNetwork gmx/gmd:ci_DateType validation issues</a>	229	4	Open
<a href="#">INSPIRE Registry unstable and has significant latency</a>	42	3	Closed
<a href="#">Code lists in OGC API Features</a>	21	3	Open
<a href="#">Migration of INSPIRE schemas from HTTP to HTTPS</a>	94	3	Open
<a href="#">Pre-defined WFS - How to define possible parameter values for stored queries</a>	85	3	Open
<a href="#">INSPIRE Coverages demo service</a>	144	3	Open
<a href="#">Can GeoPackages be used for INSPIRE?</a>	162	3	Open
<a href="#">Webinar on the INSPIRE Reference Validator within the virtual INSPIRE Conference 2020</a>	57	2	Closed
<a href="#">Series and dataset linking and INSPIRE Geoportal</a>	148	2	Open
<a href="#">GeoServer - Problem with geometry in DataType</a>	398	2	Open
<a href="#">GeoNetwork - Guidance and examples to migrate from MD TG 1.3 to MD TG 2.0</a>	158	1	Closed
<a href="#">Examples of INSPIRE View and Download services</a>	5	0	Open
<a href="#">Validation of multilingual INSPIRE View services</a>	5	0	Open

- Example Discussion topics:

## INSPIRE Community Forum

GeoServer Configurations for INSPIRE Themes

[Home](#)
[Content Sections](#)
[Discussion Groups](#)
[Tags](#)
[More](#)
[Help](#)

 (0) (746) My Account

By Katharina SCHLEIDT 153 days ago | 27.07.2020 Replies (11)

181 views Public Unsubscribe Edit Open

**Tags:**  
[TC-SW\\_Tools\\_Services](#)
[TC-Data-provision-distribution](#)
[TC-SW-Tools](#)
[Geoserver](#)
[API4INSPIRE](#)
[TC-Network-services](#)
[TC-Service-interoperability](#)

To get notified about the news from the theme specific discussions click on the icon.

Dear all, for those of you working on providing INSPIRE data via GeoServer App Schema mapping, I've put up the configurations for various themes we've been working on in the API4INSPIRE Project. At present we provide DB configuration and mapping files for the following INSPIRE Themes: \* Hydrography Networks \* Transport Networks - Water \* Area management/restriction/regulation zones and reporting units \* Statistical Units - Vector While our main concern within API4INSPIRE pertains to the evaluation of OGC API - Features and OGC SensorThings API, GeoServer allows us to provide OGC API - Features utilizing the same App Schema configuration as is also used for WFS2. Thus these configurations allow you to provide both endpoint types. Here's the overview of our preconfigured GeoServer Black Boxes: <https://datacoveeu.github.io/API4INSPIRE/ogc-api/GS-Config.html> Additional information on the API4INSPIRE project available at: <https://datacoveeu.github.io/API4INSPIRE> Have fun! :) Kathi

Go

Go

**</> Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

By Johanna Ott 153 days ago | 27.07.2020

Hi Kathi,

Thanks a lot for these examples! I have a question related to the App schema mapping that I cannot find in the examples: How can I create multiple instances of a complex

## INSPIRE Community Forum

API4INSPIRE Webinar

[Home](#)
[Content Sections](#)
[Discussion Groups](#)
[Tags](#)
[More](#)
[Help](#)

 (0) (746) My Account

By Katharina SCHLEIDT 213 days ago | 28.05.2020 Replies (9)

189 views Public Unsubscribe Edit Open

**Tags:**  
[TC-SW\\_Tools\\_Services](#)
[TC-Data-provision-distribution](#)
[TC-Observation](#)
[TC-SensorThings](#)
[tc-ogc](#)
[API4INSPIRE](#)
[TC-Webinar](#)

To get notified about the news from the theme specific discussions click on the icon.

The API4INSPIRE Project is currently evaluating both the OGC API - Features and OGC SensorThings API Standards for utilization within INSPIRE. In the course of this project, together with our data providers, we are deploying diverse API endpoints in accordance with both of these standards both to gain a better understanding of deployment challenges as well as to provide an opportunity for experimentation with these APIs. We will be presenting this work together with descriptions of the two APIs under consideration during our upcoming workshop at the virtual INSPIRE Conference on June 11th at 2pm CET: \* <https://indico.unidu.hr/event/2/contributions/45/contribution.pdf> For further information on the API4INSPIRE project, check out our web site at: \* <https://datacoveeu.github.io/API4INSPIRE/> We look forward to hearing from you either at our workshop, or via this forum!

Go

Go

**</> Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

By Jordi ESCRIU 100 days ago | 18.09.2020

Dear Kathi,

Hope there has been good progress in the project since the workshop at the INSPIRE 2020 Online Conference.

## INSPIRE Community Forum

Semi automatic transformation mapping from TG MD 1.3 to TG 2.0

Home Content Sections Discussion Groups Tags More Help
(0) (341) My Account

By Martin TUCHYNA 32 days ago | 17.03.2020 Replies (3) 71 views Public Unsubscribe Edit Close

**Tags:**  
[TC-SW\\_Tools\\_Services](#) [metadata](#) [TG 2.0](#) [TC-Metadata](#)

To get notified about the news from the theme specific discussions click on the icon.

Any experience with semi automatic transformation of your metadata from TG 1.3 to TG 2.0?

We were wondering, whether you are not aware about some machine processable implementation of the mapping for Requirements in previous TG versions (Annex F - pages 174-177)

<https://inspire.ec.europa.eu/id/document/tg/metadata-iso19139>

---

By Jose Miguel RUBIO IGLESIAS 23 days ago | 27.03.2020 Edit X Like

Hi Martin,

I posted yesterday in the Forum some guidance from GNW, an example XSLT conversion process that can be applied to metadata records and adapted to your own encoding rules as well as some examples from some countries and agencies such as the EEA.

See: <https://inspire.ec.europa.eu/forum/discussion/view/265082/geonetwork-guidance-and-examples-to-migrate-from-md-tg13-to-md-tg20>

---

By Antonio ROTUNDO 8 days ago | 10.04.2020 Edit X Like

Dear Martin

Go

Go

**</> Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

## INSPIRE Community Forum

Abnormal behavior of GeoNetwork metadata editor when processing the 'operatesOn' metadata field

Home Content Sections Discussion Groups Tags More Help
(0) (185) My Account

By Jordi ESCRIU 6 days ago | 11.11.2019 Replies (5) 41 views Public Edit Close

**Tags:**  
[TC-SW\\_Tools\\_Services](#) [TC-SW-Tools](#) [TC-Metadata](#) [GeoNetwork](#) [TC-Bug](#) [operatesOn](#) [TC-MIG-2019.2](#)

To get notified about the news from the theme specific discussions click on the icon.

Dear All,

While working with GeoNetwork version 3.0.6 we have run into the issue described below.

When we import into GeoNetwork service metadata files containing the <srv:operatesOn> field and open them in editing mode, all content within this element disappears.

After having opened one of these file in editing mode, if we analyse the XML that remains stored in GeoNetwork we verify that only the opening and closing labels of the element operatesOn (i.e. the <srv:operatesOn> and <srv:operatesOn/> XML tags) remain encoded in the file, but not the content of the field which disappears.

Interestingly, if the metadata file is not opened in editing mode and we export it directly to XML, it does retain the contents of the <srv:operatesOn> field.

We have performed several tests with other versions of GeoNetwork, confirming the same abnormal behavior.

Since the main role of the <srv:operatesOn> field is implementing the data-service linking (i.e. linking the service metadata file to the metadata files of the dataset and layers used by the service), it would be essential to assure its correct management in the GeoNetwork catalogue.

Note that <srv:operatesOn> field is mandatory when the coupling (<srvcouplingType>) between the service metadata and the dataset/layers metadata is set to strong (value "tight") or mixed (value "mixed") type.

We would like to share our experience with the INSPIRE Community Forum community and specially get to know if other users of the GeoNetwork metadata editor have reproduced the same issue. And if so, if they have found any workaround.

Thank you in advance.

Jordi

---

By Paul van Genuchten 6 days ago | 12.11.2019 Edit X Like

Hi Jordi, I duplicated your issue to <https://github.com/geonetwork/core-geonetwork/issues/4183> so also that community is aware. I don't recognise your issue from more recent versions of geonetwork, so I recommend

Go

Go

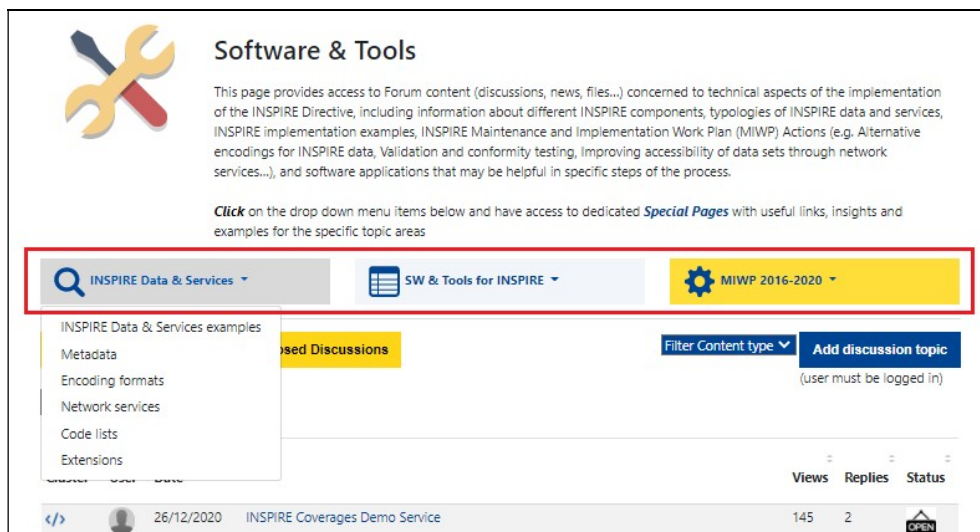
**</> Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

### Special pages

Forum materials are documented in special pages in the *Software & Tools* forum.

Either the [landing page of the Software & Tools content section](#) or the [landing page of the Software & Tools discussion group](#) is provided with 3 buttons, highlighted with visual-impact icons, to easily provide access to a set of special pages.



