

## Data interoperability in action

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In the rapidly evolving data policy landscape, the data interoperability principles set by the [INSPIRE Directive 2007/2/EC](#) [1] represent a solid basis for organisations of different nature and size aiming to create value from spatial data, as shown in the two examples of European projects described below.

GO-PEG - Generation of cross border Pan European Geospatial Datasets and Services [2], co-funded by the Connecting Europe Facility (CEF) of the European Commission [3], has the main goal to provide access via OGC APIs to harmonised thematic open datasets in the environment, emergency and disaster management areas.

The project explores the possibility of using the INSPIRE infrastructure for the purpose of creating pan-European datasets and applications, focusing on priority datasets and integrating with non-INSPIRE data sources.

Several use cases, co-designed by the project partners together with public stakeholders playing the role of data providers and/or data users, are in line with the evolution of environmental data sharing in Europe, pushed by the European Strategy for data [4] (and the envisaged creation of a European single market for data) and by the requirements of the Open Data Directive [5] on availability of High Value Datasets (free of charge / under open licenses, in machine readable formats, via APIs / bulk download). In particular, the geoCOVID Watch use case shows how, building on the outcomes of the API4INSPIRE project and the OGC SensorThings API INSPIRE Good Practice [6], it is possible to contribute to an improved understanding of the different phases of the pandemic and its impacts - e.g. linking the COVID-19 numbers to underlying methodologies. Through the use of STA (SensorThings APIs) [7], in fact, statistical metrics can be clearly documented, transparently exposed, and directly linked to the data.

The “go-depth” use case, developed in cooperation with ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale), aims to provide a methodology and a model to conceptualize, organize and deliver easy-to-use, high-quality, interoperable subsurface information for sustainable planning and use of natural resources. In view of data interoperability, the data model has been developed as extension of the INSPIRE Geology data model [8]. The dataset is served through APIs conforming to the OGC API - Feature standard [9] and is downloadable also in GeoPackage format, in this anticipating the application of the principles established by the Open Data Directive (Directive (EU) 2019/1024) regarding the sharing of the High Value Datasets.

In the framework of the CORDA (Copernicus Reference Data Access) project of the European Environment Agency [10], the INSPIRE infrastructure (metadata, data and services) is being re-used to create Hydrography (HY) and Buildings (BU) pan-

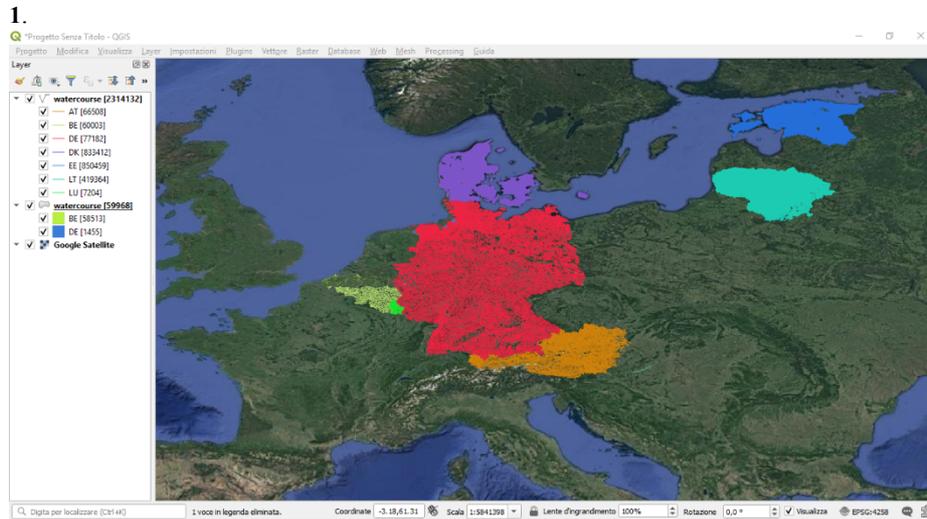
European datasets as reference data for Copernicus and in particular CEMS (Copernicus Emergency Management Service) users.

Below the main steps of the process:

1. Definition of 'simplified' data models, customising INSPIRE HY and BU for the specific CEMS user requirements i.e. taking into consideration a sub-set of the attributes of the relevant INSPIRE core data models (hydro physical waters and building 2D).
2. Analysis of the resources discoverable in the INSPIRE Geoportal to identify 'candidate' datasets i.e. data eligible to be components of the pan European datasets. To this end, a set of specific criteria is being used: national or geographical coverage, dataset content in-scope with the CORDA purposes, presence of the required attributes and availability of download services.
3. Ingestion of selected datasets in a PostGIS database via ETL processes (same ETL for all the INSPIRE conformant datasets and custom ETLs for non conformant to INSPIRE - but at least semantically equivalent - datasets).
4. Setup of pre-defined dataset download services allowing access to the data in different formats and encodings - e.g. DB dumps, shapefiles, GeoPackage files - and direct access download services (WFS).
5. Creation of the metadata for the datasets and the services and publication of these metadata in the CORDA catalogue.
6. Procedures to monitor the availability of new/updated national/regional datasets to be added/replaced in the pan-European datasets.

It is evident how much the overall process above described can become more efficient when the full implementation of INSPIRE by all Member States will take place.

The current production status of the Watercourse multi-country dataset is shown in **Fig. 1**.



**Fig. 1.** CORDA Watercourse multi-country dataset.

## Riferimenti bibliografici

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