During 2019 and 2020 the group has got a total of **15 special pages**. As mentioned and showed above, they can be accessed through 3 different buttons (a, b and c):

- a) **INSPIRE Data & Services** button, providing access to 6 special pages on different technical aspects / components of INSPIRE:
  - [INSPIRE Data & Services examples](#).
  - [Metadata](#).
  - [Encoding formats](#).
  - [Network services](#).
  - [Code lists](#).
  - [Extensions](#).
  
- b) **Software & Tools for INSPIRE** button, providing access to 4 special pages on different applications which may help in implementing, exploiting, or using INSPIRE:
  - [INSPIRE in Practice – Tools & Apps](#).
  - [INSPIRE Validators](#).
  - [INSPIRE Registry](#).
  - [INSPIRE GitHub repositories](#).
  
- c) **MIWP 2016-2020** button, providing access to 5 special pages on the different actions endorsed and pushed by INSPIRE MIG under its current work programme:
  - [Priority list of datasets for e-Reporting](#).
  - [Alternative encodings for INSPIRE data](#).
  - [Validation and conformity testing](#).
  - [Streamlining the monitoring and reporting for 2019](#).
  - [Improving accessibility of data sets through network services](#).

- Example Special Pages:

- [INSPIRE GitHub repositories](#)

## INSPIRE Community Forum

INSPIRE GitHub repositories

Home Content Sections Discussion Groups Tags More Help
(0) (341) My Account

By Jordi ESCRIU 166 days ago | 05.11.2019 67 views Public Edit

**Tags:**  
[TC-SW\\_Tools\\_Services](#) [INSPIRE\\_GitHub](#) [TC-MIG-2017.2](#) [TC-MIG-2017.3](#) [TC-MIG-2017.4](#) [TC-SW-Tools](#)  
[TC-Encoding-rule](#) [TC-Validation](#) [ETF-Validator](#) [TC-Registry](#) [re3gistry](#)

To get notified about the news from the theme specific discussions click on the icon.

**INSPIRE GitHub repositories**

This special page provides access to relevant GitHub repositories managed by the Joint Research Centre for the purpose of supporting the implementation of the INSPIRE Directive.

Each repository is dedicated to one crucial aspect for achieving a practical successful implementation of the Directive. They are mainly focused on providing useful resources for implementers and developers to use in their daily tasks in this area.

Useful Links

- **GitHub: Can-I-Use INSPIRE:**

This link provides you access to the JRC repository where information and documentation about the different studies and analyses about which features of INSPIRE GML and any alternative encodings (such as GeoJSON) can be used in different software products.

The repository is created as part of the MIG 2017.3 action work to improve the usability of INSPIRE Data. Fresh documentation about the tests performed, their status and the corresponding results is periodically published in this website.

</> Software & Tools

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

- [INSPIRE Validators](#)

## INSPIRE Community Forum

INSPIRE Validators

Home Content Sections Discussion Groups Tags More Help
My Account

By Jordi ESCRIU 13 days ago | 05.11.2019 32 views

**Tags:**  
[TC-Validation](#) [TC-ATS](#) [TC-ETS](#)

**INSPIRE Validators**

This page provides access to resources related to the validation of INSPIRE metadata, data and related network services.

Feel free to either **browse the useful links below** to find the validation tool that most suites your needs in the context of INSPIRE, or **open a new discussion topic** to solve your questions, share views or issues in the scope of INSPIRE validation activities and software tools (e.g. conformance / satisfaction of technical guidelines requirements and/or recommendations).

Useful Links

- **INSPIRE Validator (reference validator)**

The purpose of the INSPIRE (reference) validator is to help data providers, solution providers and national coordinators to check whether data sets, network services and metadata meet the requirements defined in the INSPIRE Technical Guidelines.

The validator provides detailed test reports to help implementers understand how well their data, services, metadata or software solutions are doing and/or have a starting point to check whether any improvements may be needed.

The validator is based on the Abstract and Executable Test Suites agreed between Member States and the Commission in the INSPIRE Maintenance and Implementation Group. See the Roadmap for the test suites that are currently supported and our future planning.

The validator has been developed under ARE3NA and ELISE Actions of the ISA/ISA2 Programmes.

</> Software & Tools

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages



- [INSPIRE in Practice - Tools & Apps](#)

**INSPIRE Community Forum**  
INSPIRE in Practice - Tools


Home Content Sections Discussion Groups Tags More Help (0) (185) My Account

By Jordi ESCRIU 35 days ago | 14.10.2019 51 views Public Edit

Tags: TC-SW\_Tools\_Services TC-SW-Tools

To get notified about the news from the theme specific discussions click on the icon.

**INSPIRE in Practice - Tools & Apps**

 This page provides access to information resources related to specific Software Tools that may be utilised in different steps of the INSPIRE implementation:

- As-Is data exploration.
- Identification of your scope within INSPIRE.
- Generation and maintenance of metadata in conformance to the INSPIRE.
- Transformation of data according the INSPIRE data models / schemas / alternative encodings.
- Publication of data through INSPIRE services.
- Validation of INSPIRE metadata, data & services.
- Usage of INSPIRE / interoperable data.

Feel free to either **browse the useful links below** to find the application / tool / app that most suites your needs in the context of INSPIRE, or **open a new discussion topic** to solve your questions, share views or issues in the scope of Software & Tools.

Useful Links

- **INSPIRE in Practice platform:**

The INSPIRE in Practice is a key piece of the new INSPIRE Knowledge Base website helping stakeholders to discover and share approaches to implementing and using INSPIRE. It is a collaborative platform that brings together different players involved in INSPIRE (implementers, solution providers, and end-user application developers) in a

**Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

- [Action 2016.5: Priority list of datasets for e-Reporting](#)

**INSPIRE Community Forum**  
Action 2016.5: Priority list of datasets for e-Reporting

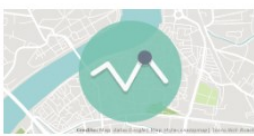
Home Content Sections Discussion Groups Tags More Help (0) (185) My Account

By Jordi ESCRIU 35 days ago | 14.10.2019 40 views Public Edit

Tags: TC-MIG-2016.5 priority datasets

To get notified about the news from the theme specific discussions click on the icon.

**Action 2016.5: Priority list of datasets for e-Reporting**

 In the scope of the data under the INSPIRE obligation, the European Commission and the European Environment Agency have identified a list of datasets produced and managed according to the environmental reporting obligations whose availability through the European Spatial Data Infrastructure is considered to be a priority. Member States should make datasets in this list, so called "Priority datasets", first and foremost discoverable in the INSPIRE Geoportal as well as accessible through INSPIRE View and Download services. If not yet harmonised to relevant INSPIRE data specifications, these datasets should be published 'as-is' and harmonised later on, without prejudice to the deadlines in the INSPIRE implementation roadmap.

To allow the identification of priority datasets in the INSPIRE Geoportal, the related metadata shall contain appropriate keywords from the INSPIRE Priority Dataset metadata code list available in the INSPIRE metadata code list register.

The Priority Data Sets Viewer application from the INSPIRE Geoportal provides statistical overviews of the availability of priority datasets as well as simplified access to view or download selected datasets.

**Summary & Scope**

This INSPIRE MIG action is aimed to develop a list of datasets related to environmental reporting and support Member States with making these datasets accessible through the European Spatial Data Infrastructure in a stepwise manner. The list also reflects the data gaps identified during the evaluation of the state-of-implementation and the fitness of the Directive for its intended purpose (REFIT evaluation).

**Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages



## Pages

Apart from special pages, which are dedicated to draw attention to key contents, the *Software & Tools* forum also counts with regular pages to document any other contents which may be relevant in this group.

- [An effective good practice to boost interoperable provision of \(raster\) INSPIRE Coverage data and services](#)

### INSPIRE Community Forum

An effective good practice to boost interoperable provision of (raster) INSPIRE Coverage data and services

Home Content Sections Discussion Groups Tags More Help
(0) (746) My Account

Create a sub-page
 Go

Go

Last updated 74 days ago | 14.10.2020 by Jordi ESCRIU 557 views Public History Edit

**Tags:**  
[TC SW Tools Services](#) [TC WCS](#) [TC WCPS](#) [TC Coverage](#) [TC Network services](#)  
[TC Data interoperability](#) [TC Service interoperability](#) [TC Good practice](#)

To get notified about the news from the theme specific discussions click on the icon.

**What is a coverage?**

A coverage is a unified paradigm for modelling and encoding raster data of all kind, from 1D sensor timeseries, over 2D raster images, up to spatio-temporal data cubes. It describes spatio-temporal regular and irregular grids (i.e., multi-dimensional data cubes), point clouds, and general meshes.

In plain words **coverage are modelled like a function, composed by the following elements:**

- Domain set**, answering "at what coordinates can I find values?" (the domain of the function).
- Range set**, determining "what are the values?" (the image set of the function).
- Range type**, informing "which are the basic characteristics of the values?". It is utilised to capture the full semantics of the values in the coverage.
- Optional metadata bucket**, carrying any additional information that may be also relevant for users.

The range type of a coverage is also a standardized description based on the SWE (Sensor Web Enablement) Common (<http://www.opengeospatial.org/standards/swe/>) concepts.

This allows sensor data to be transformed into coverages without information loss, thereby enabling seamless service chains from upstream data acquisition (e.g., through OGC SOS) to downstream analysis-ready user services (such as OGC WMS, WCS, and WCPS).

Such coverages can be represented in a variety of shapes – including tilings, coordinate/value pair lists – and formats – such as GML, JSON, RDF, a variety of binary encodings, as well as "containers" with mixed encodings. Hence, tools can request coverages in their favourite format from a server.

**Coverage standards**

Coverages are fully standardized by the OGC (Open Geospatial Consortium):

- At abstract, conceptual level, in OGC Abstract Topic 6 which is identical to ISO 19123.
- At concrete, interoperable level in the **OGC Coverage Implementation Schema (CIS)**, which is adopted by ISO as 19123-2.

Several versions of the OGC Coverage Implementation Schema (CIS) exist:

**CIS 1.0**, formerly known as "GML 3.2.1 Application Schema – Coverages" (GMLCOV).

**CIS 1.1**, which provides a comprehensive, more consistent schema for grid coverages. It is backwards compatible with its predecessor, CIS 1.0.

Find here [more details on coverage standardisation](#).

Software & Tools

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

Navigation

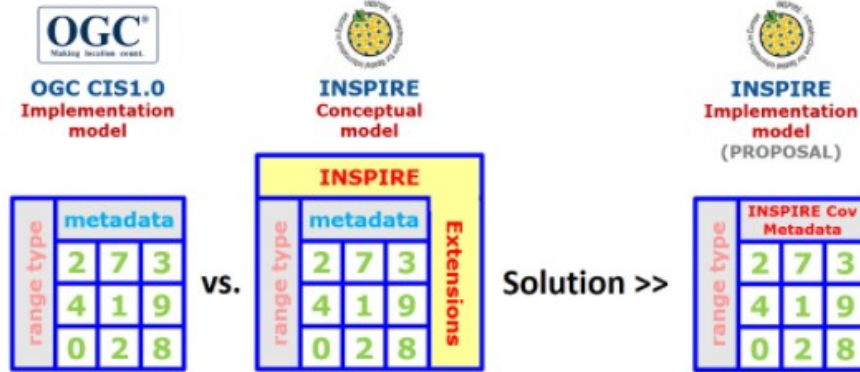
- INSPIRE Good practices
- An effective good practice to boost interoperable provision of (raster) INSPIRE Coverage data and services
  - Coverage standardisation

This dedicated page describes a good practice for the implementation of an [INSPIRE coverages demonstration service \(WCS\)](#), which points at a new website offering the practical results achieved in the [Workshop "Feel the power of INSPIRE WCS / WCPS in your hands"](#) (Helsinki 2019) and [Workshop "INSPIRE Coverages demystified"](#) (INSPIRE 2020 Online Conference).

**Good Practice: Proposal for an interoperable solution**

A functional solution to align INSPIRE coverages to OGC standards, is amending in a simple way the INSPIRE XSD coverage schemas by adding the INSPIRE extensions as coverage metadata, included within an OGC compliant CIS 1.0 coverage.

In other words, INSPIRE extensions may be easily provided within the coverage metadata bucket, being one of the components of an OGC coverage as described earlier - See below.



A coverage service for various (raster data) INSPIRE themes has been setup to overcome these issues as a result of the related activities performed in the scope of the INSPIRE Community Forum (Thematic Clusters) during the last years, particularly based on the results from the Workshop "Feel the power of INSPIRE WCS / WCPS in your hands" organised in the INSPIRE Helsinki 2019 Technical Conference:

**"INSPIRE Coverages Demystified": <https://inspire-wcs.eu>**

The demo service allows the user to play with different service requests to get INSPIRE coverage data and metadata, analyse and combine different data layers (cross-theme fusion), download and present the final results.

It is specially designed to demonstrate use of coverages and WCS/WCPS for several INSPIRE themes: Elevation, Orthoimagery and Land cover - The service is powered by the **rasdaman WCS reference implementation** and offers sample data from several data providers (Institut Cartogràfic i Geològic de Catalunya, ICGC; Landesamt für Vermessung und Geoinformation Schleswig-Holstein (SH), Germany; Finnish Environment Institute (SYKE), Finland).

The **objectives** are to:

- Experience the potential of these technologies.
- Fully-understand the main benefits of integrating them within their daily geospatial businesses and analytical tasks.

...but mainly:

- **Get feedback from the community on this functional good practice to align INSPIRE coverages to OGC standards**, by amending in a simple, OGC compliant way the INSPIRE XSD coverage schemas (as INSPIRE coverage metadata).

**INSPIRE Good Practice candidate document**

A **good practice document** explaining this INSPIRE Good Practice, its outcomes, benefits and limitations have been prepared in order to present it as a candidate INSPIRE Good Practice.

The good practice was **presented in the 63rd MIG-T Meeting** (2020-10-13), **where INSPIRE MIG-T group voted positively for its endorsement as a candidate INSPIRE Good Practice** according the established procedure.

The document is available in the MIG-T Platform:

**Files uploaded**

Apart from linking external resources available on the Internet, the platform has the possibility to upload files to both, discussion topics and pages.

At the end of 2020, the *Software & Tools* forum counts with **2 files uploaded to the platform**.

## News items

News for the promotion of activities of the forum and related to the thematic areas in the scope has been published to a total of **10 news posts**.

- Example News Posts:

- [Webinar: OGC API Features as an INSPIRE Download service](#)

**INSPIRE Community Forum**  
Webinar: OGC API Features as an INSPIRE Download service

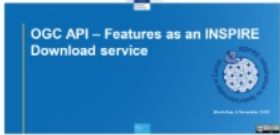
Home Content Sections Discussion Groups Tags More Help (0) (746) My Account

**News** By Jordi ESCRIU 8 days ago | 19.12.2020 15 views Public Edit

**Tags:**  
[TC-SW\\_Tools\\_Services](#) [TC-OGC](#) [TC-Workshop](#) [TC-Webinar](#) [TC-IKB](#) [OGC-API-Features](#) [TC-API](#)  
[TC-Interoperability](#) [TC-Download-service](#)

To get notified about the news from the theme specific discussions click on the icon.

A webinar on the use of the **OGC API – Features** as an INSPIRE Download service has been recently organised by the Joint Research Centre:



**Webinar: OGC API Features as an INSPIRE Download service**

The webinar took place on Friday 6<sup>th</sup> November 2020, forming part of the activities dedicated to modernising the way in which data is shared in INSPIRE.

It is result of the successful work performed in the context of [MIWP Action 2020.1](#), where more detailed information about this MIG-T activity is available.

The video recording is available on-line here.  
[- https://www.youtube.com/watch?v=y\\_2LDQVPUo](https://www.youtube.com/watch?v=y_2LDQVPUo)

Latest comments  
 Marco MINGHINI on

- [Results from the ELISE Workshop on SensorThings API](#)

**INSPIRE Community Forum**  
Results from the ELISE Workshop on SensorThings API

Home Content Sections Discussion Groups Tags More Help (0) (746) My Account


**News** By Jordi ESCRIU 8 days ago | 19.12.2020 10 views Public Edit

**Tags:**  
[TC-SW\\_Tools\\_Services](#) [TC-OGC](#) [TC-Workshop](#) [TC-IKB](#) [TC-API](#) [API4INSPIRE](#) [TC-SensorThings](#)  
[SensorThings API](#) [TC-Interoperability](#) [TC-Webinar](#) [TC-Download-service](#)

To get notified about the news from the theme specific discussions click on the icon.

The aim of the **API4INSPIRE Project** is to evaluate both, the **OGC API - Features** and the **OGC SensorThings API Standards**, for their application in the context of the INSPIRE Directive.

The project includes the deployment of a number of sample API endpoints in accordance with both of these standards counting with the participation of relevant data providers, allowing INSPIRE implementers to test and experiment with both of these APIs.



Regarding the SensorThings API (STA), an ELISE workshop was successfully celebrated on 19<sup>th</sup> November 2020:

**ELISE Workshop: SensorThings API brings Dynamic Data to INSPIRE**

The recording and slides are available on-line at:  
<https://datacoveeu.github.io/API4INSPIRE/dissemination/Workshop-2020-11-19.html>

Latest comments  
 Marco MINGHINI on



- [New Technical Report: Establishing a new baseline for monitoring the status of EU Spatial Data Infrastructure](#)

## INSPIRE Community Forum

New Technical Report: Establishing a new baseline for monitoring the status of EU Spatial Data Infrastructure

Home Content Sections Discussion Groups Tags More Help
(0) (746) My Account

**News** By Jordi ESCRIU 8 days ago | 19.12.2020 10 views Public Edit


**Tags:** TC-SW\_Tools\_Services TC-Monitoring-reporting TC-Reporting TC-INSPIRE

To get notified about the news from the theme specific discussions click on the icon.

A new interesting JRC technical report is available, describing the process and results of the last INSPIRE Monitoring and Reporting round to assess the status of the INSPIRE implementation across Europe:

<https://ec.europa.eu/jrc/en/publication/establishing-new-baseline-monitoring-status-eu-spatial-data-infrastructure>

This process is now based on the outcomes from the INSPIRE Monitoring and Reporting performed in 2019, driven by the Commission Implementing Decision (EU) 2019/1372, which introduced the automated calculation of 19 new indicators through the direct use of the INSPIRE Geoportal and the INSPIRE Reference Validator to process the metadata harvested from Member States discovery services.



**JRC TECHNICAL REPORT**

**Establishing a new baseline for monitoring the status of EU Spatial Data Infrastructure**

The report describes the indicators used in the process and details how to perform their calculation. It is worth to highlight that the majority of them are based on percentage rates, with the aim of providing a direct measure of performance and allowing comparisons between the status in different countries on five different aspects of the implementation:

- Availability of spatial data and services.
- Conformity of metadata.
- Conformity of spatial data sets.
- Accessibility of spatial data sets through view and download services.
- Conformity of network services.

Additionally, the report includes the values achieved for all Member States and some summary statistics to capture the overall performance trends. Its analysis shows how heterogeneous the status of INSPIRE implementation is evolving across Europe.

**Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

**Latest comments**

Marco MINGHINI on Special Issue on "Open Source Geospatial Software" in the Journal Open Geospatial Data, Software and Standards (249 days ago | 22.04.2020); Thanks Jordi for promoting this

- [INSPIRE Reference Data – Ready for take off?](#)

## INSPIRE Community Forum


INSPIRE Reference Data – Ready for take off?

Home Content Sections Discussion Groups Tags More Help
(0) (746) My Account

**News** By Jordi ESCRIU 222 days ago | 19.05.2020 46 views Public Edit

**Tags:** TC-SW\_Tools\_Services TC-Reference-data TC-SW-Tools TC-implementation TC-INSPIRE-conference

To get notified about the news from the theme specific discussions click on the icon.



**INSPIRE CONFERENCE 2020**  
DUBROVNIK - CROATIA  
Goes virtual 3-12 June

INSPIRE 2020 – the Virtual Conference is probably the last opportunity before the deadline for sharing with the community existing INSPIRE best practices and implementation experiences by:

- showing the strategy and workflow applied on them.
- illustrating and advising others on how to overcome the potential issues which may appear through the process.
- remarking all the benefits of your technical and non-technical reengineering efforts during the last years.
- pointing at potential software tools available in the market which may support implementers on their activities, while contrasting the advantages and inconveniences of using them.
- collecting real examples of INSPIRE data and services needs and usages.

**Software & Tools**

- Group Special Pages
- Group activity
- Group discussions
- Group files
- Group news
- Group pages

**Latest comments**

### 2.1.2.3. Activity

The figures provided in this section correspond to the activity of the *Software & Tools* forum platform at the end of 2020, corresponding to Phase 1 of the INSPIRE Community Forum.

The **total number of replies** to discussion topics is **124** - The level of interaction of members in in the second half of 2020 has almost doubled, and it is also quite high compared to the whole activity in the INSPIRE Community Forum.

The **average number of replies per discussion** is **2.4** - which represents a slight increase of interaction compared to the one obtained at mid-April 2020, where the average was **2.1**.

The activity shall be improved during the year 2021 within the activities of a new INSPIRE Helpdesk platform, based on the GitHub application, that is nowadays being prepared.

Finally, the **total number of views** to discussion topics is not that bad, with **7611** – This demonstrates that the contents of the platform are being checked by the community.

### 2.1.3. Elevation, Orthoimagery, Reference systems & Geographical grids forum

The landing page of this forum is located at this URL:

<https://inspire.ec.europa.eu/forum/groups/profile/206>

The screenshot displays the INSPIRE Community Forum interface for the 'Elevation, Ortho & Grids' group. The top navigation bar includes 'Home', 'Content Sections', 'Discussion Groups', 'Tags', 'More', and 'Help'. A search bar is located in the top right corner. The main content area is divided into several sections: 'About this Group' which describes the forum's purpose and provides 'Theme specific links' for TC-EL, TC-GG, TC-OI, and TC-RS; 'Cluster discussions' which features an 'Add discussion topic' button and a recent discussion titled 'Differences in data types for the beginLifespanVersion and endLifespanVersion attributes between OI and EL themes' by Jordi ESCRIU; and a sidebar on the right with 'Elevation, Ortho & Grids' group information, 'Group activity' links, and 'My status'.

This forum landing page provides access to the INSPIRE Geoportal data sets corresponding to themes Elevation, Orthoimagery, Reference systems and Geographical grids, and also to the discussion topics opened in the *Elevation, Orthoimagery, Reference systems & Geographical grids* discussion group, allowing platform users to open new discussion topics on it.

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 40 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

### Overview of facilitator's work

The *Elevation, Orthoimagery, Reference systems & Geographical grids* forum has continued with the on-going activities. Main facilitation tasks in this Phase are summarized below.

#### In 2019

On 2<sup>nd</sup> September 2019 a **List of multi-purpose INSPIRE datasets for the Elevation and the Orthoimagery themes** was identified in [this GoogleDocs spreadsheet](#). The aim of this list was to provide JRC with a set of generic data set list in the scope of these themes which could be prioritized by Member States in their respective data sets provision.

**Activities** of the forum continued to be focused on facilitating and trying to solve the issues in the implementation of INSPIRE coverages. The main action was the organisation of the **Workshop “Feel the power of INSPIRE WCS / WCPS in your hands”** in the INSPIRE Helsinki technical event (see Section 2.2).

Some efforts were also devoted to publishing **contents and materials regarding the EMODnet bathymetry community**, with the aim of reaching it and promote their active participation on the forum. This was reinforced by emails and communications addressed to relevant contacts of this community.

#### In 2020

**Activities** of the forum has been mainly focused on the **participation in the INSPIRE Conference 2020** (initially to be celebrated in Dubrovnik but finally run online - See details in Section 2.3).

The conference helped a lot in **going ahead with the proposal of a candidate INSPIRE good practice for solving the remaining issues with the implementation of INSPIRE coverages**. Related discussions have been promoted and facilitated through the platform, complemented with the following main actions:

- [Publication of documentation summarizing the Workshop “Feel the power of INSPIRE WCS / WCPS in your hands”](#) hold in Helsinki.
- **Opening of a new website offering the practical results of this good practice including an INSPIRE coverages demonstration service (WCS): [INSPIRE Coverages demystified](#)**, not only to allow users to experience the potential of these technologies and fully-understand the main benefits of integrating them within their daily geospatial businesses and analytical tasks, but also get feedback from the community on this functional good practice to align INSPIRE coverages to OGC standards.
- **Celebration of the [Workshop “INSPIRE Coverages demystified” \(abstract\)](#) in the INSPIRE 2020 Online Conference and [publication of the final results](#)**. This activity, celebrated on 10<sup>th</sup> June 2020, provided the final push to the long-effort activities to clarify the implementation of INSPIRE coverage data, by presenting a hand-on practical workshop on the usage of the WCS demonstration service mentioned above and by formally presenting a good practice discussion document to be distributed through the INSPIRE MIG-T - Find more details in Section 2.3.
- **Presentation of the [“Good practice for providing \(raster\) INSPIRE Coverage data and services” discussion document in the 62<sup>nd</sup> MIG-T Meeting](#)**, on 2<sup>nd</sup> July 2020. This document, which explains this good practice, its outcomes, benefits and limitations, have been prepared in order to spread the word across MIG-T, as a previous step to formally present a candidate INSPIRE Good Practice.



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 41 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

- **Presentation of the [“OGC compliant INSPIRE Coverage data and service implementation” candidate INSPIRE good practice in the 63<sup>rd</sup> MIG-T Meeting](#)**, on 13<sup>th</sup> October 2020. During the meeting, the MIG-T voted positively for its endorsement as a candidate INSPIRE Good Practice according to the [established procedure](#). This good practice is directly applicable to INSPIRE Elevation, Orthoimagery and Land cover data, apart from other themes dealing with raster data in the form of coverages.

The final endorsement as INSPIRE good practice is foreseen by the first quarter of 2021. See Section 2.4 to read more details.

The participation in the INSPIRE Conference 2020 was also helpful in **strengthen the links to the EMODNET bathymetry community**, outlining the following items:

- [Dedicated discussion topic is on-going](#) in the forum.
- **Presentation “EMODnet Bathymetry – INSPIRE compliance for bathymetric data” given as part of the [Session “INSPIRE Reference Data – Ready to take off?”](#) (abstract)** jointly organised with the Topographic, Cadastral and Reference data group and celebrated on 10<sup>th</sup> June 2020 as part of the **INSPIRE 2020 Online Conference**.

Finally, as part of the task for producing this report, a **revision and assessment of the Elevation and Orthoimagery data sets offered through the INSPIRE Geoportal** in the period from June 2018 to November 2020 has been performed (See Section 1.2.4).

#### 2.1.3.1. Members

As already stated in Section 2.1.2.1, facilitators are not able to monitor the number of members subscribed to a specific discussion group forum of the new platform.

JRC may trace membership over time extracting data from the server logs where the platform is operating. Particularly, the *“TC-Elevation\_Orthoimagery\_Grids”* controlled tag, which identifies this forum.

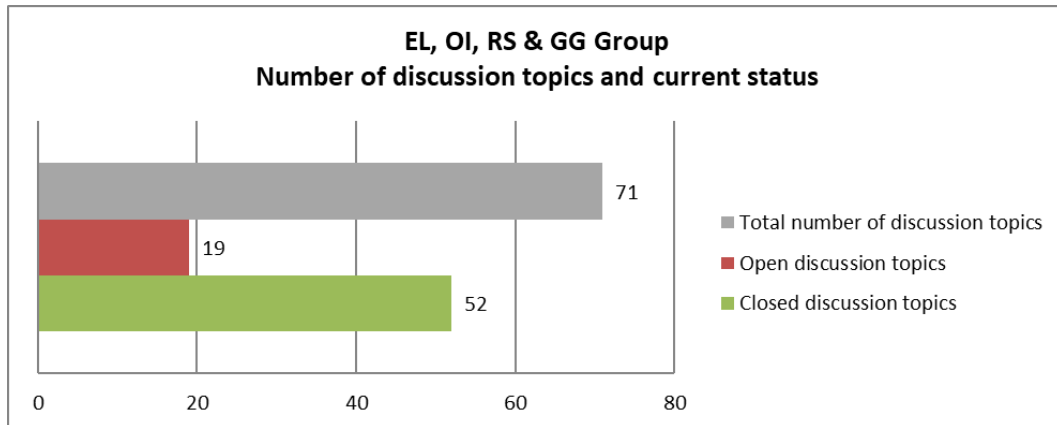
#### 2.1.3.2. Content

This section provides statistics about the discussion topics, pages, files uploaded and news posts currently available in the *Elevation, Orthoimagery, Reference systems & Geographical grids* forum platform.

### Discussion topics

At the end of December 2020, the *Elevation, Orthoimagery, Reference systems and Geographical grids* discussion group forum counts with a total of **71 discussion topics** (the forum had 65 discussion topics in mid-April 2020).

As shown in the graphic below, the current number of closed discussion topics is 52, which corresponds to a 73.2% of the topics.



Some of the discussions closed in this forum correspond to those which delivered proposals for changes and amendments of the data specifications – inputs for MIG-2016.4 subgroup.

- List of relevant Discussion topics in the period 2019 - 2020:

Discussion topic (Name & URL)	Total Number of Views	Total Number of Replies	Status
<a href="#">Which is the correct encoding of gml:sequenceRule axisOrder &amp; gml:axisLabels for GeoTIFF in EPSG 3035 delivered through WCS ?</a>	1077	17	Open
<a href="#">EL GridCoverage Model - CV_Grid:extent or CV_Grid:limits</a>	693	15	Open
<a href="#">Which is the meaning of the value of the swe:significantFigures element ?</a>	599	10	Open
<a href="#">Which are the issues on inspire compliance of EMODNET bathymetry CDIs?</a>	241	7	Open
<a href="#">Is it necessary to set up services for the Coordinate Reference Systems (RS) and the Geographical Grid Systems (GG) data themes?</a>	255	7	Closed
<a href="#">Which ISO 19115 metadata attribute should hold the CV_InterpolationMehod information?</a>	401	5	Closed
<a href="#">Availability of orthoimagery data in the inspire thematic viewer</a>	92	4	Open
<a href="#">Adopted WebMercator as possible CRS: Finally yes/no?</a>	67	4	Closed
<a href="#">Availability of elevation data in the inspire thematic viewer</a>	126	3	Open
<a href="#">Differences in data types for the beginLifespanVersion and endLifespanVersion attributes between OI and EL themes</a>	66	1	Open
<a href="#">The 'endLifespanVersion' Property has minimum cardinality equal to one in the Elevation schema</a>	69	1	Open
<a href="#">Maps in article &amp; supplement - Lacking information about CRS of EU maps</a>	48	1	Open
<a href="#">European national population grid data in 2011 from Eurostat based on the ETRS-LAEA Grid</a>	2	0	Open

- Example Discussion topics:

## INSPIRE Community Forum

Adopted WebMercator as possible CRS: finally yes/no?

Home Content Sections Discussion Groups Tags More Help
(0) (737) My Account

By Nathalie DELATTRE 107 days ago | 69 views Public Unsubscribe Edit Open

04.09.2020 Replies (4)

**Tags:**  
[TC-Elevation\\_Orthoimagery\\_Grids](#), [TC-RS](#), [TC-GG](#), [Projection](#), [Web-Mercator](#),  
[TC-Question](#)

To get notified about the news from the theme specific discussions click on the icon.

Dears, In 2018, the topic for adopting the WebMercator as possible CRS has been discussed at the MIG. Knowing that the proposed CRS (EPSG: 3857) is great for visualizing on computers but not reliable for data storage or analysis, since the transformation between the ellipsoid and the sphere used in Web Mercator is not unique2.. The proposed geographic grid is not equal area and is not fully conformal. The conclusion has remained unclear to me, in the way that it would not be forbidden and that it might be proposed to JRC to endorse the CRS. The conclusion was also to create a registry of all allowed CRS. (not found.). So what is your perception yes/no?  
 Nathalie Delattre

By Jordi ESCRUI 97 days ago | 14.09.2020 Edit X Like

Dear Nathalie,

Thank you very much for your question.

Do you have an approximate idea on the month it was discussed by MIG?

Otherwise I will check all the meeting minutes from 2018.

Jordi

search the site

Go

search within cluster

Go

**Elevation, Ortho & Grids**

INSPIRE Thematic Cluster Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems and Geographical

## INSPIRE Community Forum

Maps in article & supplement - lacking information about CRS of EU maps

Home Content Sections Discussion Groups Tags More Help
(0) (737) My Account

By Bianca WAGNER 97 days ago | 49 views Public Unsubscribe Edit Close

14.09.2020 Replies (1)

**Tags:**  
[TC-Elevation\\_Orthoimagery\\_Grids](#), [TC-EU-Dataset](#), [TC-Open-data](#), [TC-RS](#), [TC-Question](#)

To get notified about the news from the theme specific discussions click on the icon.

Dear members, there is a wide range of important maps at European scale that are published in scientific articles, deliverables or project reports (under CC licenses). In some cases, additional geospatial data (vector or raster files) are made available in repositories. Beside the disperse storage of these useful datasets, some of them are lacking necessary information about the spatial reference (scale, CRS and projection). Without further (and sometimes hard to get) details from the authors, it's becoming challenging to incorporate the data properly. Does someone have a clue, which the parameters of the Lambert conformal conic projection of the maps in Artemieva & Thybo (2013) might be? It's quite akin to EPSG 3034, but not similar:  
<https://www.sciencedirect.com/science/article/pii/S0040195113004952> Neither the map, the caption, the text nor the shape file provide any hints. Greetings, Bianca

By Jordi ESCRUI 97 days ago | 14.09.2020 Edit X Like

Dear Bianca,

Thank you very much for your post.

In fact, **there is a lot of information which would be really useful to be compared and combined with INSPIRE data sets, as background geospatial layers.**

search the site

Go

search within cluster

Go

**Elevation, Ortho & Grids**

INSPIRE Thematic Cluster Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems

### Content pages

Outcomes from the cluster are documented in static content pages in the *Elevation, Orthoimagery, Reference systems and Geographical grids* discussion group forum of the platform.

At the end of December 2020, the cluster has **9 top-level pages** used for structuring, providing access and classifying existing contents. Such contents are documented in **39 content pages** (mostly sub-pages) devoted to different resource types:

- a) Successful experiences in delivering pan-European products.
- b) Leading projects, at European and national level.
- c) Data transformation experiences and software tools applicable in the scope.
- d) Implementation recommendations and best practices.
- e) Overview and summary of the activities of the cluster.
- d) Proposals for MIG-2016.4 subgroup.
- e) Relevant and useful documentation (presentations, background reference materials, etc.).
- f) Summary of past forum events / activities.

At the end of 2019 page navigation was adapted to the new structure of the INSPIRE Community Forum, with a unique discussion group - in contrast to the 5 groups present in the old INSPIRE Thematic Clusters platform (4 thematic discussions groups corresponding to Elevation, Orthoimagery, Reference systems and Geographical grids, plus 1 common cross-cutting discussions group). This re-structuring work has allowed to improve access to content-pages of the forum, while reducing the number of top-level pages (giving access to the former ones and classifying the contents).

The current structure for navigating pages is shown in the figure below:



- Example Pages:

- [Session “INSPIRE Reference Data – Ready to take off?”](#)- INSPIRE 2020 Online Conference

## INSPIRE Community Forum

Session “INSPIRE Reference Data – Ready to take off?” - INSPIRE 2020 Online Conference

Home Content Sections Discussion Groups Tags More Help

(0) (737) My Account

[Create a sub-page](#)


Last updated 3 hours ago | 20.12.2020 by Jordi ESCRIU 8 views Public History Edit X

**Tags:**  
[TC-Elevation\\_Orthoimagery\\_Grids](#), [TC-Reference-data](#), [TC-INSPIRE](#), [TC-IKB](#), [TC-Dedicated-page](#), [TC-Implementation](#)

To get notified about the news from the theme specific discussions click on the icon.

As part of the activities organised in the INSPIRE 2020 Online Conference, celebrated from 3rd to 12th of June 2020, an special session devoted to the status of implementation of INSPIRE Reference Data took place during the event.

**Session “INSPIRE Reference Data – Ready to take off?” (10th June 2020)**



**INSPIRE Reference Data Ready to take off?**  
Jordi Escriu, Anja Hopfstock

This session was jointly organised by the the “Software & Tools”, the “Elevation, Orthoimagery, Reference systems & Geographical grids”, and the “Topographic, Cadastral and Reference data” groups of the INSPIRE Community Forum.

The **abstract of the session** (ID #192) is available here.

It was mainly intended to provide a brushstroke not only about the whole status of INSPIRE implementation in the scope of topographic and cadastral data themes, including Elevation and Orthoimagery from Annex II, but also an update about some of the most utilised applications for implementing INSPIRE.

A selection of both European data providers and software companies were engaged for this purpose in this activity.

**Presentations and video recording:**

The presentations and video recording are available in the web page of the conference at:  
<https://inspire.ec.europa.eu/conference2020/webinars/inspire-reference-data-%E2%80%93-ready-take>

**Elevation, Ortho & Grids**

INSPIRE Thematic Cluster  
Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems and Geographical grids themes

Group activity  
Group discussions  
Group files  
Group news  
Group pages

- [Workshop “INSPIRE Coverages, Demystified”](#) - INSPIRE 2020 Online Conference

## INSPIRE Community Forum

Workshop “INSPIRE Coverages, Demystified” - INSPIRE 2020 Online Conference

Home Content Sections Discussion Groups Tags More Help

(0) (737) My Account

[Create a sub-page](#)


Last updated 3 hours ago | 20.12.2020 by Jordi ESCRIU 10 views Public History Edit X

**Tags:**  
[TC-Elevation\\_Orthoimagery\\_Grids](#), [TC-Workshop](#), [TC-Raster](#), [TC-Coverage](#), [TC-Download-service](#), [TC-Data-interoperability](#), [TC-Service-interoperability](#), [TC-IKB](#), [TC-Dedicated-page](#), [TC-Encoding](#), [TC-EL](#), [TC-OI](#), [TC-LC](#)

To get notified about the news from the theme specific discussions click on the icon.

As part of the activities organised in the INSPIRE 2020 Online Conference, celebrated from 3rd to 12th of June 2020, a dedicated workshop on implementation of INSPIRE (raster) coverage data took place during the event.

**Workshop “INSPIRE Coverages, Demystified” (10th June 2020)**



**INSPIRE Coverages Demystified**  
Peter Swannons, Kathi Schmitt, Jordi Escriu

This session was jointly organised by the the “Software & Tools”, the “Elevation, Orthoimagery, Reference systems & Geographical grids”, and the “Observations & Measurements” groups of the INSPIRE Community Forum.

The **abstract of the session** (ID #85) is available here.

This activity was in fact the continuation of the activities to clarify and boost the interoperable provision of raster INSPIRE coverage data and services.

This event provided the community with an update on these activities, a hand-on session on INSPIRE coverages, and particularly informed the attendees about the status of the task for formally documenting a good practice candidate for its future evaluation by the INSPIRE MIG-T.

**Presentations and video recording:**

The presentations and video recording are available in the web page of the conference at:  
<https://inspire.ec.europa.eu/conference2020/webinars/inspire-coverages-demystified&nbsp;>

**Elevation, Ortho & Grids**

INSPIRE Thematic Cluster  
Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems and Geographical grids themes

Group activity  
Group discussions  
Group files  
Group news  
Group pages



- [Workshop “Feel the power of INSPIRE WCS / WCPS in your hands”](#) – Helsinki 2019

Last updated 13 days ago | 03.11.2019 by Jordi ESCRIU 48 views Public History Edit ✕ 👍

Comments (2)

**Tags:**


TC-Elevation\_Orthoimagery\_Grids, TC-EL, TC-OI, TC-LC, TC-Coverage, TC-WCS, TC-WCPS, TC-Network-services, TC-Good-practice, TC-Schema

To get notified about the news from the theme specific discussions click on the icon.

**Workshop “Feel the power of INSPIRE WCS / WCPS in your hands”**

**Web page of the event:**

INSPIRE Helsinki 2019:  
<https://workshops.inspire-helsinki-2019.fi/workshop5>  
 Wednesday 23<sup>rd</sup> October 2017, 15:30 – 17:00 CEST.  
*Where:*  
[Epicenter](#) venue - Mikonkatu 9, Helsinki.



search within cluster Go

---

**Elevation, Ortho & Grids**

INSPIRE Thematic Cluster  
 Elevation, Orthoimagery,  
 Reference systems,  
 Geographical grids - Join  
 this group to share your  
 knowledge, learn and  
 collaborate in solving  
 issues related to the  
 Elevation, Orthoimagery,  
 Reference systems and  
 Geographical grids  
 themes

---

Group activity

Group discussions

Group files

- [EMODnet Bathymetry community](#)


Last updated 8 days ago | 08.11.2019 by Jordi ESCRIU 31 views Public History Edit ✕ 👍

**Tags:**

TC-Elevation\_Orthoimagery\_Grids, TC-EL, TC-EU-project, TC-Dedicated-page, EMODnet-bathymetry, TC-EMODNET

To get notified about the news from the theme specific discussions click on the icon.

**EMODnet Bathymetry**



**Title (Project name):** EMODnet Bathymetry

**Owner:** EMODnet (European Marine Observation and Data Network).

**Geographical scope:** European sea regions and coastal areas.

**Abstract:**

The EMODnet Bathymetry portal is the result of a European long-effort project which started in June 2009 with the aim of providing interoperable access to European bathymetry data sets. It is operated and further developed by a European partnership. This comprises members of the SeaDataNet consortium together with organisations from marine science, the hydrographic survey community, and industry. The partners combine expertise and experiences of collecting, processing, and managing of bathymetric data together with expertise in distributed data infrastructure development and operation and providing OGC services (WMS, WFS, and WCS) for viewing and distribution.

[SeaDataNet](#) is a leading infrastructure in Europe for marine & ocean data management, initiated and managed by the National Oceanographic Data Centres (NODCs). It is actively operating and further developing a Pan-European infrastructure for managing, indexing and providing access to ocean and marine data sets and data products, acquired via research cruises and other in-situ observational activities. The basis of SeaDataNet is interconnecting Data Centres into a distributed network of

search within cluster Go

---

**Elevation, Ortho & Grids**

INSPIRE Thematic Cluster  
 Elevation, Orthoimagery,  
 Reference systems,  
 Geographical grids - Join  
 this group to share your  
 knowledge, learn and  
 collaborate in solving  
 issues related to the  
 Elevation, Orthoimagery,  
 Reference systems and  
 Geographical grids  
 themes

---

Group activity

Group discussions

Group files

Group news

Group pages

This key community has been contacted since 2018, but started to get reached from 2019, and increasingly in 2020 (see “*Overview of facilitator’s work*” at the beginning of Section 2.1.3).



- [MIG-2016.4 Change Proposals](#)

Last updated just now | 16.11.2019 by Jordi ESCRIU 1660 views Public History Edit X Like

Tags: TC-EL TC-OI TC-RS TC-GG TC-MIG-2016.4 TC-Change-request TC-Dedicated-page

To get notified about the news from the theme specific discussions click on the icon.

### MIG-2016.4 - Change proposals for MIG-T

This page includes links to pages which document the proposals agreed within the Cluster for the resolution of the specific issues identified and discussed in this group group.

They constitute the result of the discussions closed, after arriving to a consensed and mature proposal.

These proposals were presented to the MIG-2016.4 subgroup for further discussion and potential endorsement.

#### Change proposals applicable to Elevation

Clarify structure of coverage encoding-related sections in TGs

Move guidelines on recommended MD elements "Process step" and "Data source" to common section about "Lineage"

Provide an ElevationGridCoverage encoding example and guidelines for identifying the Vertical CRS

#### Change proposals applicable to Orthoimagery

Clarify structure of coverage encoding-related sections in TGs

Move guidelines on recommended MD elements "Process step" and "Data source" to common section about "Lineage"

Correction of inconsistencies/errors found in the INSPIRE TGs on OI

#### Change proposals applicable to Reference systems

Clarification of the Transverse Mercator projections allowed in INSPIRE

**Elevation, Ortho & Grids**  
INSPIRE Thematic Cluster  
Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems and Geographical grids themes

Group activity  
Group discussions  
Group files  
Group news  
Group pages

Navigation  
Benefits of INSPIRE  
Cluster Presentations & Activities

During 2020 the new change proposals have been mainly conveyed through the new INSPIRE good practice candidate on INSPIRE coverage data and services (See more details in section 2.4), fully applicable to the implementation of INSPIRE Elevation and Orthoimagery.

### Files uploaded

Apart from linking external resources available on the Internet, the platform has the possibility to upload files to both, discussion topics and content pages.

At the end of December 2020, the *Elevation, Orthoimagery, Reference systems and Geographical grids* forum counts with a total of **88 files uploaded to the platform**.

Files are not often uploaded to the platform. Most materials have been linked to other platforms or sites.

## News items

News for the promotion of activities of the forum and related to the thematic areas in the scope has been published to a total of **52 news posts**.

- Example News Posts:
  - [Presentations, video & results from the session "INSPIRE Reference Data – Ready for take off?"](#)

**INSPIRE Community Forum**  
Presentations, video & results from the session "INSPIRE Reference Data – Ready for take off?"

Home Content Sections Discussion Groups Tags More Help (0) (737) My Account

**News** By Jordi ESCRIU 3 hours ago | 20.12.2020 3 views Public Edit X Like

**Tags:**  
TC-Elevation\_Orthoimagery\_Grids, TC-Reference-data, TC-INSPIRE, TC-IKB, TC-Dedicated-page, TC-Implementation

To get notified about the news from the theme specific discussions click on the icon.

The presentations, video recording and results from the special session "INSPIRE Reference Data – Ready for take off?", organised in the INSPIRE 2020 Online Conference on 10th June 2020, are already available in the following dedicated page:

<https://inspire.ec.europa.eu/forum/pages/view/270417/session-%E2%80%9Cinspire-reference-data-%E2%80%93-ready-to-take-off%E2%80%9D-inspire-2020-online-conference>

**Elevation, Ortho & Grids**  
INSPIRE Thematic Cluster  
Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems and Geographical grids themes

Group activity  
Group discussions

- [Presentations, video & results from the workshop "INSPIRE Coverages, Demystified"](#)

**INSPIRE Community Forum**  
Presentations, video & results from the workshop "INSPIRE Coverages, Demystified"

Home Content Sections Discussion Groups Tags More Help (0) (737) My Account

**News** By Jordi ESCRIU 3 hours ago | 20.12.2020 2 views Public Edit X Like

**Tags:**  
TC-Elevation\_Orthoimagery\_Grids, TC-Workshop, TC-Raster, TC-Coverage, TC-Download-service, TC-Data-interoperability, TC-Service-interoperability, TC-IKB, TC-Encoding, TC-EL, TC-OI, TC-LC

To get notified about the news from the theme specific discussions click on the icon.

The presentations, video recording and discussion paper on INSPIRE coverage data resulting from the workshop "INSPIRE Coverages, Demystified", organised in the INSPIRE 2020 Online Conference on 10th June 2020, are already available in the following dedicated page:

<https://inspire.ec.europa.eu/forum/pages/view/270426/workshop-%E2%80%9Cinspire-coverages-demystified%E2%80%9D-inspire-2020-online-conference>

**Elevation, Ortho & Grids**  
INSPIRE Thematic Cluster  
Elevation, Orthoimagery, Reference systems, Geographical grids - Join this group to share your knowledge, learn and collaborate in solving issues related to the Elevation, Orthoimagery, Reference systems and Geographical grids themes

Group activity  
Group discussions

- [INSPIRE Coverages Demo Service - https://inspire-wcs.eu](https://inspire-wcs.eu)

News By Jordi ESCRIU 256 days ago | 16.04.2020 64 views Public Edit X Like

Tags: TC-SW\_Tools\_Services, TC-EL, TC-OI, TC-LC, TC-Coverage, TC-WCS, TC-WCPS, TC-Network-services, TC-Good-practice, TC-Schema

To get notified about the news from the theme specific discussions click on the icon.

Dear All,

A coverage service for various (raster data) INSPIRE themes has been setup as a result of the related activities performed in the scope of the INSPIRE Community Forum (Thematic Clusters) during the last years, particularly based on the results from the Workshop "Feel the power of INSPIRE WCS / WCPS in your hands" organised in the INSPIRE Helsinki 2019 Technical Conference:

<https://inspire-wcs.eu/>

The demo service allows the user to play with different service requests to get INSPIRE coverage data and metadata, analyse and combine different data layers (cross-theme fusion), download and present the final results.

- [DTM and DSM data from Lidar being considered within the draft list of High Value Datasets of the Open Data Directive](#)

News By Jordi ESCRIU 2 days ago | 16.04.2020 7 views Public Edit X Like

Tags: TC-Elevation\_Orthoimagery\_Grids, TC-EL, TC-Open-data, DTM, DSM, DEM, HVDs

To get notified about the news from the theme specific discussions click on the icon.

Just to inform the members that **DTM and DSM data from Lidar are being considered within the draft list of High Value Datasets (HVDs) being developed in the scope of the Directive on open data and the re-use of public sector information, also known as the Open Data Directive (Directive (EU) 2019/1024).**

The European Commission is tasked to adopt an implementing act specifying High-Value Datasets that organisations in the scope of the Directive will have to make available free of charge, in machine-readable format and via APIs, and, where relevant, as a bulk download.

The HVDs list includes the following categories of datasets according, as referred to in Article 13(1) of the Directive:

1. Geospatial.
2. Earth observation and environment.
3. Meteorological.

- [Request for comments on UNGGIM "Core Data Spatial theme Elevation - Recommendations for content" &](#)

- [Request for comments on UNGGIM "Core Data Spatial theme Orthoimagery - Recommendations for content"](#)

News By Jordi ESCRIU 81 days ago | 18.08.2019 44 views Public Edit X Like

Tags: TC-Elevation\_Orthoimagery\_Grids, TC-EL, TC-EuroGeographics, TC-EU project, UN GGM, UN GGM Core Data

To get notified about the news from the theme specific discussions click on the icon.

The UN GGM Europe Working Group on Core Data has published the first draft of the deliverable "Core Data Spatial theme 'Elevation' Recommendations for content" that is based on user requirements and on the corresponding INSPIRE Technical Guidelines on Elevation theme (data specification).

This UN GGM document is now open for review by the geo-statistical community until 1st November 2019.

The Working Group on Core Data also proposes the members of the INSPIRE Thematic Clusters to contribute to this review.

Feedback is especially welcome on the following potential issues in the draft:

- Any aspects that are not clear enough.
- Any items that may be irrelevant.
- Any topics which may be missing.

If you are good willing to review this deliverable, please do not hesitate to edit your comments by using the template prepared for this purpose and send them to [dominique.baumann@ephr.org](mailto:dominique.baumann@ephr.org) before 1st November 2019.

Both the draft deliverable and the template for comments should be available soon on the UN GGM Europe website <https://un-ggm.europa.org/working-groups/working-group-core-data/> tab "Core spatial data themes - Recommendations for content". Both also available through the direct links below:

Draft deliverable "Core Data Spatial theme 'Elevation' Recommendations for content"  
Comments template

All comments will get an answer. These answers will be sent to the review contributors.

Thank you in advance for your interest for the UN-GGM Europe core data deliverables.

News By Jordi ESCRIU 188 days ago | 21.05.2019 172 views Public Edit X Like

Tags: TC-Elevation\_Orthoimagery\_Grids, TC-EL, TC-EU project, TC-EuroGeographics, UN GGM, UN GGM Core Data

To get notified about the news from the theme specific discussions click on the icon.

The UN GGM Europe Working Group on Core Data has published the first draft of the deliverable "Core Data Spatial theme 'Orthoimagery' Recommendations for content" that is based on user requirements and on the corresponding INSPIRE Technical Guidelines on Orthoimagery theme (data specification).

This UN GGM document is now open for review by the geo-statistical community until 30th June 2019.

The Working Group on Core Data also proposes the members of the INSPIRE Thematic Clusters to contribute to this review.

Feedback is especially welcome on the following potential issues in the draft:

- Any aspects that are not clear enough.
- Any items that may be irrelevant.
- Any topics which may be missing.

If you are good willing to review this deliverable, please do not hesitate to edit your comments by using the template prepared for this purpose and send them to [dominique.baumann@ephr.org](mailto:dominique.baumann@ephr.org) before 30th June 2019.

Both the draft deliverable and the template for comments are available on the UN GGM Europe website <https://un-ggm.europa.org/working-groups/working-group-core-data/> tab "Core spatial data themes - Recommendations for content". Both also available through the direct links below:

- [Draft Deliverable "Core Data Spatial theme 'Orthoimagery' Recommendations for content"](#)
- [Comments template](#)

All comments will get an answer. These answers will be sent to the review contributors.

Thank you in advance for your interest for the UN-GGM Europe core data deliverables.





- Appropriate metadata schemas for providing the data identified as INSPIRE extensions on top of the standard OGC CIS v1.0 coverage data, in conformance to the INSPIRE Directive.
- Examples of INSPIRE compliant coverage metadata files for the themes referred above.
- Examples WCS and WCPS services based on the schemas and metadata examples previously mentioned.

During the practical exercise, the resources stated above were imported / used in the rasdaman engine in order to perform geospatial raster data, analysing and combining different data layers in order to obtain new results with the help of the WCPS processing service.



In summary, the practical exercise proposed as the central task of this workshop will allow the audience to experience the potential of these technologies and fully-understand the main benefits of integrating them within their daily geospatial businesses and analytical tasks.

All these outcomes have been published in a dedicated page in the Forum ([“An effective good practice to boost interoperable provision of \(raster\) INSPIRE Coverage data and services”](#) – see details in Section 2.1.2.2) and also in a separate website which offers the visitor the possibility to preproduce the practical exercise and examples delivered in the Helsinki 2019 workshop (website [“INSPIRE Coverages demystified”](#)).

The second main activity during the Helsinki event was the participation in the [Launch of the INSPIRE Community Forum platform](#), which took place on 23<sup>rd</sup> October, during the session from 13:30 to 15:00 hours. The facilitator participated in this session to show the new look and feel of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems and Geographical grids* forums, inviting the attendance to contribute to them and get involved in this activity.

Networking was additionally part of the tasks which were performed by the facilitator during the whole event, trying to engage relevant contacts which may deliver active participation and outcomes to the INSPIRE Community Forum.

Finally, the conference was also a nice opportunity to attend to technical workshops about relevant upcoming standards and software tools relevant to INSPIRE implementation, highlighting the [INSPIRE, WFS3 and HALE Support in GeoServer: where are we?](#) and the [OGC API-Features: setting up enhanced usability for existing WFS services](#) workshops, which took place on 23<sup>rd</sup> October 2019 morning.

### 2.3. Facilitator’s activity in the INSPIRE 2020 Online Conference

One of the central tasks during 2020 had been the organisation of the Forum activities for the INSPIRE Conference 2020, that should have taken place in Dubrovnik at the end of May.

However, as it is the cases of practically all European activities foreseen this year, this crucial event for the INSPIRE community was finally cancelled due to the coronavirus pandemic crisis. Fortunately, the conference for 2020 was finally celebrated online from 3<sup>rd</sup> to 12<sup>th</sup> of June 2020 – See <https://inspire.ec.europa.eu/conference2020>.

The following activities were organised and prepared by the facilitation of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems & Geographical grids* discussion group forums in the context of this online conference:

- Session “**INSPIRE Reference Data – Ready to take off?**”.

The abstract of the session (ID #192) is available here:

<https://indico.unidu.hr/event/2/contributions/61/contribution.pdf>

This session was jointly organised with the Topographic, Cadastral and Reference data group of the INSPIRE Community Forum.



It was mainly intended to provide a brushstroke not only about the whole status of INSPIRE implementation in the scope of topographic and cadastral data themes, including Elevation and Orthoimagery from Annex II, but also an update about some of the most utilised applications for implementing INSPIRE.

A selection of both European data providers and software companies has been engaged for this purpose in this activity.

The presentations and video recording are available in the web page of the conference at:

<https://inspire.ec.europa.eu/conference2020/webinars/inspire-reference-data-%E2%80%93-ready-take>

- Brainstorming “**Challenges in INSPIRE Reference data readiness across Europe**”.

This was initially foreseen as a presentation (ID #191) in the session above, but it was finally driven as a brainstorming activity included in the session mentioned above - The abstract is available here:

<https://indico.unidu.hr/event/2/contributions/201/contribution.pdf>

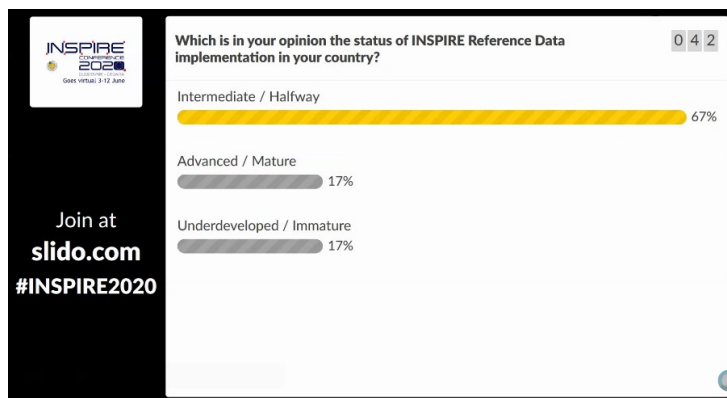
This brainstorming session was dedicated to showcasing relevant success stories in INSPIRE Reference Data implementation and though about the state-of-the-art on the



implementation of INSPIRE Reference Data across Europe. A Slido poll was carried out, counting with an audience of 32 participants from 14 countries.

Nice discussion took place - The results are summarised below:

- A 67% of attendees highlighted that status of INSPIRE Reference Data is in an intermediate or halfway stage, whereas a 16% of them considered that it is advanced or mature. Finally, only a 16% reported an underdeveloped or immature status.
- Implementers are willing to face how the evolution of INSPIRE may help them in successfully delivering the data (e.g. alternative encodings, OGC Open API, clear use-cases and GO-PEG results, the Green Deal, linking to other reporting obligations).
- 9 items were reported as relevant network services, applications or good practices.



Participants in the session additionally thought and voted about the main obstacles in the provision of INSPIRE Reference Data, delivering these results:

- 55% - Organisational issues in managing INSPIRE implementation in their countries.
- 55% - Scarce resources devoted to this purpose.
- 45% - Gaps in, complexity of and/or unclear INSPIRE requirements.
- 43% - Distant interests/use cases between the EU level and the national level.
- 33% - Legal or political gaps and/or issues for sharing the data.
- 31% - Absence of digital and/or technical capacities. Need for training and social evolution.
- 5% - Lack of specific data in their countries.
- 12% - Other.
- 2% - None gaps. Life is perfect!

Attendees also brought up ideas on the role INSPIRE can take to support and overcome the issues and gaps above:

- Improving partnership and the sharing of expertise and best practices, targeting to common solutions and implementations used by different stakeholders. A platform to interact would help.
- The EC/JRC should give a concrete and qualitative feedback to the data-sharing-organisation. Implementation should be promoted through the different communities (e.g. synergies with Open Street Maps).
- Advance in the simplification of existing requirements (e.g. data-service linking, flattening GML data, alternative encodings to GML, adopt OGC Open API).

- Need for semantic interoperability and a common understanding and interpretation of the data specifications.
- Use less ad-hoc solutions and custom solutions, use more ready-to-use solutions and processes that enable a stable infrastructure.
- Increase the links to other reporting obligations, clearly sharing common data goals.
- The Green Deal objectives might help to tackle remaining obstacles for data provision.
- Empower the use of INSPIRE data at the European level.
- Devote more resources, also in terms of awareness.
- Other technical-related hints:
  - \* Linked (Open) Data may help overcoming organisational gaps.
  - \* Considering INSPIRE extensions and related vocabularies.

The whole results from the Slido poll are available at:

<https://inspire.ec.europa.eu/forum/file/view/266612/results-from-the-poll-on-status-of-inspire-reference-data-implementation>

- Workshop “**INSPIRE Coverages, Demystified**”.

It was accepted as a workshop session - The abstract (ID #85) is available here:

<https://indico.unidu.hr/event/2/contributions/34/contribution.pdf>

This activity was in fact the continuation of the activities to clarify and boost the interoperable provision of raster INSPIRE coverage data and services (See sections 2.1.2 and 2.1.3).



This event provided the community with an update on these activities, a hand-on session on INSPIRE coverages, and particularly informed the attendees about the status of the task for formally documenting a good practice candidate for its future evaluation by the INSPIRE MIG-T.

The presentations and video recording are available in the web page of the conference at:

<https://inspire.ec.europa.eu/conference2020/webinars/inspire-coverages-demystified>

A part of the workshop, a “good practice discussion document” was presented to the audience, available at:

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 55 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

<https://inspire.ec.europa.eu/forum/file/view/266799/discussion-document-good-practice-for-providing-raster-inspire-coverage-data-and-services>

The document was used as starting point for the documentation of the good practice and spread the word across MIG-T. It was presented to this group during its [62<sup>nd</sup> meeting](#), on 2<sup>nd</sup> July 2020.

This work has finally resulted in the formal presentation of a ‘candidate INSPIRE Good Practice’, which was formally endorsed by MIG-T in its [63<sup>rd</sup> meeting](#), on 13<sup>th</sup> October 2020 – See section 2.4 for more details.

- Attendance to other sessions of the INSPIRE 2020 Online Conference

The facilitator of the Software & Tools and the Elevation, Orthoimagery, Reference systems & Geographical grids discussion group forums also attended other sessions of the virtual conference, in order to get up to date on the new initiatives, projects and hot topics related to INSPIRE implementation (e.g. the European Green Deal, GreenData4All, API4INSPIRE, GO-PEG, etc.).

## 2.4. Presentation of INSPIRE Good Practice Candidates at the 63<sup>rd</sup> MIG-T Meeting

During the [63<sup>rd</sup> INSPIRE MIG-T meeting](#) celebrated on 13<sup>th</sup>-14<sup>th</sup> October 2020, four good practices proposals from Member States were presented as ‘INSPIRE Good Practice candidates’.

All of them were pointed to be further analysed in the short term by this technical group, process aimed at its potential endorsement. Find below an overview of the proposals presented in the meeting:

- [Building one access point to dispersed data sources](#) –  
Proposal to create a proxy service for integrating local services providing data for a common dataset.
- [Making spatial data downloadable via WMS services](#) –  
Proposal to use view services as an easy alternative to download INSPIRE datasets by providing metadata and downloading URL (via ‘GetFeatureInfo’).
- [Coverage data and service implementation](#) –  
An OGC compliant standardized way to implement INSPIRE WCS services, fully detailed in Section 2.3 of this report, resulting from the Workshop “*INSPIRE Coverages, Demystified*”.  
This proposal was leaded and presented by the facilitator of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems and Geographical grids* forums.
- [SensorThings API as INSPIRE Download services](#) –  
Proposal to use the OGC Sensor Things API as an alternative way for providing sensor observation data in the INSPIRE context.

Further details and presentations about these good practice candidates may be found in the minutes of the MIG-T meeting. All proposals were endorsed as candidate good practices by the MIG-T, subject to the comments received by the end of October 2020 and the need to follow the steps in the [procedure currently established for formalising them as INSPIRE good practices](#).

This procedure reinforces the crucial role of the MIG-T group in managing and revising in a regular basis the INSPIRE framework, while the social and technical context continuously evolves. Such a process includes the analysis of technical-based and relevant proposals coming

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 56 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

from Member States, based on interoperable standards, which has proven both, their benefit and evidence of successful implementation by communities.

With this objective in mind, an ELISE Webinar was held on 19th November presenting details of the OGC SensorThings API Good Practice, an alternative way for providing sensor observation data for INSPIRE, which constituted the outreach webinar for this candidate. As a result, it has been formally endorsed as an INSPIRE good practice:

<https://inspire.ec.europa.eu/good-practice/ogc-sensorthings-api-inspire-download-service>

Additionally, by the first quarter of 2021 it is foreseen the celebration of the outreach webinar corresponding to the coverage data and service implementation good practice, in order to get from MIG its final endorsement as INSPIRE good practice.

## 2.5. INSPIRE Community Forum Webinar

A webinar dedicated to the INSPIRE Community Forum, formerly known as INSPIRE Thematic Clusters, was organised on 11<sup>th</sup> December 2020 by the INSPIRE Community Forum facilitators, with the contribution of European Commission DG. Environment and DG. Joint Research Centre.



<https://inspire.ec.europa.eu/icfwebinar>

The activity was proposed to evaluate the forum after six years of sharing knowledge, INSPIRE implementation experiences, good practices and use cases within thematic communities, with the final objective view of paving the way to its future evolution.

The online event was devoted to show recent developments in INSPIRE implementation by thematic communities, which helped in assessing the overall positive results of the INSPIRE Community Forum activity as a way of supporting Member States in the INSPIRE implementation path, improve it, and revise its future evolution.

Attendees had the opportunity to find out about major achievements in INSPIRE implementation across Europe, discover key example data services to orientate Member States interoperability strategy and have their say on what is next for paving the way to INSPIRE success.

Good practices, use cases and live demos were presented during the webinar - The agenda, presentations and video recordings from the event are available in the [web page dedicated to this event in the INSPIRE website](#).

The facilitator of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems and Geographical grids* forums contributed to the event with:

- Participation in preparing the general introductory presentation (“[The INSPIRE Community Forum activity in a nutshell: goals and achievements](#)”).
- Giving the presentation “[Good practice examples based on the OGC compliant INSPIRE Coverage data and service implementation](#)”.
- Drafting a proposal for the future of the INSPIRE Community Forum (See more details in Section 2.1.1 and Chapter 3).

INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 57 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

## 2.6. Forum activities planned in the short term

The following activities in the scope of this report are currently scheduled in the short term:

- **Outreach online Webinar on the “OGC compliant INSPIRE Coverage data and service implementation” INSPIRE good practice candidate.**

This activity is foreseen by the first quarter of 2021, in order to get from MIG the final endorsement of this candidate proposal as “INSPIRE good practice”.

If this objective is achieved, many of the discussion topics about encoding and implementation issues on INSPIRE coverages posted in the INSPIRE Community Forum may reach to a solution.

The event will be co-organised and delivered by the facilitator of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems & Geographical grids* group forums, Peter Baumann (Jacobs University / rasdaman GmbH - Bremen) and Kathi Schleidt (Data Cove E.U.).

The final date of the event will be properly announced through the INSPIRE communication channels, with time in advance.



### 3. FACILITATOR’S SUGGESTIONS FOR IMPROVEMENTS

This chapter enumerates the proposals prepared by the facilitator of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems & Geographical grids* group forums in the period covered in this report, for improving in overall the INSPIRE Community Forum platform:

- Improve the achievement of objectives of the forum.
- Increasing its activity through reaching new and appropriate users.
- Evolve the way the forum may help Member States in the implementation of INSPIRE.

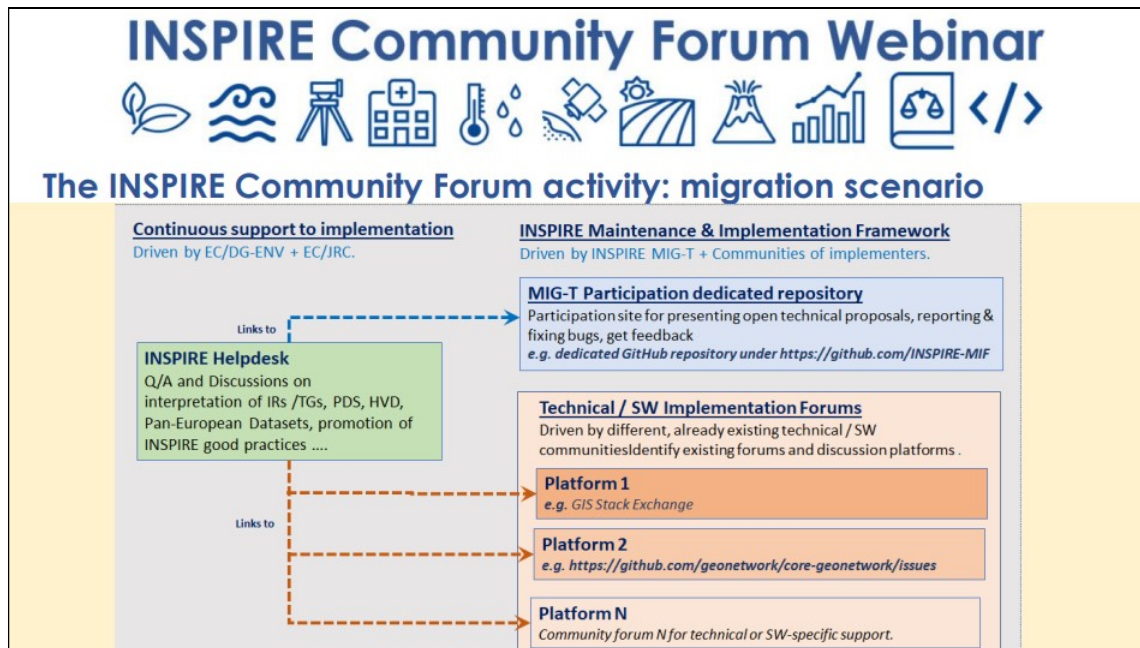
They may be taken into consideration in an eventual continuation of the INSPIRE Community Forum activity and its future evolution.

#### 3.1. Recommendations for the whole platform

The suggestions for improvement made by the facilitator of the *Software & Tools* and the *Elevation, Orthoimagery, Reference systems & Geographical grids* forums were already presented in the regular follow-up meeting of the INSPIRE Community Forum celebrated on 27<sup>th</sup> October 2020 - See Section 2.1.1 for more details.

The proposal, which was prepared in joint collaboration with the facilitator of the “*INSPIRE & Environmental Policy*” forum, was discussed with the rest of Facilitator, MIG-T Liaisons, and the Joint Research Centre during the above-mentioned meeting, being further improved in subsequent follow-up meetings. As the end, it resulted in an agreed proposal for the future of the INSPIRE Community Forum.

The final proposal was announced as part of the introductory presentation of the INSPIRE Community Forum Webinar which took place on 11<sup>th</sup> December 2020, already described in Section 2.5.



INSPIRE Community Forum on <i>Software &amp; Tools and Elevation, Orthoimagery, Reference systems and Geographical grids</i>	p. 59 of 59
Report Phase 1 – 2020 (Deliverable – D3)	2020-12-29

### 3.2. Recommendations for content generation

Given the proposal introduced in Section 3.1 to migrate the INSPIRE Community Forum to a new INSPIRE Helpdesk platform, a limited number open discussions topics have been selected to become part of the starting content to be published in the new environment.

This content corresponds to the following discussion threads from the *Software & Tools* forum:

- [Migration of INSPIRE schemas from HTTP to HTTPS](#)
- [Series and dataset linking and INSPIRE Geoportal](#)
- [Can GeoPackages be used for INSPIRE?](#)

The facilitator of the *Software & Tools* forum will help in transferring the content state above from the current INSPIRE Community Forum to the new environment selected for implementing the INSPIRE Helpdesk.